



Department of Forestry

Self-Study Report

2015-2016 Program Review

Degree Programs under Review

Bachelor's Degree in Forestry
Master's Degree in Forestry

Name of Accreditation Agency

Society of American Foresters
Accredited Program – Bachelor of Science in Forestry
Last site visit 2010
Accredited through 2020

Submitted to:

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Executive Summary

Self-Study Process

The self-study process for the University of Kentucky Department of Forestry (UK Forestry) was collaborative process among faculty and staff in the department. Members of the UK Forestry Undergraduate Program Committee, Graduate Program Committee, Research Committee, and Extension Committees met to discuss the objectives for the Instruction, Research, and Extension mission areas. Input from these committees was also used to provide data and analysis for the Self-Study Report. A final draft of the report was distributed to faculty and professional staff for additional input and review. The final draft report was discussed at length during the UK Forestry faculty and staff meeting on October 7, 2015.

Review Committee Member Names and Affiliations

Dr. Richard Coffey, Chair	UK, Dept. of Animal and Food Sciences, Chair
Dr. James Allen	Northern Arizona Univ., Exec. Director, School of Forestry
Dr. Keith Belli	Univ. of Tennessee Chair Dept. of Forestry, Wildlife & Fisheries
Dr. Carmen Agouridis	UK, Dept. of Biosystems and Agricultural Engineering
Dr. John Lhotka	UK, Department of Forestry
Billy Thomas	UK, Department of Forestry Extension

Overview of Progress Since Last Self-Study

UK Forestry completed its last program review in 2010. Since that time, annual Implementation Plan reports have been submitted tracking progress toward departmental goals and objectives. UK Forestry has successfully accomplished some of the recommendations presented during the previous program review. For example, beginning in 2013, the department organized and held its first advisory group meeting among a group of primary stakeholders, collaborators, and partners. Through this venue, we are successfully receiving input into our undergraduate teaching curriculum, Forestry Extension educational programming, and our research effectiveness. In addition, using feedback from our previous program review as well as input from our alumni, UK Forestry has successfully engaged its alumni through departmental picnics, newsletters, development efforts, and scholarship opportunities. Other issues raised by the previous program review remain to be addressed. One of the most serious of these is the deplorable state of our facilities for conducting research, teaching classes, and housing faculty, staff, and students. Though we have not improved our facilities, we have moved forward with planning for a new building to house UK Forestry and related programs, and this is currently a priority for the College of Agriculture, Food and Environment (CAFE). It should be noted that the current Implementation Plan expired this year; UK Forestry will begin using the goals set forth in this document, as well as the observations made by the program review committee, for annual reporting over the next five years.

Major Recommendations and Areas of Concern

In addition to the major points raised, and annually reported (Appendix 1-A), from the previous program review, UK Forestry has striven to make improvements in several additional areas based on recommendations from the previous review committee. We are currently developing an application to establish a Ph.D. program within the department. The department has also effectively increased development efforts and success (both internal and external scholarships) since 2010. Recommendations yet to be addressed include the addition of FTE's toward teaching graduate courses, addition of Forestry Extension FTE's, and boosting graduate and undergraduate enrollment and student quality.

Self-Study Report Checklist

College of Agriculture, Food and Environment Department of Forestry Self-Study Report Checklist		
	Academic Department (Educational) Unit Overview:	Page Number or NA
1	Provide the Department Mission, Vision, and Goals	13
2	Describe centrality to the institution's mission and consistency with state's goals: A program should adhere to the role and scope of the institution as set forth in its mission statement and as complemented by the institutions' strategic plan. There should be a clear connection between the program and the institutions, college's and department's missions and the state's goals where applicable.	13-17
3	Describe any consortial relations: The SACS accreditation process mandates that we "ensure the quality of educational programs/courses offered through consortial relationships or contractual agreements and that the institution evaluates the consortial relationship and/or agreement against the purpose of the institution." List any consortium or contractual relationships your department has with other institutions as well as the mechanism for evaluating the effectiveness of these relationships.	18
4	Articulate primary departmental/unit strategic initiatives for the past three years and the department's progress towards achieving the university and college/school initiatives (be sure to reference <u>Unit Strategic Plan</u> , <u>Annual Progress Report</u> , and most recent <u>Implementation Plan</u>)	12-17; App. I-A
5	Department or unit benchmarking activities: Summary of benchmarking activities including institutions benchmarked against and comparison results: <ul style="list-style-type: none"> • number of faculty • number of students • etc. 	21-22; 31; 38-39
Faculty and Graduate Students:		
6	Number of faculty and FTE breakdown by DOE, faculty list, brief bios or CVs	17-22, App. 2-A
7	Overview of current research program and plans. Describe primary faculty contributions to the three-four strongest research and creative areas in the department.	15-22; 58-65
8	Describe primary faculty contribution to teaching and service at the department level that have enhanced college and university strategic initiatives.	17-22; 34-58
9	Describe attrition (cumulative number not tenured, resigned, retired, or other) of the program faculty over the past three years. Discuss the expected effect on program under review and other issues related to ability to retain qualified faculty during the past three years.	19
10	List current number of unfilled lines and discuss current actions or plans to fill line. Include general description of "start-up" packages.	18-20
11	Number of graduate students and departmental-level TAs and RAs. List the salary range for TAs and RAs and estimate the number on fellowship for the current or most recent fall semester.	31-33
12	Describe the reasons students reject fellowships or assistantship offered from the university, college, or department/unit.	32-33
13	Number of postdocs	31
14	List of grants and contracts for the period of review, including funding amounts	App. 1-H
15	Faculty fellowships	28-30
16	Faculty honors & recognition	28-30
17	Publication list for period of review, including graduate and undergraduate publications	App.1-I
18	Undergraduate research activities & initiatives (if applicable)	64

	Documentation of Implementation of Policies & Procedures: Identify the educational policies and procedures established through faculty governance and responsible parties for implementation. Explain dissemination and transparency.	Page Number or NA
19	Evidence of adherence to educational policies and procedures established through the faculty governance process, including consistency in applying policies related to grading, probation, admissions, termination	76-77
20	Evidence of consistent review and monitoring of course substitution, course equivalency credits, course substitutions, course transfers toward degree completion, and vetting of exceptions, degree requirements	76-77
21	Evidence of adherence to unit procedures on faculty personnel actions (e.g., appointment, promotion and tenure) and budget request preparation	76-77
22	Evidence of course scheduling and teaching assignment	44-47; 76
	Academic (Degree) Program Description:	
23	Program demand/unnecessary duplication: <ul style="list-style-type: none"> • Number of UG and G students enrolled and credit hour production • Number of UG and G degrees conferred • Explanation of how curriculum is different from existing programs at other state institutions or that access to these programs is limited • Explanation of pursuit of collaborative opportunities with similar programs at other institutions and how collaboration will increase effectiveness and efficiency 	34-57
24	Program history and background/organizational structure: Critical events/background information which will help in understanding the program currently.	12-17
25	Program uniqueness: Unique components, distinctive innovations. Is the program a response to changes in the discipline or other academic necessities?	34-57
26	Describe how the program is administered (e.g., is there a program coordinator and/or program committee? What is his or her role or function? How do the administrators of the program operate?)	41; 43-44
27	Describe the recruitment and development plan for the program (include attention to faculty, staff, and students).	42-57
28	Program delivery: Review of distance learning course offerings, services and outcomes to ensure compliance with best practices, SACS policies, and federal rules, University Senate and college curriculum committees. Describe flexibility of program delivery. Are classes available at convenient times and in convenient formats for non-traditional students, etc.	N/A. Distance learning course not offered as of fall 2015.
29	Program contributions to undergraduate general education or UK General Education Core	43-44
	Program Quality and Student Success: The curriculum should be structured to meet the stated objectives and student learning outcomes of the program.	
30	Student Learning Outcomes Assessment <ul style="list-style-type: none"> • Evidence of attainment of student learning outcomes for all program delivery, as applicable (e.g., traditional, online, distance education, etc.) • Program assessment of Student Learning Outcomes for graduate programs and undergraduate programs • Assessment results reports and findings for improvement (include evidence) • Evaluation of students' post-graduate success 	46-47; App 1-F; 50-52
31	External awards or other recognition of the students and/or program	52-56
32	Six-year graduation rate	42
33	Employer satisfaction with graduates as measured by surveys and/or alumni satisfaction	57-58
34	Job placement for undergraduate and graduate students or graduate school admission	50-52
35	Pass rates on licensure/certification	N/A
36	Describe processes used to ensure currency of curriculum (industry advisory boards, pass rates on licensure, standardized tests, etc.)	43-48

37	Describe quality of orientation, advising, other student services/developmental programs, effectiveness of advising, innovations in advising and efforts to improve	41-43; 47-56
38	Instruction: Overview of current instructional program(s) and plans; describe measures of teaching effectiveness and efforts to improve (e.g., faculty development initiatives for instruction, teacher mentor programs) <ul style="list-style-type: none"> • Class sizes and faculty nucleus for program instruction • Instructional equipment • Faculty credentialing to support core/elective course offering • Internship/independent studies/ co-curricular 	34-57
39	Program qualifications/standards for incoming students, program admission	41-42
Program Resources:		
40	Cost and funding of program. Please show detail. <ul style="list-style-type: none"> • Student credit hour per instructional faculty FTE • Budget summary information and adequacy. Include external funding. 	20; 41; 68-72;
41	Facilities (description and adequacy)	74-75
42	Equipment (including IT capacity) description and adequacy	74
43	Personnel summary and adequacy (faculty and staff numbers, demographics)	72-73
44	Support from other university units such as college, research, administration, human resources, development and alumni affairs	76
Input from Affected Constituents:		
45	Evaluation data from staff, faculty, students, (e.g., surveys, focus groups, interviews, etc.) Information gathered from accreditation visit/external reviewers and progress updates since last program review (append external review comments for accredited reviews).	57-58
Operations:		
46	Quality of faculty & staff communications and interactions, such as awards/recognitions, opportunities for input, unit meeting schedule, unit retreat schedule, opportunities for faculty and staff to interact, organizational chart	27
Service, Extension and Non-Extension Programs:		
47	Summary of quantity and quality of outreach and community service; interrelationship of public service with research and other aspects of the program; nature and quality of service to the university and discipline	64-68
48	Summary of extension programs by topic	65-68
49	Summary of county-level programs	64-68
50	Summary of youth programs	64-68
51	Summary of community-based programs and training	64-68
52	Extension publications, videos, etc.	67-68
53	Evidence of public service activities such as congressional testimony, service on boards	64-68
54	Number of FTE extension faculty and extension specialists	17-18; 20; 23-24
55	Description and evaluation of outreach, service, and engagement activities	64-68
56	Number of clientele served, programs, and training opportunities	65
Other Areas:		
57	Quality Enhancement Plan (Multimodal Communications Across the Discipline): Please indicate program contribution to the goals of the QEP. See http://www.uky.edu/presentationu/	44
58	University Diversity Plan: Please indicate ways in which the program contributes to the University's Diversity Plan. See http://www.uky.edu/DiversityPlan/diversity_plan.html	33

Introduction and Department Overview

The Department of Forestry (UK Forestry) is one of 14 academic departments within the College of Agriculture, Food and Environment (CAFE) at the University of Kentucky. It is one of several professionally accredited degree programs in the college and the only accredited forestry program in the state. As such, the department is responsible for servicing all demand for forestry undergraduate and graduate programs, the majority of research, and all forestry-related Cooperative Extension programming in the Commonwealth of Kentucky. Approximately 47% of Kentucky is forested and there are nearly 470,000 woodland owners in the state. According to the latest estimates, the state supports the forest products industry with cumulative impacts nearing \$13 billion. Forestry-related industries employ around 30,000 workers, not including supporting industries. Kentucky is typically one of the top three hardwood-producing states in the country. The stated mission of the department is to *enhance the ecological, economic, and social benefits of forests and related natural resources to elevate the quality of life for Kentuckians and beyond* (Figure 1).

History

The seeds of UK Forestry were initially sown in 1923 on a 15,000-acre tract of forest occupying portions of Knott, Breathitt, and Perry Counties donated to the University of Kentucky by Cincinnati businessman E.O. Robinson. Eventually becoming Robinson Forest, this gift was provided for the purposes of agricultural experiments, teaching, and the demonstration of reforestation in the Central Appalachian Region. The ensuing years witnessed a great deal of activity at Robinson Forest and in 1963 a thriving and growing forest and wood products industry encouraged the establishment of a Forest and Wood Technician School in nearby Quicksand, Kentucky. This program trained hundreds of forest technicians and sawmill operators, functioning until 1982.

Eventually, the need for professional foresters who could help responsibly and sustainably manage the region's timber and other natural resources led to the creation of the Department of Forestry at the University of Kentucky in Lexington, Kentucky. Several of UK Forestry's first graduates in 1971 began their education at the Forest and Wood Technician School in Quicksand. Since the 1971 graduating class, UK Forestry has graduated over 800 students who currently reside in over 30 states across the country. Our graduates work in all aspects of forestry, wildlife, and natural resource management in a wide range of disciplines and professional pursuits. Kentucky's undergraduate forestry program has maintained Society of American Foresters accreditation since 1974 and a Student Chapter of the Society of American Foresters (affectionately called the Forestry Club by its members) since January 19, 1973.

UK Forestry has also been a leading contributor to the interdisciplinary Natural Resources and Environmental Sciences (NRES) major for many years, having been instrumental in beginning the program for the College of Agriculture back in 1991. Our

faculty not only teach many of the classes in this program, but continue serve in key leadership positions.

Vision
The Department of Forestry will be widely recognized for improving the lives of people and for improving the condition of human and biotic communities through learning, discovery, and outreach activities relating to forests and natural resources.
Mission
Research, teaching, and extension programs of the Department of Forestry will effectively enhance sustainable economic, ecological, and social benefits of forests and related natural resources in Kentucky and beyond. Our programs will elevate the quality of life by:
<ul style="list-style-type: none">• enhancing the integrity, stability, and health of forests and related biotic communities; and• increasing the long-term value added, sustainable income, and sustainable flow of services from forests and natural resources.
Department Goals
The goals of the Department of Forestry combine the vision and mission of the department in an attempt to attain the following:
<ul style="list-style-type: none">• enhance the university's stature among its peers• prepare students for leadership in the knowledge, economy, and global society• enhance the intellectual and economic capital of Kentucky through growth in research• embrace and nurture diversity• engage Kentuckians through partnerships to elevate quality of life.

Figure 1. Department of Forestry vision, mission, and department goals

The University's stated mission is:

The University of Kentucky is a public, land grant university dedicated to improving people's lives through excellence in education, research and creative work, service, and health care. As Kentucky's flagship institution, the University plays a critical leadership role by promoting diversity, inclusion, economic development, and human well-being¹.

The department supports UK's mission through its teaching, research, and Extension activities. Nearly one-half (~12 million acres) of Kentucky land supports commercially and ecologically valuable forestland, providing ample evidence for the importance of UK Forestry and its tri-partite mission of:

¹ http://www.uky.edu/Provost/strategic_planning/mission.htm

- 1) teaching the future generation of forest, wildlife, and natural resource managers,
- 2) conducting research to improve management and conservation, and
- 3) outreach to share the findings of relevant research being conducted not only in Kentucky, but from around the country (Figure 1).

UK Forestry and CAFE strive to promote the integration of research, instruction and extension to discover new knowledge, as well as to address issues of importance to the Commonwealth, the nation and the world. UK Forestry's strategic plan² has closely tracked and supported the CAFE's stated missions and strategic objectives³. UK Forestry and other departments provide annual reports to analyze progress toward stated goals, benchmarks⁴ and recommendations from implementation plans⁵ included in previous program reviews (2010).

UK Forestry's latest strategic plan expired in 2014. The university and CAFE are currently revising their strategic plans with completion anticipated toward the end of 2015. According to revised university and college policy, the program review process will supplement the strategic planning process at the department level. Departments will use the program review process to outline specific goals and objectives for its mission areas and relate these to the university's and college's goals and objectives as identified through a strategic planning process at these levels. The following topics represent UK Forestry's goals and objectives for each mission area over the next five years.

Forestry Instruction

UK Forestry's instructional goal is to prepare students for leadership in the knowledge economy and global society. Educating students is a fundamental means by which UK Forestry enhances the future of the commonwealth. The department expects graduates to become leaders in forestry and natural resource professions, as well as their communities. Forestry graduates will serve the commonwealth, region, and nation by helping enhance sustainable economic, ecological, and social benefits of forests in Kentucky and beyond. UK Forestry seeks to provide an experiential and responsive learning environment of creative thinking that enables all students to achieve their highest level of proficiency.

Instructional programs involve teaching faculty who are also involved in the land grant missions of research and extension. The faculty provides a wide breadth of experience and knowledge resulting in a diverse forestry curriculum. Joint appointments and close ties among the extension, teaching, and research faculty are encouraged to provide a constant interchange of ideas and experiences that strengthen both undergraduate and graduate instruction. The integration and interaction of faculty involved in instruction, research and extension is a reflection of the mission statements and goals of the

² http://administration.ca.uky.edu/files/sp/sp/strategic_plan_2009-2014_for.pdf

³ http://administration.ca.uky.edu/files/strategic_plan_final_111909.pdf

⁴ http://administration.ca.uky.edu/files/sp/sp/strategic_plan-progress_report_for.pdf

⁵ http://administration.ca.uky.edu/files/ip_report_2013-2014_for.pdf

department's research and extension areas.

UK Forestry's primary instructional responsibility is its forestry program. Since 1972, the department has focused on maintaining a robust and comprehensive undergraduate forestry education program. Recently, a component entitled the Wildlife Forester program has been added to the curriculum in which interested students combine a Forestry BS with the relevant coursework necessary for a graduate to become employed by a state wildlife agency and eligible to be considered by The Wildlife Society to become a Certified Wildlife Biologist. Additionally, UK Forestry provides the primary support for CAFE's interdisciplinary Natural Resources and Environmental Sciences (NRES) major; UK Forestry teaches many of this major's classes and our faculty represent over 40% of the steering committee membership, including the Chair of the NRES Steering Committee. Two curriculum revisions in UK Forestry over the last ten years have increasingly ensured that we are able to provide our undergraduates the appropriate breadth and depth of material to become society-ready foresters.

Graduate instruction is offered through the Master of Science in Forestry program. Although UK Forestry does not currently have a Ph.D. program, individual faculty members maintain adjunct appointments in other departments (Plant and Soil Sciences, Animal Sciences, Biology), which enables them to recruit and offer Ph.D. programs to graduate students. Several UK Forestry faculty also participate in the interdisciplinary Integrated Plant and Soil Sciences (IPSS) Ph.D. program.

UK Forestry's undergraduate instructional objectives for the next five years include:

- 1) Maintain and continuously improve the undergraduate forestry program's instruction and reputation for producing well-trained, high potential professional foresters.
- 2) Recruit and retain motivated students capable of making significant contributions to the forestry profession.
- 3) Seek novel means for reducing financial burden on undergraduate students while expanding opportunities for students to gain relevant career experience.
- 4) Collaboratively develop introductory forestry curricula with high schools and community colleges.

It should be noted that the undergraduate forestry major is currently requesting a curriculum revision through the university approval process (Appendix 1-B). A component of this revision is to begin offering a Minor in Wildlife Biology and Management to interested students (Appendix 1-C). (UK Forestry's graduate objectives are listed in the Forestry Research section below.)

Forestry Research

UK Forestry's research goal is to enhance the intellectual and economic capital of Kentucky through growth in research. The land grant mission of the university, college, and department encourages research activities that result in the discovery of new knowledge. Discovery is an essential part of the department's vision of being widely recognized for improving the lives of people and for improving the condition of human

and biotic communities. Research in UK Forestry therefore helps provide insight and solutions to important challenges relating to sustaining long-term economic, ecological, and social benefits provided by forests and natural resources in Kentucky and beyond. The department encourages strong links among research programs and undergraduate, graduate, and post-graduate education to prepare scientists and resource managers to meet the challenges facing society. Though we have a broad group of research faculty, areas of emphasis and developing strengths relating to forests, wildlife, and natural resources include:

- 1) silviculture and forest operations
- 2) wildlife ecology and conservation biology
- 3) forest health and ecological restoration
- 4) landscape and spatial ecology
- 5) natural resource policy and economics
- 6) urban ecology
- 7) forest hydrology and watershed management

The addition of several new faculty in recent years has increased the breadth and depth of our research capacity and we anticipate this mission area to continue developing over the next five years using the following objectives:

- 1) Develop research capacity and effectiveness in support of departmental research emphasis areas,
- 2) Identify, develop and enrich partnerships that support research emphasis areas, and
- 3) Elevate the visibility and impact of Robinson Forest as a center for long-term research in the central Appalachians.

It is recognized that the UK Forestry research program is heavily dependent upon our graduate students and program of study. Accordingly, the following goals for UK Forestry relative to our graduate students and program are applicable for the next five to ten years:

- 1) Recruit and train motivated students with high potential to make significant contributions to forest and natural resource science,
- 2) Train graduate students for leadership roles in forest and natural resources management throughout the region and beyond, and
- 3) Enhance the capacity of the program to train forest and natural resource scientists.

UK Forestry will continuously improve the quality, relevance, and effectiveness of the department's research program, and continue obtaining additional support for research.

Forestry Extension

Over the years, UK Forestry has also methodically developed an exceptionally strong Extension/outreach program that is widely recognized as highly effective in supporting clientele throughout the region. UK Forestry's Extension Team is constantly analyzing and revising its strategic approaches to serving clientele and industry as effectively and

efficiently as possible. The goal of the extension program within UK Forestry is to provide current, applicable information on the sustained use and management of the state’s forest and natural resources to elevate quality of life of the people of Kentucky.

UK Forestry Extension periodically evaluates programming needs and conducts planning. UK Forestry Extension’s objectives for the next five years are:

- 1) Assess and provide solutions to improve the competitiveness of primary and secondary industries in Kentucky,
- 2) Develop effective educational and training opportunities and support resources for landowners and natural resource professionals to help maintain or improve the health and productivity of forests, wildlife populations, and forest resources, and
- 3) Improve the effectiveness of virtual education and training programs and on-line resources.

Department Personnel

Faculty

Excluding the department chair, UK Forestry currently has 13 faculty members (with one hire in process), including six Professors, three Associate Professors, and five Assistant Professors (Table 1). (See Appendix 2-A for faculty CVs.) Two faculty members, Dr. Jim Ringe and Dr. Dave Wagner are teaching faculty with no research appointments. Two faculty members (Dr. Terry Conners and Dr. Jeff Stringer) are Extension faculty, though these individuals do contribute to teaching in the undergraduate program during the Spring Field Semester. Extension faculty are encouraged to, and frequently do, pursue extramural funding to support applied research and educational programming.

Table 1. Faculty members in Department of Forestry at University of Kentucky

Faculty Name	Rank	Discipline	Core Research Area ⁺
Dr. Terrell T. “Red” Baker	Prof.	Chair	n/a
Dr. Mary Arthur	Prof.	Forest Ecology	3,6
Dr. Chris Barton	Prof.	Watershed Hydrology	3,4,7
Dr. Terry Conners	Asso	Extension Wood	1
Dr. Marco Contreras	Asst.	Forest Management/Optimization	1,4
Dr. John Cox	Asst.	Conservation Biology	2,4
Dr. Mike Lacki	Prof.	Wildlife Management	2
Dr. John Lhotka	Asso	Silviculture	1,3
Dr. Steven J. Price	Asst.	Wildlife/Stream Ecology	2,6,7
Dr. Jim Ringe*	Prof.	Forest Economics	1,5
Dr. Andrew Stainback	Asst.	Forest Policy/Law	5
Dr. Jeff Stringer	Prof.	Extension Hardwood Silviculture	1,3,7
Dr. Dave Wagner*	Asso	Forest Genetics	3
Dr. Jian Yang	Asst.	Landscape Ecology	3,4

* denotes Teaching appointment only

+ The following research emphasis areas most closely describing each faculty member's research expertise and interests: 1) Silviculture and Forest Operations, 2) Wildlife Ecology and Conservation Biology, 3) Forest Health and Ecological Restoration, 4) Landscape and Spatial Ecology, 5) Natural Resource Policy and Economics, and 6) Urban Ecology 7) Forest Hydrology and Watershed

The University of Kentucky and CAFE are increasingly recognizing the value of experiential learning. Our faculty work hard to provide students interested in forestry, wildlife, and natural resources management a robust and diverse suite of classes that involve hands-on, field-based learning during nearly every semester of their college experience. UK Forestry faculty also regularly teach general education/service courses and a curriculum revision currently under review will provide additional coursework in forestry, wildlife, and natural resources as part of the UK Core curriculum. Forestry faculty also provide significant teaching support to the interdisciplinary Natural Resources and Environmental Sciences major; a number of Forestry classes are required for the NRES major and several also serve as electives for that major. Forestry faculty are heavily involved in the administration of the interdisciplinary NRES major, with four individuals serving on the Steering Committee, one of whom has served as Chair of that committee for over five years. UK Forestry is also beginning to offer a Wildlife Certification track for interested Forestry and NRES students, and, pending approval of the curriculum revision, a Minor in Wildlife Biology and Management to students across campus. In recent years, UK Forestry has placed substantial emphasis on retention of undergraduate students, consistent with UK strategic initiatives.

UK Forestry has significantly added to its research capacity in recent years through adjunct appointments (Table 2). Adjunct appointments encourage collaboration with non-departmental scientists and permit those scientists to participate on graduate committees. Several of our adjunct faculty also contribute regularly to the teaching program and additional teaching opportunities are currently being explored for Kentucky Division of Fish and Wildlife Resources scientists. Also, UK Forestry regularly enlists the assistance of professionals outside of the university to provide guest lectures, mentorship, field tours and demonstrations to give our students practical, hands-on, experience working in forestry, wildlife, and natural resource fields. None of these relationships is formalized through contracts or consorial relationships, although we do maintain a Memorandum of Understanding with USDA Daniel Boone National Forest to cooperate, share resources, and assist each other when and where it makes sense. Daniel Boone personnel regularly provide field tours and assistance with fire training while UK Forestry assists with research in the National Forest, is available for professional advice on management issues, and assists periodically on other projects when requested. UK Forestry faculty and staff are on-hand to help evaluate outside guest lecturers' effectiveness and annually interview the junior and senior classes to ascertain their opinions regarding the effectiveness of outside instruction.

Table 2. Adjunct faculty members in the Department of Forestry at the University of Kentucky

Adjunct Faculty	Affiliation	Discipline	Function
Dr. Albert Abbott	USFS Grant	Plant Molecular Biology/Genetics	Research
Dr. Danna Baxley	KDFWR	Amphibians/Herpetology	Res/Teach
Dr. John Brunjes	KDFWR	Avian	Res/Teach
Dr. Claudia Cotton	USFS DBNF	Soils/Watershed	Res/Teach
Dr. Tyler Dreaden	USFS SRS	Forest Pathology	Research
Dr. John Gassett	WMI	Wildlife Management/Policy	Research
Dr. Wendell Haag	USFS SRS	Mollusks	Research
Dr. Monte McGregor	KDFWR	Mollusks	Res/Teach
Dr. Dana Nelson ¹	USFS SRS	Tree Genetics/Forest Health	Research

* KDFWR = Kentucky Division of Fish & Wildlife Resources, USFS DBNF = US Forest Service Daniel Boone National Forest, USFS SRS = US Forest Service Southern Research Station, WMI = Wildlife Management Institute. 1. Dr. Dana Nelson is currently a Visiting Scientist with plans to become adjunct in the department.

UK Forestry has experienced some decline in faculty numbers over the last ten years (Table 3). The first significant decline in faculty numbers occurred in 2000-2001 due to the loss of E.O. Robinson Trust endowment funds. Another period of decline can be attributed to university- and college-wide budget cuts beginning about 2008. Also in 2008, Dr. Dave Maehr passed away as the result of a plane crash while conducting research in Florida. Fortunately, we were able to refill this position with Dr. John Cox in 2013. Dr. Deborah Hill, Non-timber Forest Products Extension Specialist, retired in 2012. Her position was effectively eliminated due to budget cuts during that year. Existing Forestry Extension personnel, and in some cases county Extension agents, have assumed some of her responsibilities in 4-H/Youth programming, maple syrup, shitake mushroom, and Christmas tree production, although departmental effectiveness in servicing the demand in these areas has been significantly reduced. Dr. Paul Kalisz retired in 2013; his teaching responsibilities have been taken over by Dr. Darryl Cremeans, who also serves as our IT specialist and facilities manager. Also in 2012, Dr. Songlin Fei was recruited to Purdue University, though we were able to refill his position with Dr. Jian Yang, a Landscape Ecologist. UK Forestry also lost Dr. Thomas Barnes in 2014 due to his untimely death, but a search to hire a new Wildlife Specialist is nearly complete.

Table 3. Current and historic distribution of faculty FTEs in the Department of Forestry

Year/Source	Teaching	Research	Extension	Total
2000-2001	4.40	8.20	5.00	17.60
2001-2002	3.12	7.08	6.46	16.66
2002-2003	2.80	5.30	4.40	12.50
2003-2004	3.30	4.00	4.20	11.50
2004-2005	3.50	4.40	4.50	12.40
2005-2006	4.30	6.30	4.90	15.50
2006-2007	5.00	5.00	3.80	13.80
2007-2008	5.00	4.80	4.00	13.80
2008-2009	4.70	5.70	3.80	14.20
2009-2010	3.80	3.80	3.90	11.50
2010-2011	4.50	4.80	4.10	13.40
2011-2012	5.23	4.02	3.75	13.00
2012-2013	3.84	4.32	2.72	10.88
2013-2014	3.87	4.56	2.67	11.10
Average	4.09	5.16	4.16	13.42

In 2013, an internal department survey and analysis revealed several priority faculty hires:

- 1) Forest Health (extension/research)
- 2) Landscape Ecologist (research/teaching)
- 3) Urban Forestry (extension/teaching)

To date, UK Forestry has not been able to permanently hire a Forest Health specialist, though extramural funding through the Forest Health Research and Education Center initiative was acquired to hire a Post-Doctoral scientist for 2-3 years. The department hired Dr. Jian Yang, Landscape Ecologist, to fill that position and has not yet acquired funding or the means to create an Urban Forestry position. Start-up packages in the department have grown from approximately \$50,000 in 2007 (Dr. John Lhotka) and 2009 (Dr. Andrew Stainback) to an average of \$150,000 between 2010 and 2015 (Dr. Marco Contreras, Dr. Steve Price, Dr. John Cox, Dr. Jian Yang).

UK Forestry benchmarks its progress and standing against other comparable universities in the region using data collected annually by the Southern Section of the National Association of University Forest Resource Programs (SNAUFRP). Compared to our benchmark institutions in the southern United States, UK Forestry maintains one of the smallest numbers of faculty in each mission area (Figure 2).

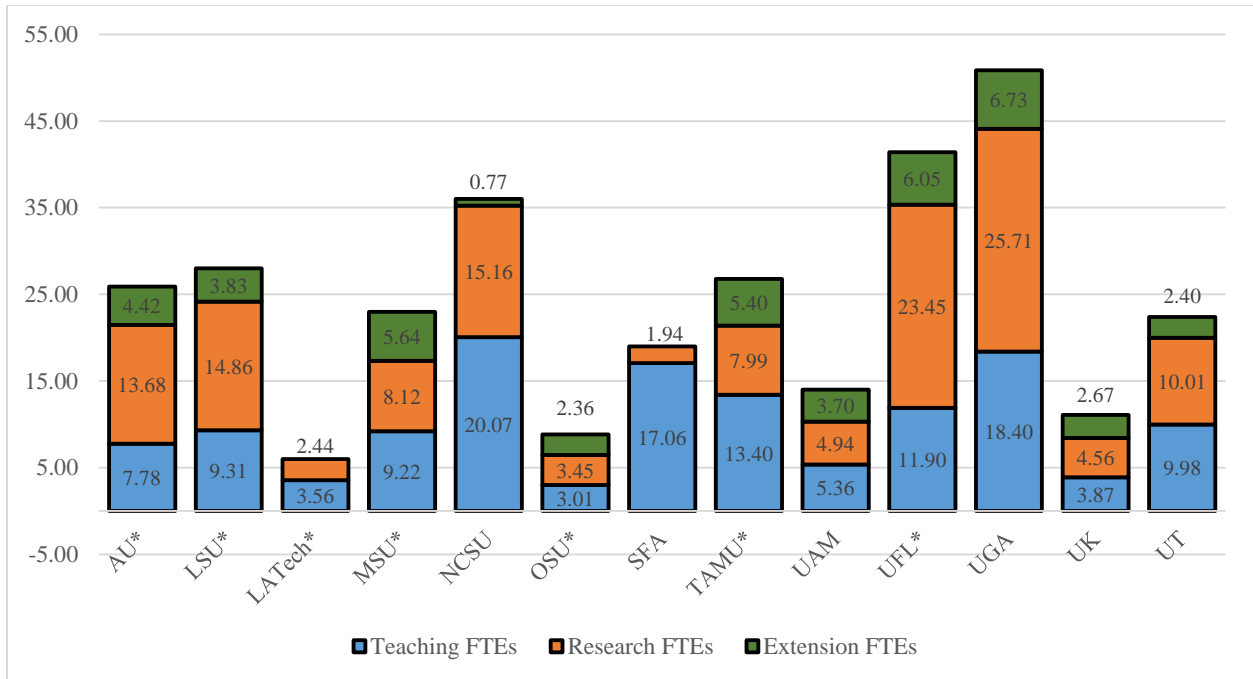


Figure 2. FTE distribution among land grant university mission areas for selected southern Forestry programs 2013-2014

UK Forestry also benchmarks against other departments in CAFE. The number of research FTEs for UK Forestry are below the median and well below the average of all departments in CAFE (Figure 3).

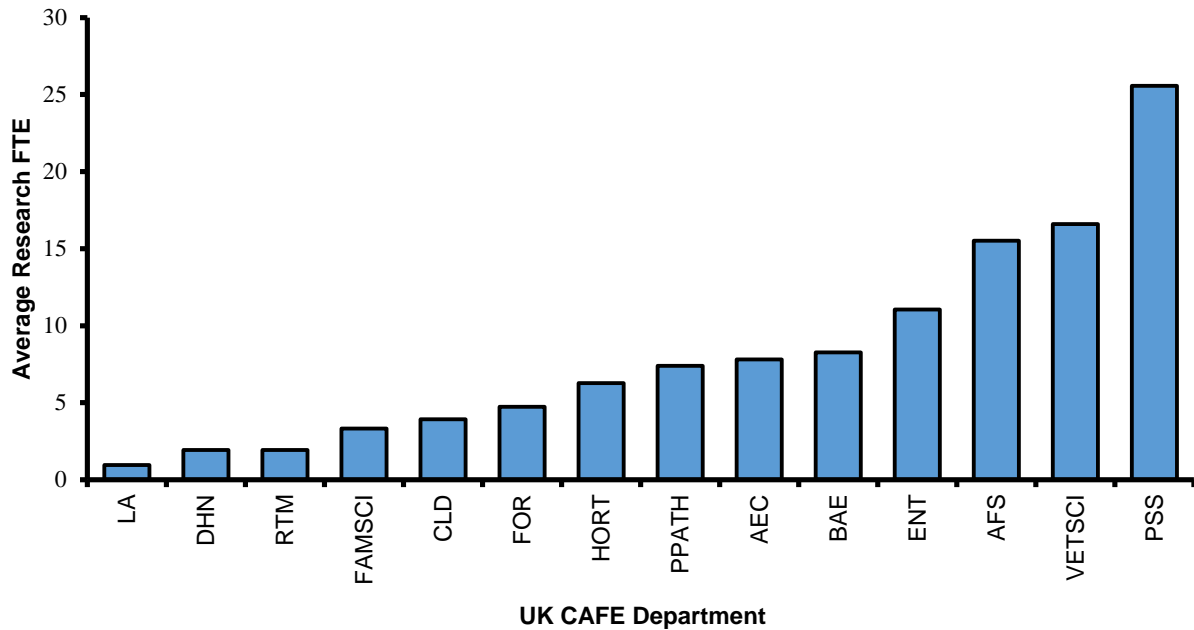


Figure 3. Average research FTE comparison among CAFE departments 2003-present

UK Forestry faculty salaries are somewhat competitive as compared to our benchmark institutions (Table 4). Assistant Professor salaries are nearly 4% below benchmark institutions and Professor salaries are more than 4% below benchmark institutions, while Associate Professor salaries are over 3% greater at UK Forestry than benchmark institutions. The University of Kentucky has provided raises to faculty and staff for the last three years. However, a few of our faculty are still well below the department average as well as the averages of our benchmark institutions; this needs to be addressed as soon as possible. In the recent 2015 UK Work-Life Survey, UK Forestry was positively reflected according to most metrics. However, faculty and staff response to the survey question about UK salaries being comparable to peer institutions was the second-lowest metric (behind facilities) with only 38% of respondents agreeing with that statement (Appendix 1-D).

Table 4. Comparison of UK Forestry faculty salaries to southern NAUFRP benchmark institutions for 2013-2014

Faculty Rank (Number)	Average Salary UK	Average Salary Southern	\$ Difference	% Difference
Assistant Professor (5)	\$75,933	\$78,741	(\$2,808)	-3.70
Associate Professor (3)	\$90,043	\$86,950	\$3,093	3.44
Professor (6)	\$106,686	\$111,179	(\$4,493)	-4.21

Staff

UK Forestry relies heavily on department staff for a variety of functions (Table 5). (See Appendix 2-B for select professional staff CVs). The department has three administrative staff support positions on campus: an Administrative Assistant for the departmental office, a Business Manager, and an Extension Information Specialist. The latter has increasingly become a professional position whose occupant, Reneé Williams, participates in educational programming. The department is currently seeking another administrative assistant to assist, part-time, the Forestry Extension team, as well as the other administrative staff in the department. Also, UK Forestry maintains the partial appointment (50%) of Rosalee Bradley who supports Bobby Ammerman and Chad Niman, the Primary and Secondary Forest Products Extension Associates, as well as Chris Osborne at Robinson Forest. These positions have statewide responsibilities and are critical to UK Forestry's support of the \$13 billion forest products industry. UK Forestry Extension is also in the process of completing a search for a new Extension Forestry Associate to provide general forestry education programs to youth and adults. It is anticipated the person filling this position will coordinate closely with Dr. Laura Lhotka, Academic Coordinator, in developing a more sophisticated recruiting program for the department.

Table 5. University of Kentucky Department of Forestry staff

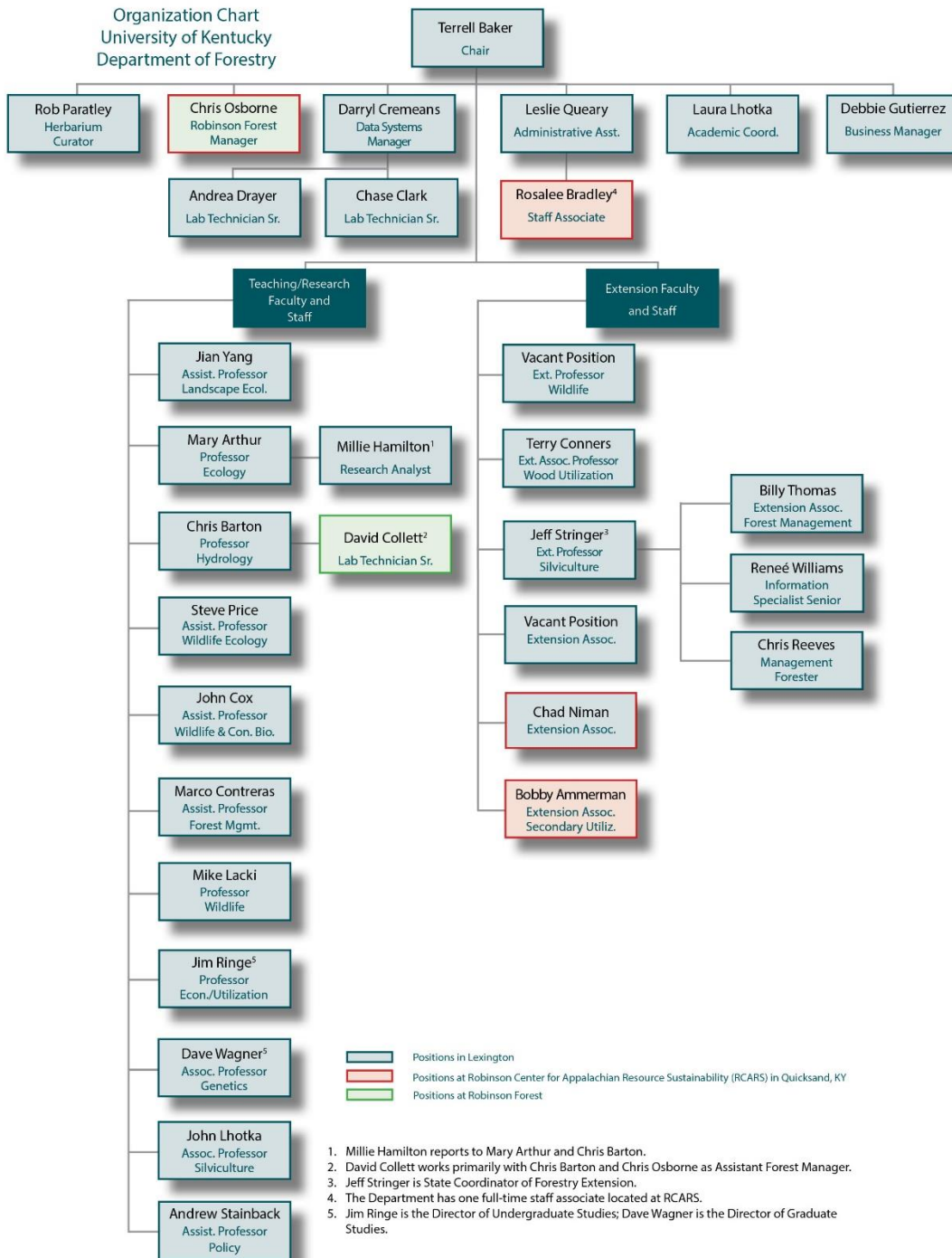
Staff Name	Area/Title	Specialization
Bobby Ammerman	Extension	Secondary Wood Products
Rosalee Bradley	Extension Admin	n/a
Chase Clark	Research Technician	Forestry/GIS/Remote Sensing
David Collett	Research Technician	Forestry/Hydrology/Asst. Forest Mgr.
Dr. Darryl Cremeans*	IT/Facilities/Instruction	Measurement/Geospatial Analysis
Andrea Drayer	Research Technician	Stream/Wildlife Ecology
Debbie Gutierrez	Business Manager	n/a
Milinda Hamilton	Senior Lab Tech	Soils/Ecology
Dr. Laura Lhotka*	Academic Coordinator	Human Dimensions
Chad Niman	Extension	Primary Wood Products
Chris Osborne	Forest Manager	Robinson Forest
Rob Paratley*	Curator	Herbarium
Leslie Queary	Administration	n/a
Christopher Reeves	Extension Forester	Forest Management/Certification
Billy Thomas	Extension Forester	Family Forest Education
Reneé Williams	Communications Specialist	Communications
Vacant	Extension	Adult & Youth Forestry Education

* denotes significant teaching responsibilities and adjunct faculty status

UK Forestry also recently created, with salary savings, a permanent Research Technician position to assist researchers in the department. This is the second such shared research technician position created in the last three years; Andrea Drayer was the first. It is our intent to continue adding research technician positions to our staff ranks as funds become available. Faculty, particularly those with larger teaching loads, report enhanced productivity when they have access to full-time research technicians. Professional staff support is critical for the department to carry out its work in the three mission areas – teaching, research, and Extension. UK Forestry staff are encouraged to participate in faculty meetings and provide input into departmental affairs where warranted.

Figure 4 shows the organization charts for UK Forestry and CAFE.

Figure 4. University of Kentucky Department of Forestry and CAFE organizational charts



Communication and interactions among faculty and staff in UK Forestry are strong. With roughly equal numbers of faculty and staff, and even a few residing off-campus, the Forestry team is relatively small and accustomed to working and coordinating closely together in research, teaching, and Extension endeavors. UK Forestry holds monthly faculty meetings during the fall and spring semesters, taking a 3-month hiatus during the summer field season when most faculty and staff are traveling and conducting research. All faculty, staff, and post docs are invited to faculty meetings.

UK Forestry has organized eight standing committees through which much of the department's planning, program development, and deliberative business takes place. Though we have not conducted a formal department-level retreat in over five years, many of the longer-range planning and strategic deliberations takes place during mission-area committee meetings (e.g., Forestry Extension, Forestry Research Committee, Undergraduate and Graduate Program Committees) which occur at least monthly, with some taking place bi-monthly. In some cases, input on strategic and long-term planning is conducted via email, such as the survey of priority faculty hires conducted in 2013. The Undergraduate (1) and Graduate (2) Program Committees address student and curriculum issues. The Extension (3) and Research (4) Committees coordinate activities and help develop a vision for the department in these mission areas. There is also a Robinson Forest Technical Committee (5), comprised of faculty and staff both within and outside of the department, that helps coordinate management and research activities on Robinson Forest. The Outreach (6) Committee provides leadership on maintaining relations with alumni and communicating the department's goals and objectives to the general public. The Facilities (7) Committee addresses building and space issues in the department's two buildings. The Seminar (8) Committee organizes the department's seminar series, predominantly the fall semester portion where outside speakers from a variety of disciplines are hosted for presentations and interactions with the faculty. Each of these committees is active in planning some portion of the activities of the department and making recommendations to the chair regarding implementation of policy for the department.

The department also sponsors a fall forestry picnic for faculty, staff, students, alumni, and friends, as well as a Spring Recognition Banquet for students, faculty, and staff. These important events build comradery and communication among forestry department personnel. Table 6 highlights recent recognition by UK Forestry faculty and staff.

Table 6. Department of Forestry awards, fellowships, honors, and recognition 2010-2015

Faculty and Staff	Awards, Fellowships, Honors, and Recognitions
Ammerman, Bobby	CAFE Outstanding Staff Award Nominee 2014, 2015
Arthur, Mary	Thomas Poe Cooper Research Award nominee/finalist 2011
Baker, Terrell	A Teacher Who Made a Difference, University of Kentucky College of Education, April 26, 2014
Barton, Christopher	<p>American Society of Mining and Reclamation, Richard and Lela Barnhisel Researcher of the Year Award; 2015.</p> <p>United States Environmental Protection Agency; Scientific and Technological Achievement Award; Providing Science to Inform Decisions on Compensatory Mitigation of Headwater Streams Affected by Surface Mining; 2014.</p> <p>United States Department of Interior; Partners in Conservation Award; Appalachian Regional Reforestation Initiative; 2012.</p> <p>Association of Public and Land-Grant Universities; Exemplary Program Award; UK Mined Land Reforestation Project; 2011.</p> <p>United States Department of Interior; Presidential Migratory Bird Federal Stewardship Award; Appalachian Regional Reforestation Initiative; 2011.</p> <p>University of Kentucky, College of Agriculture; High Impact Research/Extension Program Award; Streamside Management Zone Effectiveness Project; 2010.</p> <p><i>Green Forests Work 501(c)3 Organization:</i> Green Forests Work exists to re-establish healthy and productive forests on formerly mined lands in Appalachia. Building on lessons learned from research the program has achieved the following:</p> <p style="padding-left: 40px;">2009: 35,000 trees; 500 volunteers; 9 events; 72 partners 2010: 145,000 trees; 2,000 volunteers; 27 events; 102 partners 2011: 352,000 trees; 1,500 volunteers; 28 events; 156 partners 2012: 228,000 trees; 2,500 volunteers; 34 events; 190 partners 2013: 256,000 trees; 1,900 volunteers; 38 events; 196 partners 2014: 201,000 trees; 1,900 volunteers; 34 events; 199 partners 2015: 374,038 trees; 1,637 volunteers; 47 events; 231 partners</p> <p><i>Media Coverage of Program (Selected):</i> Soil Science Society of America: Soil Horizons https://www.soils.org/publications/articles/56/3/sh2015-56-3-f Al Jazeera English. Earthrise program. <i>Mountaintop Revival</i>. October 3rd, 2013. http://greenforestswork.com/gfw-earthrise-feature Yes! Magazine. A New Deal for Appalachia's Forests: Growing Biofuels? May 31st, 2013. http://www.yesmagazine.org/new-economy/could-biofuels-mean-a-new-deal-for-appalachia-s-forests. WEKU Radio. <i>With A Vegetative Buffer Zone, Tributaries to the Kentucky River Can Stay Clean</i>. August 8, 2013. The Economist. <i>Appalachia Terraforming: Restoring Streams and Forests in Coal Country</i>. February 2, 2012. http://www.economist.com/blogs/democracyinamerica/2012/02/coal Popular Mechanics. <i>How to Reclaim Land Damaged by Coal Mining</i>. May 5,</p>

	2010. http://www.popularmechanics.com/science/energy/coal-oil-gas/coal-mining-slide-reclamation
Conners, Terrance	NAE4-H Specialty Award, 2014. Award for Excellence in Natural Resources Programming, SPA13-0314. Kim Whitson (Laurel County 4-H Agent, London, KY) winner, T.E. Conners, Collaborator.
Collett, David	CAFE Outstanding Staff Award Nominee 2015
Cox, John	America The Wild. National Geographic Wild Channel. Sept 2013. Featured research on Florida black bear project. KY Afield TV Series: June 2013. http://www.youtube.com/watch?v=xxtJPMRxx2w Spence, C. 2013. Friends not foes (timber rattlesnake study). The Magazine: UK College of Agriculture. http://www.ca.uky.edu/aqcomm/magazine/2013/Spring13/friends_not_foes.html Baker, D. 2012. Elk round-up. Kentucky Afield Magazine. Spring. KY Afield TV Series: March 2012. Bull elk research project. http://www.youtube.com/watch?v=ZF0isXIGha8&feature=plcp Spence, C. 2011. The bear facts. The Magazine: University of Kentucky College of Agriculture. Fall. http://www.ca.uky.edu/aqcomm/magazine/2011/FALL-2011/Articles/index.htm White, M. 2011. Bear essentials. Audubon 113:28-32. Jenkins, M. 2011. The Headwaters. Nature Conservancy. Issue 2:44-53. Risch, D. 2010. Andrea the elk spotter. Highlights Magazine. November 2010. KY Afield TV Series: March 2010. Black bear research and denning. http://www.youtube.com/watch?v=dzz9LZ554NM
Fei, Songlin	Gamma Sigma Delta Master Teacher Award 2011
Gutierrez, Debbie	CAFE Outstanding Staff Award Nominee 2014, 2015
Lhotka, John	A Teacher Who Made a Difference, University of Kentucky College of Education, April 26, 2014
McLaren, Doug	Society of American Foresters Fellow, 2014
Paratley, Rob	A Teacher Who Made a Difference, University of Kentucky College of Education, April 26, 2014
Price, Steven	A Teacher Who Made a Difference, University of Kentucky College of Education, April 26, 2014
Thomas, Billy	Outstanding Extension Associate Award, 2014
Stringer, Jeffrey	2012 Henry Hardtner Award for Forest Sustainability, Southern Group of State Foresters Governors Appointment – Kentucky Forest Conservation Act - Kentucky Forestry Best Management Practices Board, reappointment 2013. Award for Excellence in Forestry (over 35 years). Kentucky/Tennessee Society of American Foresters, 2012 Forest Stewardship Council – Appointment to the National Controlled Wood Working Group, 2012 Gold Award for Excellence for Extension Publication. A peer award from the Sponsored by Southern Region Extension Forestry, 2011 Outstanding Graduate Student Poster, 16 th Biennial Southern Silvicultural Research Conference (BSSRC) February 15-17, 2011 Charleston, South

	<p>Carolina</p> <p>High Impact Research/Extension Program Award, College of Agriculture for Streamside Management Zone Project PI's C. Barton, J. Stringer, 2010</p> <p>Laura Clay Award – Kentucky Women in Agriculture for the collaborative project Agriculture Development Team Training for Afghanistan, 2010</p> <p>University of Kentucky, Commonwealth Collaborative Award for the Cane Run Watershed Assessment and Restoration Initiative, 2010</p> <p>Silver Award for Excellence for Newsletter or Series of Articles. A peer award from the Sponsored by Southern Region Extension Forestry, 2010</p>
Williams, Reneé	<p>2014 Outstanding Communicator Award, Kentucky Forest Industries Association</p> <p>CAFE Outstanding Staff Award Nominee 2012, 2013</p>

Post-Doctoral Scientists and Graduate Students

UK Forestry currently has more post-doctoral scholars than at any time in recent history (Table 7).

Table 7. Ten-year summary of the number of post-doctoral scholars in the Department of Forestry at the University of Kentucky

Year	# Post-
2004	3
2005	1
2006	1
2007	1
2008	3
2009	2
2010	2
2011	1
2012	0
2013	1
2014	1
2015	4

Most of the current post-docs are associated with the Forest Health Research and Education Center (FHREC) and are funded through USDA Forest Service funds dedicated to the FHREC or extramural funds (Table 8). Drs. Conrad and Fan are located in FHREC lab in the Plant Sciences Building, Drs. Crocker and Li are located in the FHREC office in T.P. Cooper.

Table 8. University of Kentucky Department of Forestry Post-Doctoral Scholars

Post-Doctoral Scholar	Discipline	Supervisor
Dr. Anna Conrad	Forest Pathology	Dr. Abbott
Dr. Ellen Crocker	Extension Forest Health	Dr. Stringer
Dr. Shenghua Fan	Watershed Hydrology	Dr. Abbott
Dr. Xiaoshu Li	Forest Economics/Policy	Dr. Stainback
Pending	Bioinformatics Education/Outreach	Dr. Abbott
Pending	Interference RNA for EAB/HWA control	Dr. Riese-Kinney

UK Forestry is also currently enjoying one of the highest graduate student enrollments in its history (Figure 5). Though UK Forestry does not have a Ph.D. program *per se*, several research faculty are involved in the interdisciplinary Integrated Plant and Soil Sciences (IPSS) Ph.D. program and several have adjunct appointments in other departments (Biology, Plant and Soil Sciences, Animal and Food Sciences) that do grant Ph. D. degrees. UK Forestry faculty currently serve as advisors or co-advisors for 12 Ph.D. students. UK Forestry’s Research Committee is currently exploring procedures for and potential to petition for acquiring a Ph.D. program, which becomes even more important as we add new faculty and disciplines.

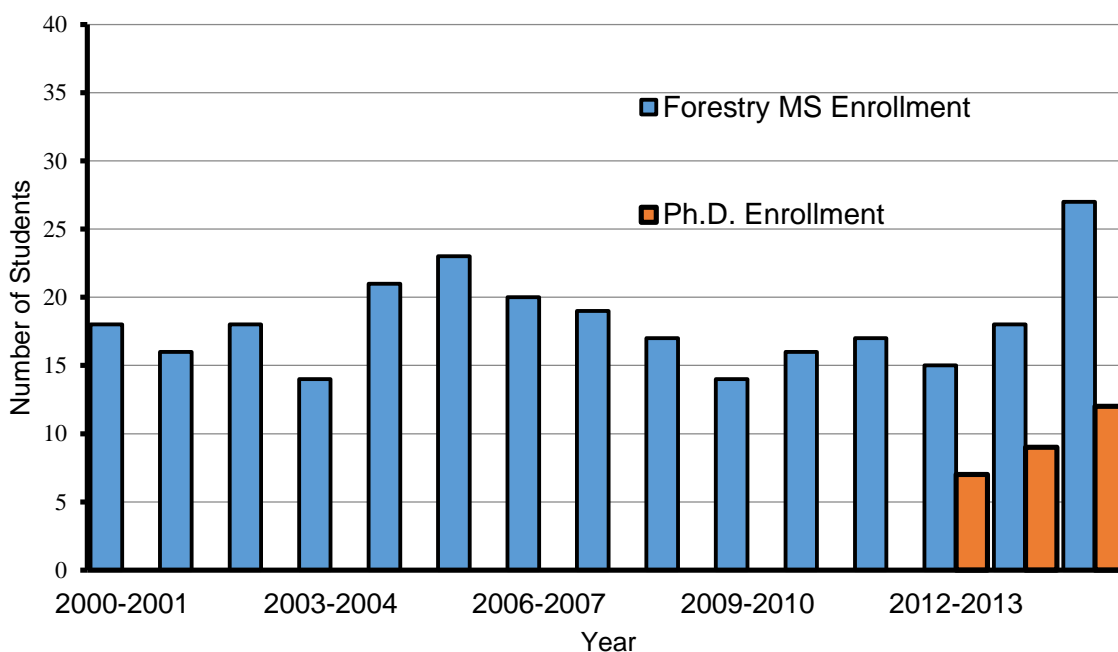


Figure 5. Historic MS and Ph.D. student enrollment UK Department of Forestry

Graduate student stipends at UK Forestry are both above and below the average amount for selected benchmark (i.e., southern NAUFRP) institutions (Table 9). The mean stipend amount among southern NAUFRP schools for a teaching MS is \$16,627

compared to UK's \$17,000-stipend. The mean stipend amount among southern NAUFRP schools for a research MS is \$16,766 compared to UK's \$14,000. Students have the opportunity to take on additional teaching assistant responsibilities to enhance their stipend (~\$3,000 per semester) and many take advantage of this option. The benefits to the students are additional time and experience in the classroom, whereas the benefits to the department provide additional help in the classroom and an enhanced salary opportunity which attracts good students. Generally, there is considerably more demand for graduate assistantships than there is supply, so the department regularly turns away quality graduate students. Departmental policy, in which newer faculty are typically favored with departmentally-provided assistantships, enhances opportunities to attract students and assists with the tenure and promotion process. The department typically offers 2-3 graduate assistantships each year with department-sourced funds. UK Forestry faculty have been quite successful acquiring funding for graduate student assistantships through grants and contracts (Figure 6). Other sources of funding for graduate students include endowments, startups, and the departmentally-sourced stipends using state and federal funds.

Table 9. Graduate student stipend comparison among selected southern NAUFRP institutions (base rate 12 months) for 2014-2015

Institution	Teaching MS	Teaching Ph.D.	Research MS	Research Ph.D.
AU	n/a	n/a	n/a	n/a
LSU	\$19,500	\$23,000	\$19,500	\$23,000
LA TECH	n/a	n/a	\$22,300	n/a
MSU	\$15,000	n/a	\$16,000	\$21,000
NCSU	\$17,250	\$18,500	\$17,500	\$19,000
OSU	\$15,500	\$18,500	\$15,500	\$18,500
SFASU	\$12,300	\$14,400	\$12,300	\$14,400
TAMU	\$18,000	\$20,400	\$18,000	\$20,400
UAM	n/a	n/a	\$15,000	n/a
UF	n/a	n/a	\$16,000	\$22,000
UGA	\$22,597	\$24,425	\$22,597	\$24,425
UK	\$17,000	n/a	\$14,000	n/a
UT	\$12,500	\$15,000	\$12,500	\$15,000

Only half-time graduate student stipends are shown because all UK Forestry graduate stipends are half-time.

According to student responses, the top reason that students rejected fellowships or assistantships offered by the university, college, or department/unit was a competing offer from an academically stronger or more prestigious program or a desired graduate mentor at another institution. This suggests students do consider the amount of the stipends and benefits in making a decision where to attend graduate school. Other students responded that graduate school was not a path upon which they were ready to

embark and postponed their decision to attend graduate school. Other students cited the desire to change the focus of their studies to a program in a different, though perhaps related, field.

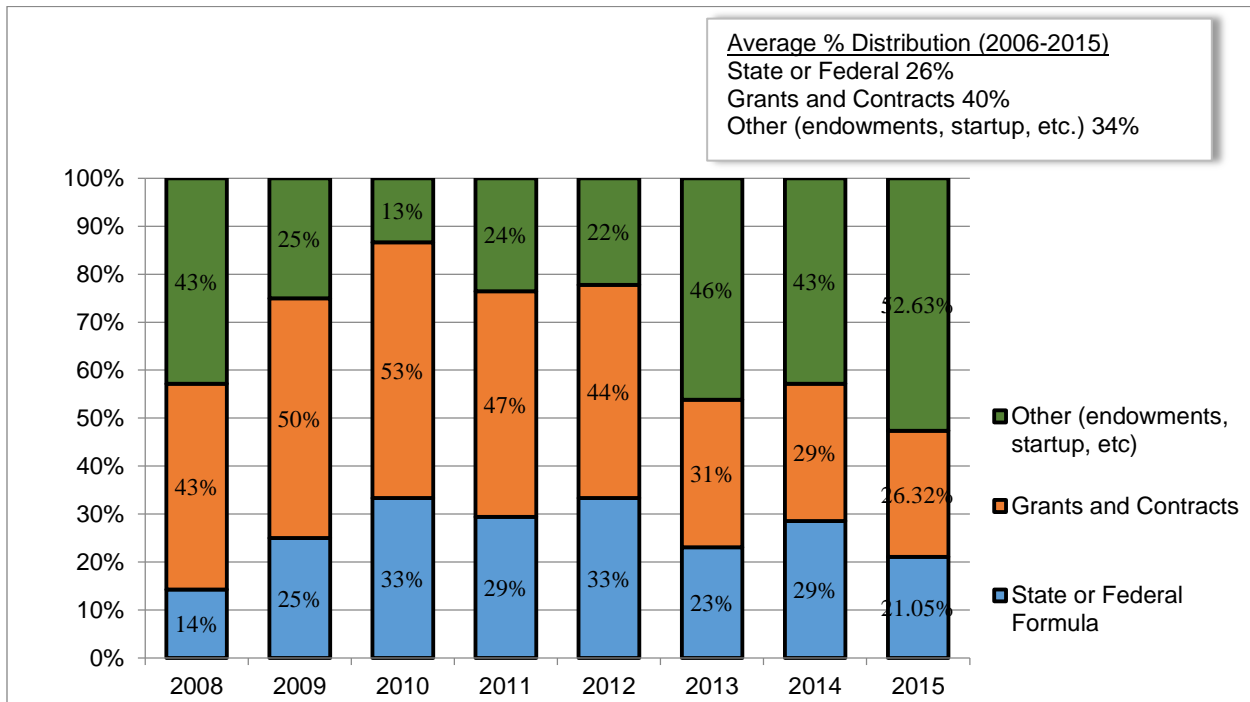


Figure 6. Sources of funding for graduate student stipends in the Department of Forestry at the University of Kentucky

Diversity and Inclusion

The University of Kentucky is committed to diversity as a vital characteristic of an optimal education and workplace. The University maintains a firm conviction that it must strengthen the diversity of its communities, support free expression, reasoned discourse and diversity of ideas; and take into account a wide range of considerations, including but not limited to, ethnicity, race, disability, and sex, when making personnel and policy decisions.

UK Forestry recognizes, and is committed to, the importance of diversity in its personnel. In accordance with UK guidelines, all faculty and staff searches make an effort to reach individuals from underrepresented groups. Currently, UK Forestry has one female faculty member and two international faculty members, further contributing to the diversity and breadth of the program. Of UK Forestry’s full-time faculty and staff, including post-doctoral scholars, almost 30% of our personnel are women.

To increase diversity within the student population, UK Forestry established objectives within its 2009-2014 strategic plan to develop and implement actions that will result in a more diverse student body, faculty, and staff. To achieve this objective, the department has worked with the College’s Assistant Dean for Diversity, the Office of University

Engagement and Multicultural Affairs, and others, to develop an action plan for fostering UK Forestry's diversity. The development of that action plan involved faculty, staff, students, and external constituents.

UK Forestry Instruction

The University of Kentucky offers the only accredited professional degree in forestry in the Commonwealth of Kentucky. Students take a wide variety of course work, studying the natural and social sciences related to forestry, as well as communication, management, processing, group problem-solving, and administration. Considerable learning takes place outdoors and much of it is hands-on and heavily experiential. A number of forestry courses utilize Robinson Forest, a 15,000-acre outdoor laboratory located in eastern Kentucky and managed by UK Forestry. A significant portion of the semester-long Spring Field Semester is headquartered at the Robinson Forest camp where junior forestry majors live and develop practical field skills needed by foresters. Robinson Forest is also the site of the three-week long NRES field camp where students are exposed to similar kinds of experiential learning opportunities as forestry majors, without the detail, depth, and breadth of the forestry camp. The capstone of the forestry degree program during the final semester at UK is a course on integrated forest resource management. In this course, students merge all skills learned and develop a management plan for an actual piece of forested land.

When the Forestry Department revised its undergraduate curriculum a few years ago, one significant change was the replacement of the traditional summer camp with a field semester during the spring of the junior year. This change served a three-fold purpose. First, and most importantly, it allowed the entire summer following the junior year to be available for valuable internship experience. Second, it provided 14 weeks of field-based learning instead of eight. Third, by eliminating a summer tuition bill, it accomplished the above objectives at a significantly reduced the cost to students.

Spring of 2015 marked the fourth time our junior class experienced the field semester (Figure 7). The Spring Field Semester is designed to be a seamless weaving of detailed course material into hands-on, practical learning experiences across a wide range of subject matter. Often, students and faculty discuss multiple topics and disciplines on any given day. The field semester relies heavily on off-campus experiences and involvement by professionals in the field throughout. Although UK Forestry has annually evaluated and adjusted this relatively new component of the curriculum, some traditions are already emerging. Juniors begin the semester at the Asbury University Challenge Course in Wilmore, Kentucky. This day-long event puts the students in situations where they have to rely on each other and work as a team to overcome physical challenges and obstacles. The day ends with students negotiating a series of challenges situated 30 feet in the air. Other emerging traditions are attendance at the Kentucky-Tennessee Society of American Foresters winter meeting to foster professional development. In addition to fieldwork in the Lexington area, Robinson Forest, and western Kentucky, the

field semester class spends a week visiting the Nantahala and Chattahoochee National Forests and the Coweta watershed laboratory. The Forestry field experience (be it the old summer camp or the new field semester) continues to be a bonding mechanism for our students and helps foster the sense of a class within a big university.

Figure 7. Sample of the Spring Field Semester Schedule (Spring 2015), below.



2015 Spring Field Semester

Undergraduate Forestry Program

Current as of 01/15/2015a

Week	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 Lexington				Jan 14 ALL COURSES Team Building	Jan 15 FOR 356 Paratley(<i>dendra</i>)	Jan 16 Finalize class work	Jan 17
	Jan 18	Jan 19 MLK Holiday	Jan 20 FOR 355 L. Lhotka	Jan 21 FOR 359 FOREST OP. & UTILIZ. Conners and Ringe (<i>forest utilization</i>)	Jan 22	Jan 23 Finalize class work	Jan 24
	Jan 25	Jan 26	Jan 27	Jan 28	Jan 29	Jan 30	Jan 31
	FOR 359 FOREST OPERATIONS AND UTILIZATION Ammerman, Conners, Ringe (<i>industry tours</i>)				KTSAF Mtg Knoxville, TN Stringer		
	Feb 1	Feb 2	Feb 3	Feb 4	Feb 5 FOR 356 Paratley(<i>dendra</i>)	Feb 6 Finalize class work	Feb 7
	Feb 8	Feb 9 ATFS Training FOR 355	Feb 10 FOR 355 Lhotka	Feb 11 MAKEUP DAY	Feb 12 FOR 356 Paratley(<i>dendra</i>)	Feb 13 Finalize class work	Feb 14
	Feb 15	Feb 16	Feb 17	Feb 18	Feb 19	Feb 20 Finalize class work	Feb 21
FOR 357 INVENTORY AND MEASUREMENTS II Contreras							
7	Feb 22	Feb 23	Feb 24	Feb 25	Feb 26	Feb 27 Finalize class work	Feb 28 FOR 355 Lhotka (<i>field day</i>)
8 Robinson Forest	Mar 1	Mar 2	Mar 3	Mar 4	Mar 5 FOR 356 LANDSCAPE ASSESSMENT Cox (<i>wildlife</i>)	Mar 6 Finalize class work	Mar 7 FOR 355 Lhotka (<i>if needed</i>)
	Mar 8	Mar 9	Mar 10	Mar 11	Mar 12	Mar 13 Finalize class work	Mar 14
9	FOR 357 INVENTORY AND MEASUREMENTS II Contreras					Conclave - Starkville, MS Mar. 12-14	
10 NC/GA	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19	Mar 20	Mar 21
Spring Break							
10	Mar 22	Mar 23	Mar 24	Mar 25	Mar 26	Mar 27	Mar 28
FOR 358 SILVICULTURAL PRACTICES Lhotka							
11 Robinson Forest	Mar 29	Mar 30	Mar 31	Apr 1	Apr 2	Apr 3 Finalize class work	Apr 4
	FOR 356 LANDSCAPE ASSESSMENT Cox (<i>wildlife</i>)						
	Apr 5	Apr 6	Apr 7	Apr 8	Apr 9	Apr 10 Finalize class work	Apr 11
	FOR 356 LANDSCAPE ASSESSMENT Barton (<i>hydrology</i>)						
	Apr 12	Apr 13	Apr 14	Apr 15	Apr 16	Apr 17 Finalize class work	Apr 18
FOR 358 SILVICULTURAL PRACTICES Lhotka							
14	Apr 19	Apr 20	Apr 21	Apr 22	Apr 23	Apr 24 Finalize class work	Apr 25
FOR 359 FOREST OPERATIONS AND UTILIZATION Stringer (<i>forest operations</i>)							
15 Lex/KY	Apr 26	Apr 27	Apr 28	Apr 29	Apr 30 FOR 359 Stringer 480 pres./dinner	May 1 evaluations/exit interviews (AM)	May 2
	FOR 359 FOR. OP. & UTILIZATION Stringer (<i>forest operations</i>)						
16	May 3	May 4	May 5	May 6	May 7	May 8	May 9
ALL COURSES Final Exams Week - Exams at Berea Forest							

Students also have the option to participate in the wildlife forester program which combines the forestry undergraduate curriculum with significant coursework (Appendix 1-E) in wildlife sciences, both within the department and in other departments across campus (e.g., Biology). Students completing this program will not only have an accredited undergraduate Forestry B.S., but they will also have the coursework required to be a Certified Wildlife Biologist and work for a state wildlife agency. Interviews with hiring officials within these agencies indicate that the best wildlife biologists are those that fully understand habitat and habitat management and manipulation; they are increasingly focused on hiring candidates with these combined skills which put students completing the wildlife forester program at a competitive advantage over graduates who have not.

The Department of Forestry is also the only institution in Kentucky that offers a Master's degree in forestry. UK Forestry graduates occupy leadership positions in private practice, public agencies, and academic institutions throughout the United States and the world.

Admission

Entry into the University of Kentucky Forestry undergraduate program is contingent upon admission to the University of Kentucky⁶. Basic requirements for admission to the M.S. degree program in Forestry include an undergraduate GPS of 3.00 or above, a GRE score of 1000 or greater (combined verbal and quantitative score), and an undergraduate degree in forestry or a related natural resource discipline⁷.

Enrollment

Enrollment in UK's forestry major has typically fluctuated over time (Figure 8), as have the degrees earned in the BS and MS programs (Table 11), sometimes with little discernable explanation. Current enrollment (53) represents the major's 15-year average enrollment. NRES enrollment, a CAFE interdisciplinary program to which UK Forestry is the college's largest contributor, has steadily risen over the last decade or so (Figure 8). These patterns reflect longer-term trends observed nationally in enrollments among forestry and related majors (Figure 9), where numbers in traditional majors such as forestry have declined somewhat relative to more generalized natural resource majors. In approximately 2000, enrollment in natural resource majors began to exceed enrollment in forestry majors nationally (Figure 10). The same pattern was evident around 1990 in wildlife and fisheries programs nationally where natural resource majors began to exceed wildlife and fisheries majors (Figure 10). Enrollment in wildlife and

⁶ University of Kentucky admission requirements may be found at: <http://www.uky.edu/Admission/admissions>.

⁷ Information for admission to University of Kentucky graduate programs may be found at: <http://www.research.uky.edu/gs/ProspectiveStudents/Admission.html>

fisheries programs has also increased, although only slightly, over the same time period (Figure 9).

Current enrollment in UK Forestry’s major is within the range and comparable to enrollment in the forestry major at benchmark southern NAUFRP institutions, particularly when some of the very high-enrollment programs (i.e., Stephen F. Austin University, Mississippi State University) are removed from the analysis (data not shown). However, direct comparison among these universities should be viewed with caution due to different majors and structures within those institutions, as well as different demand for forestry majors/graduates within each state. Enrollment comparisons in the natural resources major among southern NAUFRP follow a similar pattern.

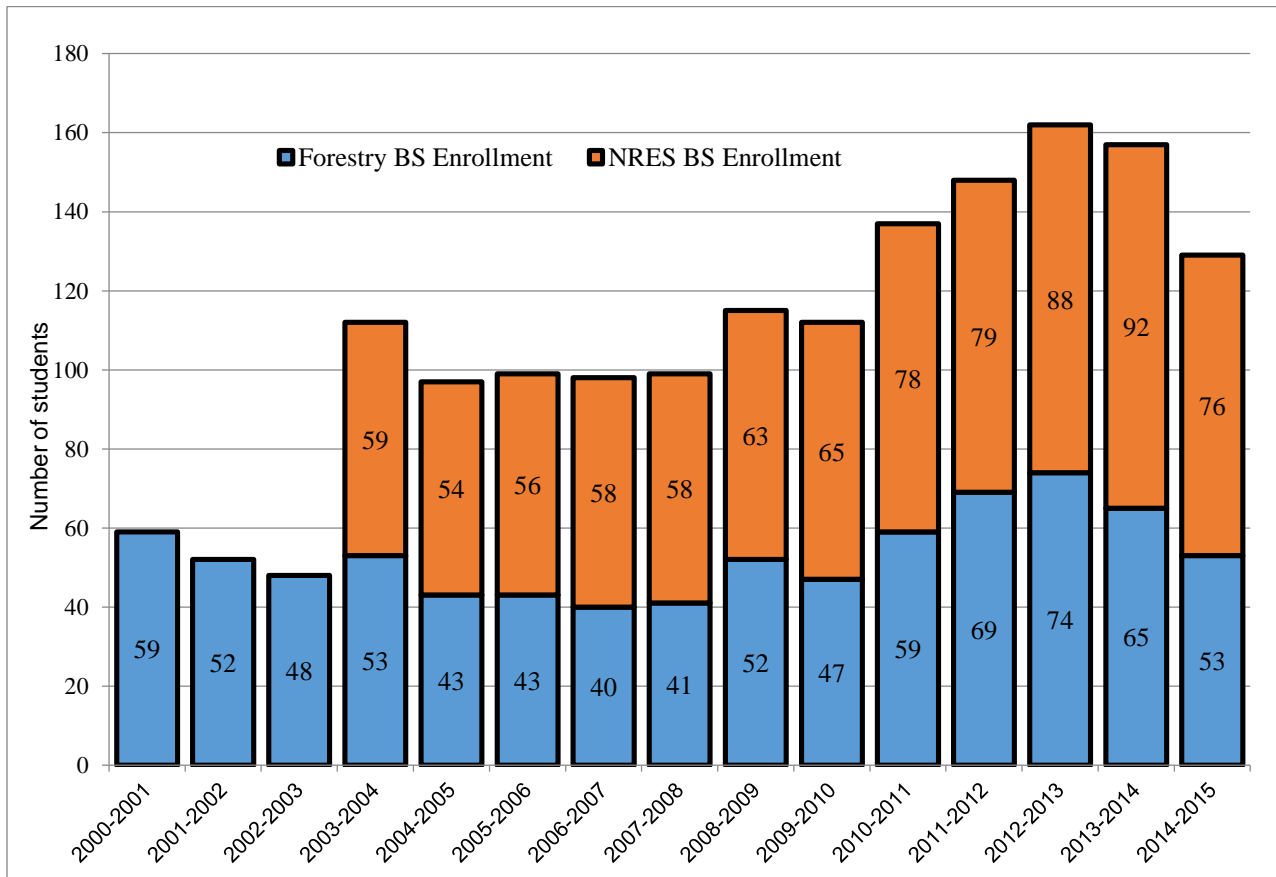
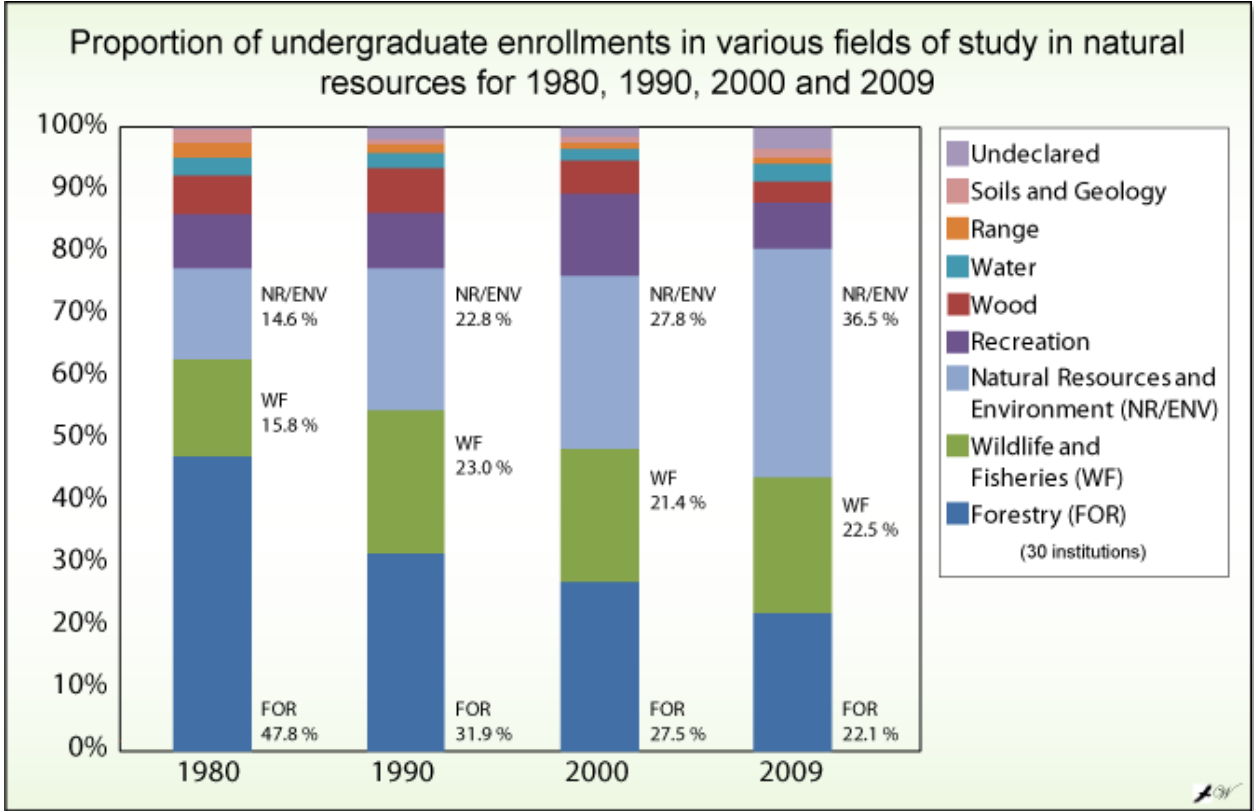
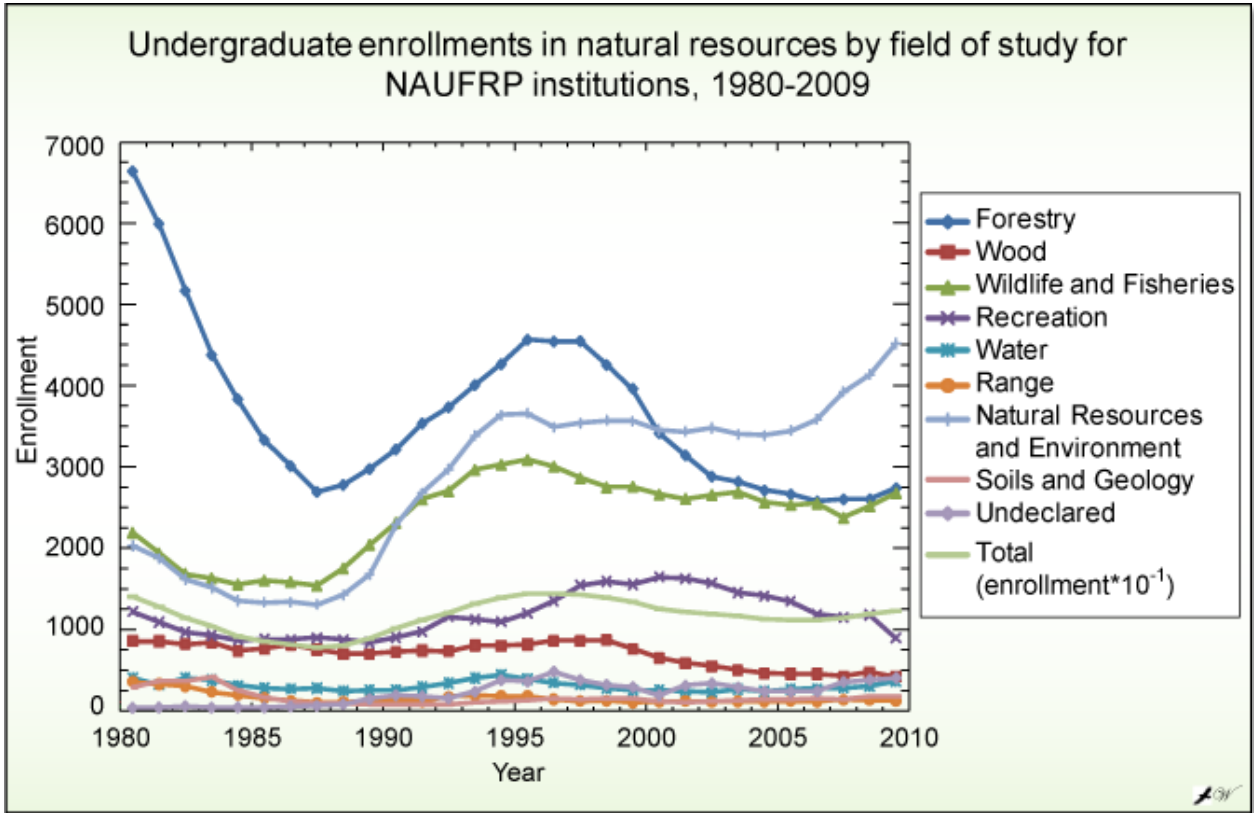


Figure 8. Historic undergraduate student enrollment in Forestry and Natural Resources and Environmental Sciences majors in University of Kentucky’s Department of Forestry



Source: Sharik, T.L., R.J. Lillieholm, and W.W. Richardson. 2012. Proportion of Undergraduate Enrollments by Field of Study, 1980, 1990, 2000, 2009. Factors influencing undergraduate enrollment trends in natural resources. 9th Biennial Conference on University Education in Natural Resources, Fort Collins, CO, March 23, 2012.

Figure 9. Proportion of undergraduate enrollments in various fields of study in natural resources for 1980, 1990, 2000, and 2009



Source: Sharik, T.L., and P.A. Layton. 2010. Undergraduate Enrollments in Natural Resources by Field of Study for NAUFRP Institutions, 1980-2009. Forestry education in the USA in a changing social climate. International Symposium on Forestry Education, Vancouver, BC, May 18, 2010.

Figure 10. Undergraduate enrollments in natural resources by field of study for NAUFRP institutions, 1980-2009

UK Forestry’s student credit hour production has steadily increased over the last several years (Table 10). Part of the explanation lies in increasing enrollments in both the forestry and NRES majors (who take both required and optional courses in the forestry curriculum), as well as increasing numbers of non-majors from across campus.

Table 10. Undergraduate credit hour production in the Department of Forestry in the College of Agriculture, Food and Environment 2010-2014

Year		Fall	Spring	Summer II	Grand Total
2013-2014	Attempted	1,602	794	0	2,396
	Earned	1,473	767	0	2,240
2012-2013	Attempted	1,501	897	0	2,398
	Earned	1,375	845	0	2,220
2011-2012	Attempted	1,360	833	0	2,193
	Earned	1,234	779	0	2,013
2010-2011	Attempted	1,083	713	80	1,876
	Earned	966	665	74	1,705

Numbers do not include student credit hour production in required NRES-prefixed courses taught by Forestry faculty.

Advising

Most forestry students are advised by the Director of Undergraduate Services, Dr. Jim Ringe. Prospective students (including high school, transfer, and major changes) usually visit with Dr. Ringe to learn more about the forestry program. Dr. Ringe assists prospective students with the paperwork necessary to become a forestry major. These students have the opportunity to switch advisors at any time, but are usually happy with Dr. Ringe and keep him as their advisor. During the summer advising sessions, faculty sign up for one or more of the summer advising dates. Faculty that advise students during the summer typically keep those students as advisees throughout their time in the forestry program. Forestry students have the option to select any forestry faculty as an advisor.

Over time, much of the advising responsibilities have fallen on a few individuals in the department (Table 11). While this reduces the burden of advising on most faculty, it requires considerable time investment of at least one faculty member. It is unclear whether this is a good arrangement or one that can be improved upon; some departments successfully rely on professional advisors who handle most of the advising while others distribute the load among most faculty in the department.

Table 11. Student advisors for the undergraduate Forestry major in the College of Agriculture, Food and Environment at the University of Kentucky

Advisor	# Advised (Fall 2015)
Dr. Jim Ringe	47
Dr. John Lhotka	1
Dr. Mary Arthur	1
Dr. Dave Wagner	1
Dr. Andrew Stainback	2

The forestry program is a professional degree program that is fairly lock-step in terms of the courses offered. We have a four-year plan that our students and advisors follow. From the sophomore to senior year students have a specific set of forestry courses they must take and these courses are only offered once per year. The department has an Advisor's Guide that is given to each of the forestry advisors. The Department of Forestry Undergraduate Advisor's Guide contains information on 1) the forestry curriculum; 2) the UK Core; 3) semester-by-semester advising guide; 4) late summer freshman advising; and 5) advising transfers. This document is updated as needed.

Retention

Table 12 illustrates the most up-to-date data revealing the performance of First-Year, Full-Time students over a six-year reporting period for the Department of Forestry⁸. As the table shows, performance within the Department of Forestry generally falls in line with that of the College and University as a whole. A clearer picture of the most up to date performance will aid the department in constructing the best plan of action to improving student performance in departmental courses.

Table 12. Retention of students in the Department of Forestry at the University of Kentucky 2002-2012

Cohort	First Fall Enrollment	First Fall to Spring Retention			First Fall to Second Fall Retention			First Fall to Third Fall Retention			First Fall to Fourth Fall Retention			Four Year Degree Completion			Six Year Degree Completion			HS GPA	ACT Comp	First Fall UK GPA	First Year UK GPA
		Dep	Coll	UK	Dep	Coll	UK	Dep	Coll	UK	Dep	Coll	UK	Dep	Coll	UK	Dep	Coll	UK				
2002	5	80.0	80.0	80.0	20.0	20.0	20.0		20.0	20.0			20.0					20.0	20.0	3.49	21.00	2.60	1.58
2003	6	66.7	66.7	66.7	66.7	66.7	66.7	50.0	50.0	50.0			50.0	33.3	33.3	33.3	33.3	33.3	3.61	24.17	2.47	2.21	
2004	4	100.0	100.0	100.0	75.0	75.0	75.0			75.0			75.0			50.0		75.0	3.55	29.25	3.03	2.89	
2005	4	75.0	75.0	75.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	25.0	25.0	25.0	25.0	25.0	3.39	22.25	1.63	1.08	
2006	6	100.0	100.0	100.0	66.7	66.7	66.7	66.7	83.3	83.3	66.7	83.3	83.3	16.7	16.7	33.3	16.7	16.7	3.26	23.00	1.83	1.83	
2007	11	81.8	81.8	90.9	63.6	63.6	72.7	45.5	54.5	72.7	45.5	54.5	63.6	18.2	18.2	18.2			3.14	23.64	2.44	2.36	
2008	9	66.7	88.9	88.9	55.6	66.7	77.8	55.6	66.7	66.7	44.4	55.6	66.7						2.91	23.22	2.08	1.95	
2009	10	60.0	60.0	60.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0						3.27	22.50	1.62	1.78	
2010	6	100.0	100.0	100.0	83.3	83.3	83.3	66.7	66.7	66.7									3.65	25.17	2.74	2.44	
2011	7	100.0	100.0	100.0	85.7	85.7	100.0												3.56	26.71	2.98	2.88	
2012	3	33.3	33.3	33.3															3.56	26.00	1.18		

During the last two years, UK, CAFE, and UK Forestry have prioritized the retention of students. UK Forestry spent this time developing extracurricular programs and opportunities, as well as revisions to the curriculum (e.g., UK Fire Cats, SAF Mentoring, required freshman classes, etc.) that would improve retention of students. Due to time constraints, this effectively limited our investment toward recruitment of new students to the program. This may, in part, explain the moderate decrease in enrollment over the last two years. However, now that retention initiatives are firmly in place, we intend to

⁸ http://www.uky.edu/IRPE/students/ret_grad/Section1.pdf

redouble our focus on recruitment of new students and will develop a recruiting strategy during the current academic year. Additional information on our retention activities are described in the Student Services section below.

Another factor that challenges both forestry and NRES enrollment is the development of a new academic major in the UK Arts and Sciences College; a B.A in Environmental and Sustainability Studies⁹. Enrollment in this new major has grown from 12 students in 2013, to 43 in 2014, and the 2015 freshman class has already exceeded the 2014 and 2013 classes indicating continued growth. We speculate that some UK students who may have a passion for the outdoors and environmental subjects, but are averse to science and math subjects, gravitate toward this program instead of Forestry or NRES.

Curriculum

The undergraduate forestry program is administered by the faculty in UK Forestry. The Undergraduate Program Committee (UPC) is responsible for curriculum development, changes to curriculum, assessment of learning outcomes, and other aspects of managing the undergraduate forestry program. The UPC is chaired by the Director of Undergraduate Studies, Dr. Jim Ringe, who reports to the department chair. Together, with faculty on the UPC, they develop agenda items for the UPC, which meets monthly during the fall and spring semesters.

The University of Kentucky manages the UK Core program as a means to require certain coursework in given subjects ensuring that students graduate with a breadth and depth of understanding in a variety of disciplines. Currently, UK Forestry classes do not contribute to the UK Core program. However, UK Forestry recently submitted a curriculum revision proposing the use of several forestry courses as UK Core classes. We believe this will 1) enable more students from across campus to take forestry courses as a means to satisfy UK Core requirements, 2) may help recruit additional students already enrolled at UK to the forestry major, and 3) allow our students to complete UK Core requirements while taking required forestry courses, thereby enabling them to take several professional elective courses in related disciplines (i.e., wildlife, business, communications, etc.) of their choosing with the help of their advisor (Appendix 1-B).

Table 13 shows the five courses proposed as additions to the UK Core. Paperwork for this curriculum change has passed through the College of Agriculture, Food and Environment review and is now pending review and approval at the university level (Appendix 1-B).

⁹ <http://www.uky.edu/registrar/Major-Sheets/MS1415/a&s/ess.pdf>

Table 13. Proposed forestry undergraduate courses to be considered for UK Core credit

Proposed Course	UK Core Course Areas
FOR 100 Forests and Forestry	Inquiry in the Natural/Mathematical/Physical
FOR 101 Keeping it Wild: Animal Conservation in the 21st Century	Global Dynamics
FOR 200 Basics of Geospatial Technology	Quantitative Foundations
FOR 250 Statistics and Measurements I	Statistical Inferential Reasoning
FOR 435 Conservation Biology	Global Dynamics

UK Forestry courses are used by several majors as an option to fulfill elective or concentration requirements. For example, some of the majors that use FOR courses to fulfill elective or concentration requirements include: Natural Resources and Environmental Science, Environmental and Sustainability Studies, Landscape Architecture, and Agricultural Economics.

The University of Kentucky's Quality Enhancement Plan (QEP) has a primary emphasis on improving student communication skills (e.g., writing, public speaking, etc.). To accomplish this major goal, the university implemented a Graduation Composition and Communication Requirement (GCCR), which replaces the former Graduation Writing Requirement (GWR). In addition to attaining proficiency in written communication (i.e., the old GWR), students are now required to show competence in oral communication and information literacy in their discipline. The Department of Forestry uses (FOR 400) and (FOR 480) to accomplish the GCCR¹⁰.

The University of Kentucky offers the only accredited professional degree in forestry in the Commonwealth of Kentucky. Therefore, the university and department is unique and takes its curriculum comparison from other benchmark schools in southern NAUFRP. Currently, UK Forestry is not offering any distance learning classes.

Instruction

Faculty teaching is evaluated at the end of each semester using the university's student online course evaluation system. In addition to the online course evaluation, feedback on instruction is received at the end of the junior year when Spring Field Semester exit interviews are conducted and at the end of the senior year when senior exit interviews are conducted.

In an effort to improve teaching, faculty regularly attend training and workshops offered through the Center for the Enhancement of Learning and Teaching¹¹.

Class size ranges from approximately 10 to 70 students. The larger classes contain both forestry and Natural Resource and Environmental Science majors. The smaller

¹⁰ More information about the QEP can be accessed at the following link: <http://www.uky.edu/presentationu/>.

¹¹ <http://www.uky.edu/celt/>

classes usually contain forestry students only. Table 14 shows the recent teaching allocation of forestry faculty for undergraduate courses. Table 15 shows the recent teaching allocation of forestry faculty for graduate courses.

Table 14. Recent teaching allocation for forestry faculty for undergraduate courses (spring 2015 and fall 2015)

Faculty	Course
Arthur, Mary	FOR 340 Forest Ecology NRE 471 Senior Problems in Natural Resources Environmental Science NRE 320 Natural Resource and Environmental Analysis
Baker, Terrell	GEN 300 Communication and Professional Development in Forestry
Barton, Christopher	FOR 460 Forest Hydrology and Watershed Management FOR 356 Landscape Assessment
Conners, Terrance	FOR 359 Forest Operations and Utilization
Contreras, Marco	FOR 425 Forest Management FOR 357 Inventory and Measurements II
Cox, John	FOR 101 Introduction to Wildlife Conservation FOR 230 Conservation Biology FOR 356 Landscape Assessment
Cremeans, Darryl	FOR 250 Statistics and Measurements I
Lacki, Michael	FOR 370 Wildlife Biology and Management
Lhotka, John	FOR 350 Silviculture FOR 358 Silvicultural Practices FOR 480 Integrated Forest Resource Management
Lhotka, Laura	FOR 355 Forest Fire Control and Use GEN 300 Communication and Professional Development in Forestry
Paratley, Robert	FOR 219 Dendrology FOR 325 Economic Botany: Plants and Human Affairs FOR 356 Landscape Assessment NRE 420G Taxonomy of Vascular Plants
Price, Steven	FOR 599 Freshwater Ecology FOR 599 Urban Ecology FOR 510 Herpetology
Rieske-Kinney, Lynne	FOR 402 Forest Entomology
Ringe, James	FOR 100 Introduction to Forestry FOR 200 Basics of Geospatial Technology FOR 260 Forest Products and Wood Science FOR 320 Forest Valuation and Economics FOR 359 Forest Operations and Utilization FOR 480 Integrated Forest Resource Management
Stainback, Andrew	FOR 400 Human Dimensions of Forestry and Natural Resources FOR 240 Forestry and Natural Resource Ethics

Stringer, Jeffery	FOR 359 Forest Operations and Utilization
Wagner, David	FOR 110 Natural Resource Issues FOR 100 Introduction to Forestry FOR 461 Introduction to Population Genetics
Yang, Jian	FOR 330 GIS and Spatial Analysis

Table 15. Recent teaching allocation for graduate forestry courses

Faculty	Courses (spring and fall 2015)
Cox, John	FOR 770 Forestry Seminar: Wild Felid Ecology Management and Conservation
Gleeson, Scott*	FOR/BIO/ENT 609 Population and Community Ecology
Paratley, Robert	FOR 770 Forestry Seminar: Plant Animal Mutualism
Price, Steven	FOR 599 Freshwater Ecology FOR 599 Urban Ecology FOR 510 Herpetology
Rieske-Kinney, Lynne	FOR/BIO/ENT 667 Invasive Species Biology
Stainback, Andrew	FOR 770 Forestry Seminar: Ecosystem Services
Wagner, David	FOR 601 Research Methods in Forestry FOR 602 Renewable Natural Resources in Global Perspective FOR 770 Forestry Seminar: University Forestry Teaching FOR 770 Forestry Seminar: Natural Resource Issues Genetic Diversity
Wagner, George*	FOR/BIO/ENT 622 Physiology of Plants I
Westneat, David*	FOR 608 Behavioral Ecology and Life Histories
Other graduate courses developed and offered on demand (since fall 2012)	
Cox, John	FOR 770 Forestry Seminar: Ecology, Management, and Conservation of Wild Canids FOR 770 Forestry Seminar: Neotropical Migrant Songbird Mgmt. and Conservation
Contreras, Marco	FOR 770 Forestry Seminar: Optimization Technology in Natural
Lhotka, John	FOR 770 Forestry Seminar: Ecology and Oak Silviculture in Oak Dominated Forests
Paratley, Robert	FOR 770 Forestry Seminar: Anthropogenic Influence New World
Stainback, Andrew	FOR 770 Forestry Seminar: Natural Resource and Environmental Valuation FOR 770 Forestry Seminar: Ecological Economics

*Non-forestry faculty

Assessment

UK Forestry conducts one of the most intensive student learning outcomes assessment of any program on campus; in fact, it has repeatedly been referenced as a model for other departments and majors. Dr. Dave Wagner currently manages our assessment program which is designed not only to meet university reporting requirements, but also assist UK Forestry in understanding how well our students are understanding and retaining course material (Appendix 1-F).

In addition to student learning outcomes assessment, curriculum and program integrity are maintained by the Society of American Foresters (SAF) accreditation process. UK Forestry's undergraduate major is accredited by SAF, as a result of the last review conducted in 2010. To be accredited by SAF, academic programs leading to a Baccalaureate degree must, every ten years, prepare a self-evaluation report, host an onsite review by a visiting team, and undergo review by the SAF Committee on Accreditation, which determines that a degree program option meets SAF accreditation standards for mission, goals and objectives, curriculum, program organization and administration, faculty, students, and parent-institution support. Reaccreditation occurs every ten years, whereas UK Program Reviews occur every six years.

Student Services

Before freshmen start their first day of class, the Academic Coordinator works with prospective forestry students to familiarize them with the forestry program. The Academic Coordinator continues to work with these students once they arrive on campus to make sure their transition to college is smooth and productive. Throughout the forestry student's time in the forestry program, the Academic Coordinator provides scholarship information, internship and job opportunities, professional development information, and various other resources. The Academic Coordinator regularly meets with students to discuss cover letters, resumes, and interview skills.

Over the last several years, the number of first generation college students enrolled in the forestry major has continued to increase (Table 16). Currently, 35% of forestry majors are first generation college students. The student services provided by UK Forestry are critical to helping these students navigate through the college process and successfully complete their forestry degree.

Table 16. Number of first generation college students enrolled in the forestry major (2010-2015)






Fall of Academic Year	Total Forestry Enrollment	First Generation College Student	Percent First Generation
2010-2011	64	10	16%
2011-2012	66	19	29%
2012-2013	76	21	28%
2013-2014	65	22	34%
2014-2015	58	19	33%
2015-2016	54	19	35%

The Department Chair, Director of Undergraduate Services, and Academic Coordinator have open door policies and encourage students to come visit if any problem arises that makes meeting their student obligations difficult. All three offices work with students who face trouble with test anxiety, financial issues, and academic challenges.

The orientation and welcome are student services that UK Forestry provides to all undergraduate forestry majors every year. On the first day of the fall semester, the Chair of the Forestry Department, Director of Undergraduate Services, and the Academic Coordinator meet with a freshman-level (FOR 100/110), sophomore-level (FOR 260), junior-level (FOR 350), and senior-level (FOR 425) forestry classes. These meetings include a review of department resources, scholarships, internships, Forestry Club, volunteer opportunities, and other activities for forestry students for the upcoming year. This orientation and welcome is a useful way for the forestry faculty, staff and new students to meet in small classroom settings to get to know each other and learn about upcoming opportunities in the forestry program.

One important topic covered during the orientation and welcome is the Department of Forestry *Professional Guidelines and Expectations for Students in the Undergraduate Forestry Program* document (Appendix 1-G). The faculty in the department are fully committed to the core values, policies, and principles of professionalism that are presented in the document. The purpose of the professionalism document is to emphasize to students the standards of academic and professional integrity that are expected of them. After reviewing the contents of the document, (i.e., core values, attendance policy, department honor code, cheating and plagiarism, and professional integrity) students are asked to sign that they agree to abide by the department Honor Code.

OUR CORE VALUES

-  We treat people the way we want to be treated.
-  We conduct ourselves with honor, integrity, and take responsibility for our actions.
-  We emphasize professionalism and reward excellence and innovation.
-  We encourage critical thinking and lifelong learning.
-  We focus on serving the people and resources entrusted to our care.

Students are encouraged at orientation and throughout the year to get involved in one of the many opportunities that UK Forestry offers. Forestry students are encouraged to get involved with the Student Chapter of the Society of American Foresters (Forestry Club). The Forestry Club student leadership, through the guidance of the club advisor, has reorganized the club to focus on five key areas: professional development, service projects, UK Fire Cats, Conclave, and tree plantings. The new student leadership has worked diligently to improve the club and show forestry majors and non-majors the benefits of being members of the Forestry Club. The student leadership connects early with the forestry underclassmen to get them involved in the activities of the Forestry Club. The Forestry Club is an essential way for students to get involved in their major, profession, and with fellow forestry students.

Beginning in spring 2014, UK Forestry partnered with the Kentucky Division of Forestry (KDF) and U.S. Forest Service to create UK Fire Cats. UK Fire Cats is a professional development opportunity for forestry students to receive wildland firefighting training and experience by working with KDF to fight forest fires in Kentucky. Crews go out on the weekends during fire season as KDF Emergency Firefighter employees to fight wildfires. This is a great chance for forestry students to gain experience, meet professionals in the field, and connect with their fellow students. This experience has led to several UK Fire Cats obtaining permanent and summer employment with federal agencies fighting wildland fire, as well as permanent employment with KDF.

UK Forestry also encourages students to participate in local, state, and national forestry professional meetings. Meetings include Society of American Foresters (SAF) National Convention, Kentucky-Tennessee (SAF) Meeting, Kentucky Forest Industries Association annual meeting, and Kentucky Woodland Owners Association annual meeting. Travel scholarships are provided for students to attend these meetings. From 2011 to 2014, we awarded 24 travel scholarships for undergraduate forestry students to attend the annual Society of American Foresters National Conventions. Since 2013, more than 55 undergraduate forestry students have attended the regional Kentucky-Tennessee Society of American Forester meetings held each January.

Internships

Although not required, forestry students are strongly encouraged to have a summer internship experience. After their junior year, the majority of our students have summer intern employment in forestry and natural resource related employment. Table 18 shows recent examples (since 2013) of organizations where our students have had interned.

Table 17. Examples of internship placement for undergraduate forestry students (2013-2015)

Organization	Type of Work	Location (multiple)
Federal Agencies		
U.S. Forest Service	Timber sales, wildland fire fighting, trail work, forest technician, recreation	Alaska (2), Kentucky (3), Oregon (3), Idaho (2), South Carolina (1)
Bureau of Land Management	Wildland fire fighting	Nevada, Oregon
US Army Corps of Engineers	Forest management; STEP Ranger	Ft. Knox, KY; Lawrence County, KY
White River National Wildlife Refuge	Crew leader, forestry marking	Arkansas
Local Government		
Riverside Public Works	Urban Forestry	Illinois
Louisville Metro Parks	Urban Forestry	Kentucky
Lexington Fayette Urban County Govt.	Urban Forestry	Kentucky (6)
Forest Industry		
Dave Leonard Tree Specialists	Tree Care	Kentucky
Molpus Timberland Management	Forest management	Alabama (3)
Weyerhaeuser Corporation	Procurement	Mississippi (2)
Dunaway Timber	Forest products	Kentucky
Dickerson Lumber Company	Mill work	Kentucky
Steve Gray Forestry Consulting	Forestry consulting	Kentucky
University		
UK Department of Forestry	Wildlife research	Kentucky
UK Robinson Forest	Forest management	Kentucky (5)
UK Forestry Extension	Forestry extension	Kentucky
UK Arboretum	Native plant restoration	Kentucky

Graduation Statistics

Table 18. Total degrees earned by degree level in the Department of Forestry at University of Kentucky 2003-2014

Degree	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
Bachelor	11	14	8	13	8	15	6	17	9	21	16
Master's	3	4	3	10	7	3	7	6	9	6	3

Job Placement

Table 19 lists the job placements for undergraduate forestry students from 2011-2015. The placement data for undergraduate students is tracked six to twelve months after the student graduates. If alumni change employers and this information is available, the

placement records are updated. Each year there are one or two students who don't provide employment data and the department is, therefore, unable to track their employment information. Table 20 lists the job placements for graduate students.

Table 19. Examples of job placement for undergraduate forestry students (2011-2015)

Employment Type	Examples of Job Placement for Undergraduate Forestry Students
Federal Agencies	U.S. Forest Service U.S. Department of Army, Ft. Knox U.S. Corps of Engineers, Dewey Dam
State Agencies	Kentucky Division of Forestry Kentucky Department of Fish and Wildlife Resources Kentucky Transportation Cabinet Washington Department of Natural Resources
Local Government	Lexington Fayette Urban County Government Louisville Metro Parks Parks department in Ohio Riverside Public Works outside of Chicago
Forest Industry	Anderson Mill Breck County Hardwoods Glatfelter Consulting Forester Interwood Kentucky Artisan Distillery Masco Cabinetry Molpus Timberlands Weyerhaeuser
Tree Care	Arbor Metrics Solutions Davey Tree Expert Company Kentucky Utilities Greenhaven Tree Care H&R Agripower Landmark Landscaping Osmose Utilities Dave Leonard Consulting Arborist
Graduate School	University of Kentucky – Masters in Forestry Program University of Kentucky – Masters in Entomology Program Stephen F. Austin State University – Masters in Forestry Program Mississippi State University – Masters in Forestry Program

Data is captured six to nine months following graduate. Several students often work for the same organization.

Table 20. Job placement for graduate forestry students

Employment Type	Examples of Job Placement for Graduate Forestry Students
State Agency	Ohio Division of Forestry Kentucky Division of Forestry Kentucky Department of Fish and Wildlife Resources
Private Industry	Dave Leonard Consulting Arborist Domtar Forestry Consultant Landscape Architecture Firm
Non-Profit	Denver Zoo Heritage Land Conservation
Ph.D. Students	Virginia Tech Penn State University University of Kentucky North Carolina State University University of Georgia University of Louisville Mississippi State University University of Tennessee
University	Colorado State University University of Kentucky Southern Illinois University

Student Awards and Recognition

UK Forestry majors have been successful earning awards and recognitions for themselves and the department. For example, more than 25% of our students have graduated with honors (*cum laude* or better) during the last three years. Other honors for our students are provided in Tables 21 and 22. We recognize these accomplishments of our undergraduate and graduate students each year at the Spring Recognition Dinner held at the end of the spring semester.

Table 21. Forestry undergraduate and graduate student awards and recognition (2010-2015)

Name	Recognition
Mickey Agha [^]	2013-14 College of Agriculture Diversity Fellowship
Lauren Alwes*	William C. Parker Scholarship (2014-2015) First Generation Gift Fund (2014-2015)
Hannah Angel*	Kentucky-Tennessee Society of American Foresters Outstanding Forestry Student Scholarship - University of Kentucky (2014) Ag. Phone-A-Thon Scholarship (2013-2014) Ben Meadows Leadership Scholarship (2013-2014) KY-TN SAF Scholarship (2013-2014) Ben Meadows Leadership Scholarship (2013) Academic Excellence Scholarship (2012-2013) General Academic Scholarship (2012-2013) American Society of Mine Reclamation, 1 st Place Student Poster Presentation, 2012 2013 Student Excellence Award - College of Agriculture Student Council 3 rd place in the American Society of Mine Reclamation's student poster contest at their national conference in Wyoming 2013 American Society of Mining and Reclamation Memorial Scholarship (2012)
Danielle Auden	William C. Parker Undergraduate Sch. (2014-2015) Provost Scholarship (2014-2015)
Alejandra Betancourt [^]	American Association of Veterinary Parasitologists Award 2012 Annual Conference of Research Workers in Animal Disease
Luke Biscan*	Kentucky-Tennessee Society of American Foresters Outstanding Forestry Student Scholarship - University of Kentucky (2013) Kentucky Woodlands Owners Foundation Scholarship (2013)
Megan Buland*	Kentucky-Tennessee Society of American Foresters Outstanding Forestry Student Scholarship - University of Kentucky (2012) Kentucky Woodland Owners Foundation Scholarship (2011)
Christopher Bullock*	Band Grant in Aid (2012-2013)
Collin Coomer*	Provost Scholarship (2013-2014)
Ross Cox*	Provost Scholarship (2014-2015)
Dejanease Demartra-Pressley*	Diversity Scholarship to attend Society of American Foresters National Convention in Oahu, Hawaii November 3-7, 2011.
Tim Dishman*	Catalyst Scholarship (2012-2013) W.D. Funkhouser Scholarship (2012-2013)
William Dixon*	CORE - See Blue (2014-2015)
Stephen Dunn*	UK Robinson Trust Scholarship (2014-2015)
Kristian Elswick*	Kentucky Forest Industries Association Foundation - William H. Steele Memorial Forestry Scholarship (2014) Kentucky Woodlands Owners Foundation Scholarship (2014)
Ryan Fields*	Ag. Phone-A-Thon Scholarship (2013-2014) KY Christmas Tree Association Scholarship (2013-2014)

	Al Cline Memorial Vegetation Management Association of Kentucky (2014-2015) KY Christmas Tree Association (2014-2015) Altria Tobacco (2014-2015)
Blake Grigsby*	Taylor Family Scholarship (2013-2014)
Zachary Grigsby	UK Robinson Trust Scholarship (2014-2015)
Zachary Hackworth*	Wildcat Welcome Scholarship (2013-2014) Academic Excellence Scholarship (2014-2015) Danny L. Koon Scholarship (2014-2015)
Elizabeth Hansen*	Society of Mine Reclamation, Best Undergraduate Oral Presentation, 2015
Jonathan Johnson*	Joseph G. Duncan Scholarship (2012-2013) General Academic Scholarship (2012-2013)
Joseph Johnson^	Southern Bat Diversity Network Annual Meeting 2012 Outstanding Student Paper award and 2012 Graduate School Fellowship Outstanding Paper Award: 22nd Colloquium on the Conservation of Mammals in the Southeastern U.S.
Anthony Kenney*	Kentucky Christmas Tree Association Scholarship Agriculture Phone-a-thon Scholarship
Dennis Keown*	Kentucky Forest Industries Association Foundation - William H. Steele Memorial Forestry Scholarship (2013) Agriculture Phone-a-thon Scholarship (2012-2013) Green River Area Alumni Scholarship (2013-2014) William G. Survant Memorial Scholarship (2013-2014) Kentucky Forest Industries Association Foundation - William H. Steele Memorial Forestry Scholarship (2014) Kentucky Forest Industries Association Foundation - William H. Steele Memorial Forestry Scholarship (2015)
Christina Kuchle*	College of Agriculture Outstanding Senior 2011
Rachel Landham*	William C. Parker Undergraduate Scholarship (2012-2013) Licking River Area Alumni Scholarship (2012-2013) Altria Tobacco Scholarship (2012-2013) Altria Tobacco Scholarship (2013-2014) Tobacco Growers Scholarship (2013-2014) Kentucky Forest Industries Association Foundation - William H. Steele Memorial Forestry Scholarship (2014) Kentucky Woodlands Owners Foundation Scholarship (2015)
Tom Maignet^	Outstanding Presentation Award: 2012 Kentucky Chapter of The Wildlife Society Annual Conference Best Student Presentation Award: KY Chapter of The Wildlife Society Annual Meeting in Lake Barkley, KY in Feb 2012 Brooks/Cole Student Research Award in Aquatic Biology at the Association of Southeastern Biologists meeting in Spartanburg SC.
Allyson Manning*	CORE - Bluegrass Spirit (2014-2015) HHMI Scholarship (2014-2015)
Patrick McGlade*	William C. Parker Undergraduate Scholarship (2013-2014) William C. Parker Undergraduate Sch. (2014-2015)

Mercedes Murphy*	Provost Scholarship (2013-2014) Provost Scholarship (2014-2015)
Sean Murphy^	Outstanding Student Poster Award: 2011 The Wildlife Society Annual Conference Outstanding Poster Award: 2012 Kentucky Chapter of The Wildlife Society Annual Conference
Dennis Newton, Jr.*	Vegetation Management Association of Kentucky Scholarship (2012-2013) Joseph G. Duncan Scholarship (2012-2013) Taylor Family Scholarship (2013-2014)
Chad Niman*	Kentucky Forest Industries Association Foundation - William H. Steele Memorial Forestry Scholarship (2012)
Logan Nutt*	Forest Landowner Foundation Scholarship (2012) Railway Tie Association John Mabry Forestry Scholarship (2011-2012) 2012 Student Excellence Award - College of Agriculture Student Council General Academic Scholarship (2012-2013) Joseph G. Duncan Scholarship (2012-2013) Kentucky Christmas Tree Association Scholarship (2012-2013)
Kayla Price*	Kentucky Woodland Owners Foundation Scholarship (2012)
Joshua Robinson*	Provost Scholarship (2012-2013) Provost Scholarship (2013-2014) Provost Scholarship (2014-2015) Joseph G. Duncan Scholarship (2014-2015) Forestry Alumni Scholarship (2014-2015)
Matthew Savage*	University General Scholarship (2012-2013) First Scholars Scholarship (2012-2013) First Scholars Scholarship (2013-2014)
MacKenzie Schaeffer*	Kentucky-Tennessee Society of American Foresters Outstanding Forestry Student Scholarship - University of Kentucky (2015) L. H. May Scholarship (2013-2014) Ag. Phone-A-Thon Scholarship (2014-2015) Taylor Family Forestry Scholarship (2014-2015)
Kenton Sena^	American Society of Mining and Reclamation Memorial Scholarship (April 2013) 2 nd place in the American Society of Mine Reclamation's student poster contest at their national conference in Wyoming 2013 2 nd place Oral Presentation Award at the American Society of Mining and Reclamation 31st National Meeting in Oklahoma City, OK, June 2014 2015 Gamma Sigma Delta Outstanding Ph.D. Student Award American Society of Mine Reclamation, Best Undergraduate Oral Presentation, 2015 2014 fellow in the National Science Foundation East Asia and Pacific Summer Institutes Program in Australia
Wesley Staats^	National Association of University Forest Resources Programs Scholarship to attend the International Union of Forest Research Organizations Conference in Salt Lake City, Utah 2014.
Jason Thomas*	CORE - See Blue (2014-2015)
Philip Vogel*	Commonwealth Scholarship (2012-2013)

	<p>Commonwealth Scholarship (2013-2014) Joseph G. Duncan Scholarship (2013-2014) Al Cline Memorial Vegetation Management Association of Kentucky Scholarship (2013-2014) Commonwealth Scholarship (2014-2015) Joseph G. Duncan Scholarship (2014-2015) Taylor Family Forestry Scholarship (2014-2015)</p>
Emma Witt [^]	SSAJ S-06 (Soil & Water Conservation & Management Section) Graduate Student Award 2012
Taylor York [*]	<p>Agriculture Phone-a-thon Scholarship (2012-2013) KY Christmas Tree Association Scholarship (2013-2014) William G. Survant Memorial Scholarship (2013-2014) Ag. Phone-A-Thon (2014-2015) Taylor Family Forestry Scholarship (2014-2015) KY Christmas Tree Association (2014-2015)</p>
UK Forestry Club	<p>Tree Campus USA membership has been approved 2011-2014 KY/TN Society of American Foresters Winter Meeting; Quiz Bowl winner (2012) KY/TN Society of American Foresters Winter Meeting; Quiz Bowl winner (2014) KY/TN Society of American Foresters Winter Meeting; Quiz Bowl winner (2015) UK Forestry Club Quiz Bowl team advanced to Quarterfinals at the Society of American Forests 2012 National Convention meeting in Spokane, beating Mississippi State Univ. and Univ. of Montana</p>

^{*}Undergraduate Student; [^]Graduate Student

Table 22. Forestry undergraduate students achieving the Dean’s List (fall 2011-fall 2014)

Dean’s List			
Fall 2011	Fall 2012	Fall 2013	Fall 2014
Hannah Z. Angel	Hannah Angel	Hannah Angel	William Dixon
Luke B. Biscan	Cory Ashby	Keaton Burton	Andrew Emery
Dennis I. Newton, Jr	James Baunach	John Davis	Ryan Fields
Logan T. Nutt	Luke Biscan	Andrew Emery	Danielle Auden
Blake E. Owens	John Davis	Ryan Fields	Zachary Hackworth
Matthew B. Savage	Ryan Fields	Zachary Hackworth	Andrew Hagerty
Wesley A. Staats	Jonathan Johnson	Andrew Hagerty	Jesse Hunter
Taylor L. York	Anthony Kenney	Mercedes Murphy	Rachel Landham
	Dennis Keown	Dennis Newton, Jr.	Allyson Manning
	Dennis Newton, Jr.	Logan Nutt	Mercedes Murphy
	Logan Nutt	Joshua Robinson	Cody Pyles
	Cody Pyles	Matthew Savage	Joshua Robinson
	Joshua Robinson	Philip Vogel	Philip Vogel
	Matthew Savage		Taylor York
	MacKenzie Schaeffer		
	Wesley Staats		
	Philip Vogel		

Evaluation

We regularly solicit input from faculty and staff on program evaluation during faculty meetings, committee meetings, and via email. This input was used to help guide the curriculum revision process.

The external Forestry Advisory Board also provides feedback to help inform departmental decisions about teaching, research, and Forestry Extension. The UK Department of Forestry Advisory Board met on September 5, 2013 and April 30, 2015. These meetings provide useful information on what our stakeholders see as current and upcoming issues in the forestry arena. This input also helped guide our most recent curriculum revision.

Throughout the year, faculty and staff interact with various stakeholders and continually seek feedback on how students and alumni are performing as employees. This feedback is used to improve our curriculum and the content covered in classes.

At the end of each academic year, we conduct focus group sessions with all forestry juniors and seniors. These focus group sessions are conducted by the Academic Coordinator and the Department Chair. The annual junior exit interviews provide useful information on our Spring Field Semester. This valuable input from all juniors allows us to make changes and improve the spring field semester content and logistics. Our

annual focus group sessions with all seniors provide useful feedback on the students' entire time in the forestry program. This useful information from seniors allows us to continually improve our program. The seniors are also given an anonymous written survey to complete in order to provide additional comments and rate their overall satisfaction with the forestry program.

UK Forestry Research

Overview

Despite a general erosion of research FTEs over the last 15 years (e.g., fewer research FTEs currently have than the department's 15-year average and ranking in the bottom half of faculty research FTEs among departments in the CAFE), UK Forestry's research program continues to develop and, by some productivity metrics, grow (Table 3, Figure 3). The 2013-2014 fiscal year saw the highest direct awards to department faculty since 2005-2006. Collaborative awards (obtained through cooperation with other departments and universities) also continue to be strong. UK Forestry faculty are increasingly acquiring direct awards to fuel their research programs, resulting in primary grant dollars per research FTE of more than \$200,000 for the first time since 2005 (Figure 11).

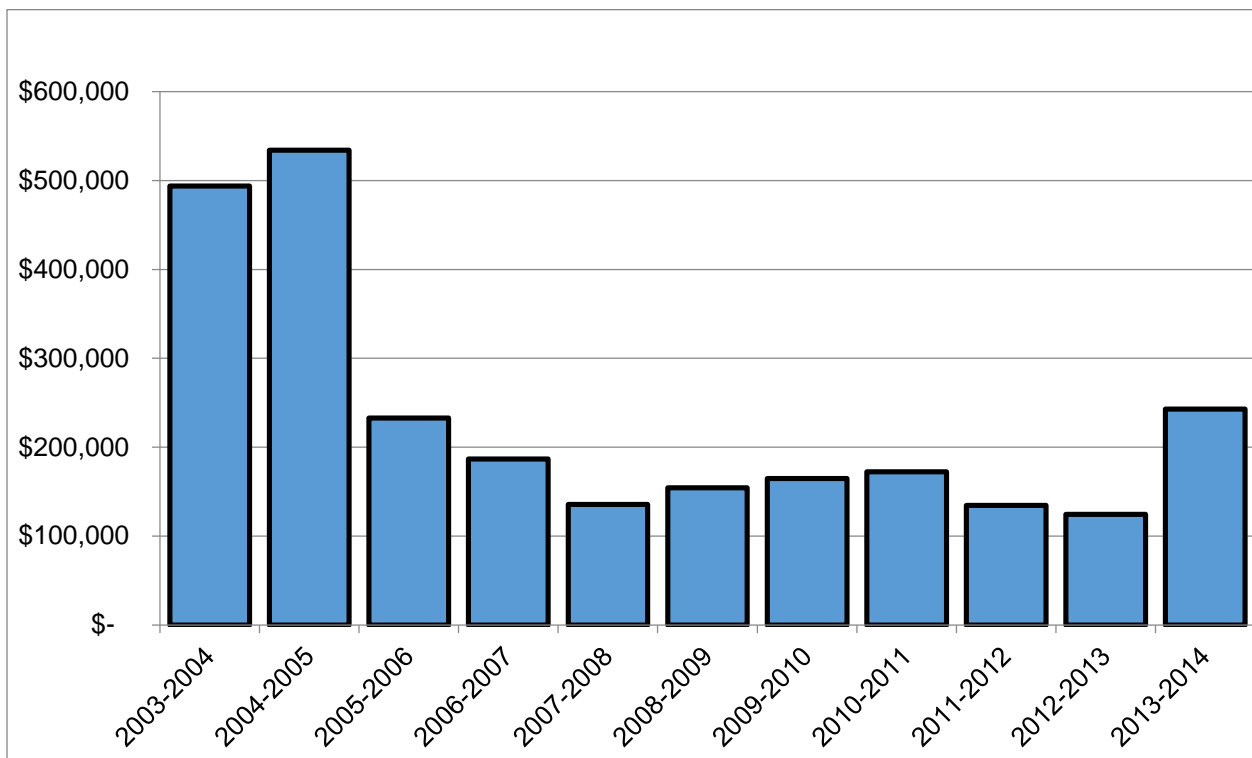


Figure 11. Historic primary grant dollar to faculty ratio in the Department of Forestry at the University of Kentucky

Comparisons to other departments in the CAFE reveals that UK Forestry maintains one of the highest primary grant dollar to research FTE ratios in the college, with just a few departments achieving a higher average since 2003, and most of those only by a small margin (Figure 12).

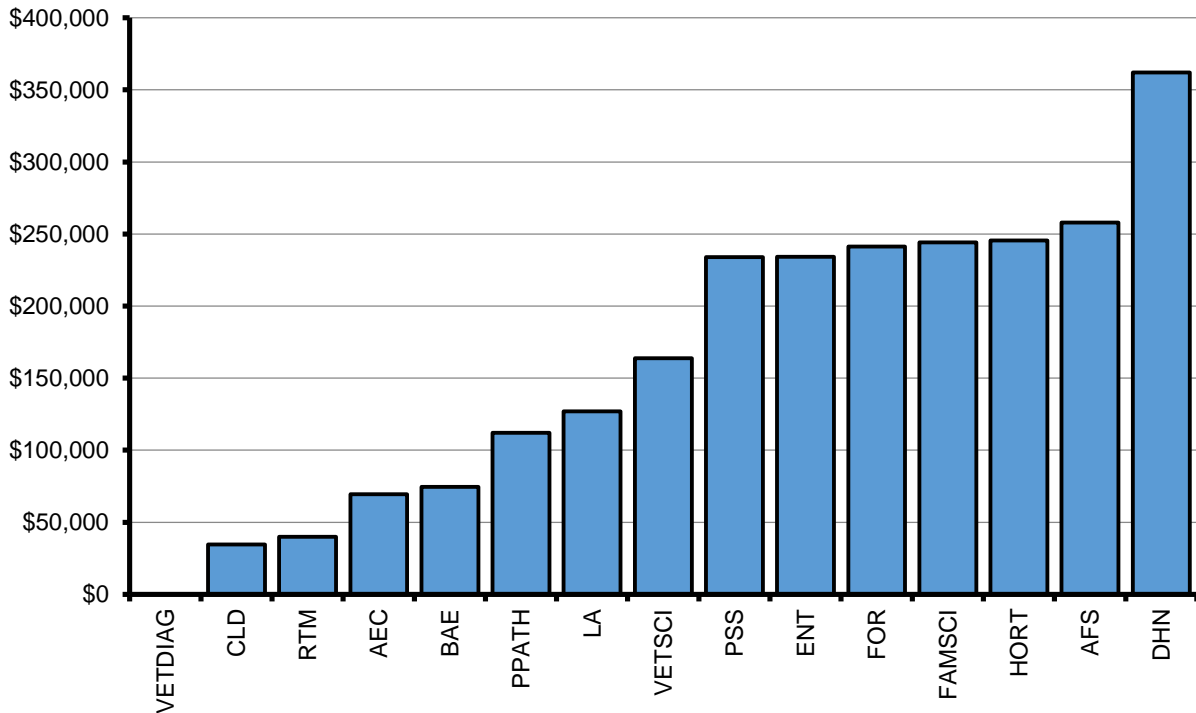


Figure 12. Average primary grant dollar to research faculty FTE among University of Kentucky College of Agriculture, Food and Environment departments (2003-present)

One metric of research productivity is publication output. UK Forestry’s publication production has steadily increased since 2003 with significant increases in recent years. Some of the publication productivity can be attributed to the newer cohort of faculty who are contributing to the department’s research productivity (Figure 13).

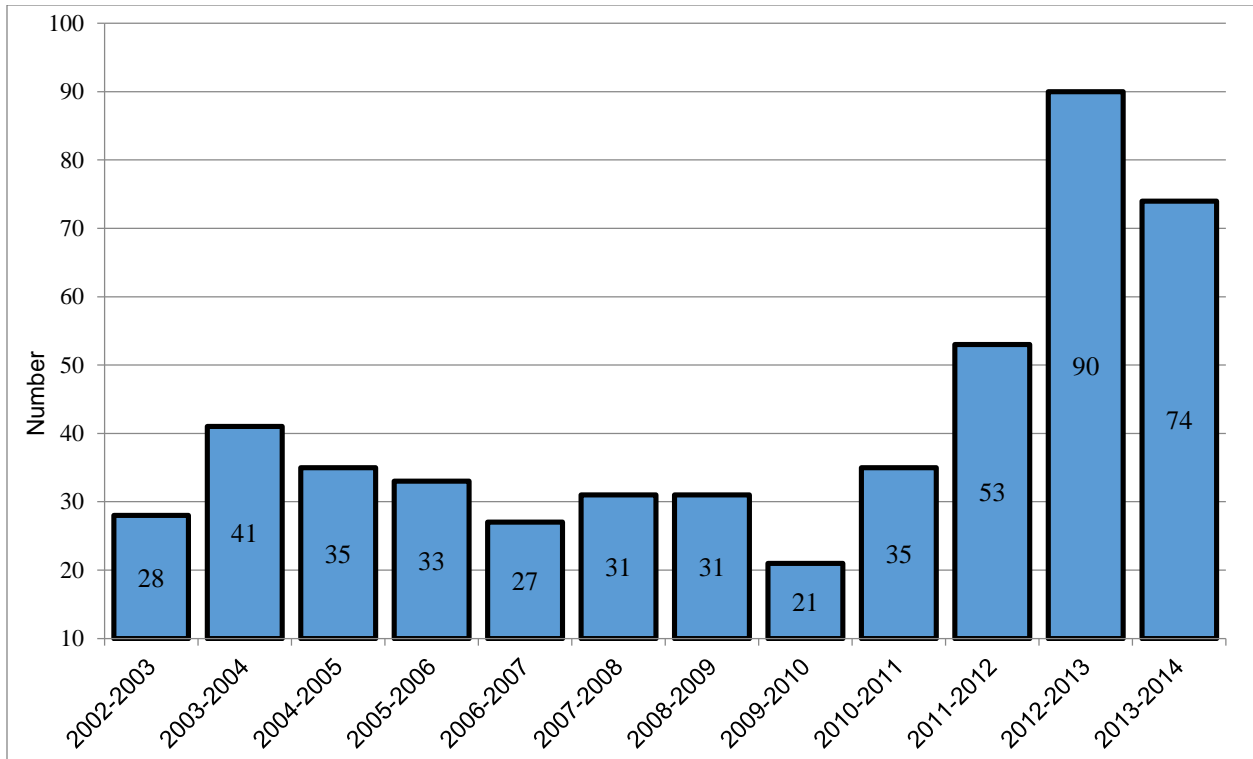


Figure 13. Historic calendar year publication record in Department of Forestry since 2003

Note: a portion of the increase between 2012 and 2013 is due to inclusion of publications, such as Forestry Extension, not previously considered.

Comparisons in publication productivity (2003-2014) among CAFE departments reveals that UK Forestry produces approximately the average number of publications among CAFE departments (Figure 14). It is worth noting that most of the departments with greater publication productivity are much larger in terms of faculty and staff, and many of those departments have greater research technician support than UK Forestry, thereby contributing greatly to research productivity. This exemplifies why one goal for the department is to add research technician lines.

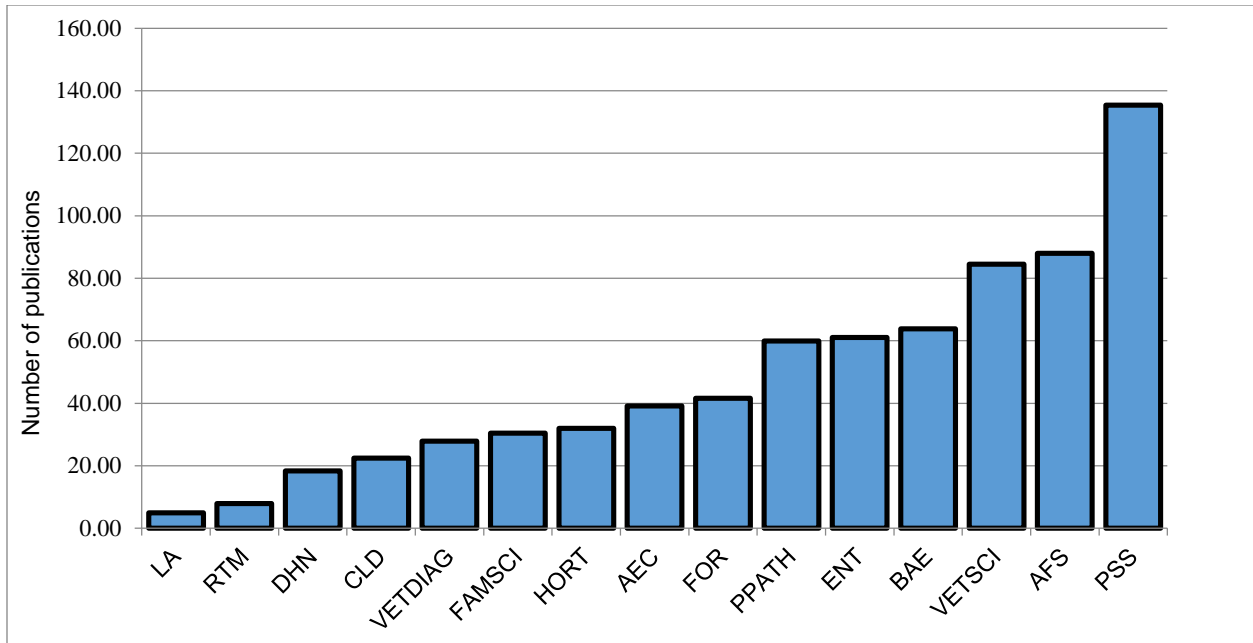


Figure 14. Average departmental publication productivity for academic departments in the College of Agriculture, Food and Environment at the University of Kentucky 2003-2014

Examining the data per research FTE basis reveals that UK Forestry is very productive relative to other departments in the CAFE (Figure 15). Clearly, despite having a comparatively smaller numbers of faculty and staff (and partly because of it), UK Forestry is one of the most productive publishing departments in the college.

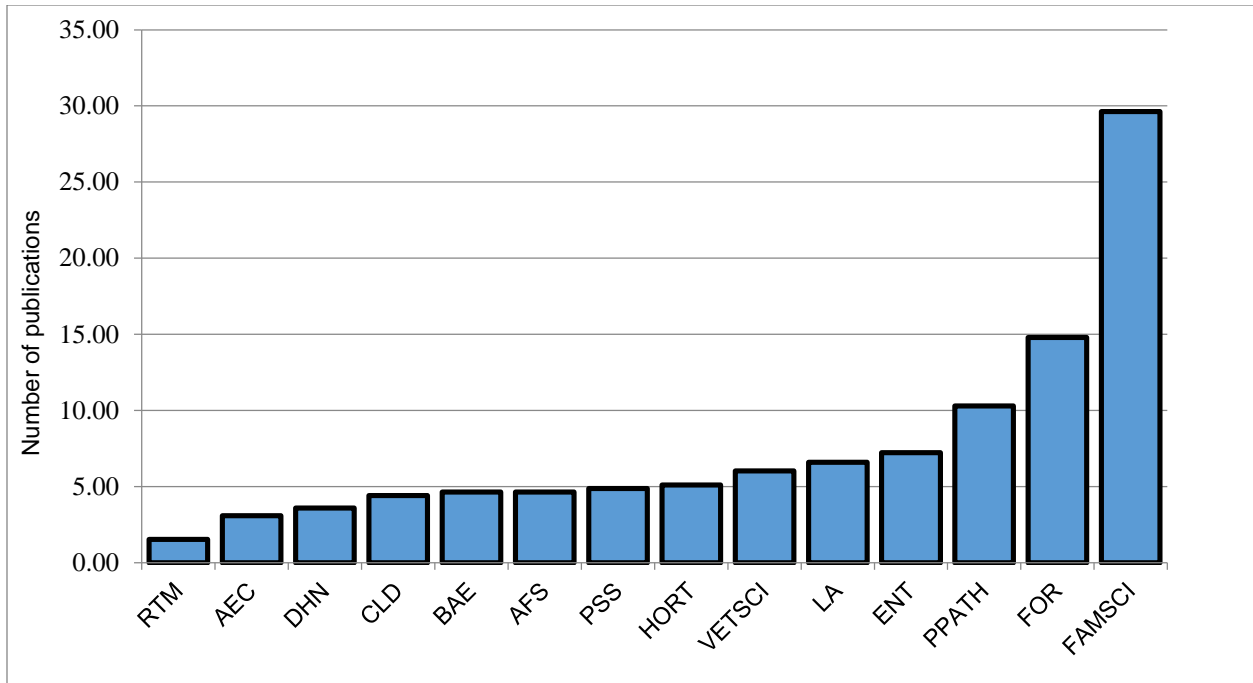


Figure 15. Average departmental publication productivity per FTE in the College of Agriculture, Food and Environment at the University of Kentucky 2013-2014.

UK Forestry research activities, and strategic initiatives, are handled through the UK Forestry Research Committee. Co-chaired by Drs. John Lhotka (Silviculture) and Steve Price (Stream Ecology/Herpetology), the research committee meets regularly during the fall and spring semesters to coordinate, where logical, department-level research issues. UK Forestry has identified the following core research areas for the department:

- 1) Silviculture and Forest Operations
- 2) Wildlife Ecology and Conservation Biology
- 3) Forest Health and Ecological Restoration
- 4) Landscape and Spatial Ecology
- 5) Natural Resource Policy and Economics
- 6) Urban Ecology
- 7) Forest Hydrology and Watershed Management

For a list of grants and publications for the period of review, please see Appendix 1-H and Appendix 1-I.

UK Forestry faculty collaborate regularly among themselves and with scientists at other institutions. For example, research collaborations resulted in \$1,279,532 in awards in contracts to faculty in 2013-2014, representing 51% of the contracts and grants acquired during this time (Figure 16). Efforts are also being made to create collaborative opportunities for newer faculty through programs such as the Central Appalachian New Faculty Retreat, where University of Tennessee Forestry, Wildlife and Fisheries faculty,

USDA Forest Service Southern Research Station scientists, and University of Kentucky Forestry faculty meet at Robinson Forest to discuss research interests and potential cooperation. Department Chair Dr. Terrell Baker also maintains active involvement in the National Association of University Forest Resources Programs (NAUFRP); Dr. Baker currently serves as Research Chair for the organization and previously served as Chair of the Southern Section of NAUFRP. These are just a few of the collaborative efforts Department of Forestry personnel maintain on a regular basis and the benefits, in terms of increased efficiency, reward, and impact, are evident in all programs involved.

Forest Health Research and Education Center

The Forest Health Research and Education Center (FHREC) is a major new initiative between UK Forestry, the USDA Forest Service Southern Research Station (SRS), and the Kentucky Division of Forestry. The stated mission of the FHREC is:

To advance the conservation of forested ecosystems by integrating genetics-based biological research, social science and education on factors affecting tree health and forest restoration.

Using a collaborative research approach, the FHREC is developing research programs and facilitating discussions to fight forest health threats and ensure the resilience of eastern U.S. forest systems. The FHREC is comprised of three collaborative teams, working together to fight forest health threats and improve sustainability.

- 1) The Biological Sciences Team conducts research collaboratively with researchers around the world to better understand tree resistance to stress, pests, and pathogens.
- 2) The Social Sciences Team collaborates with scientists around the country to improve understanding of the economic and cultural impacts/impressions of forest threats.
- 3) The Education and Outreach Team is comprised of Cooperative Extension personnel around the region to develop and deliver educational programming to improve understanding of forest health threats and the tools to fight them.

Since its inception in 2014, the FHREC has acquired grants in excess of \$900,000, gifts totaling nearly \$300,000, and hired five post-doctoral scholars and one graduate student. The SRS has recently stationed one scientist (Forest Pathologist) permanently in Lexington to work with the FHREC, and has plans to locate at least one or two more in the foreseeable future.

The FHREC recognizes that, to be sustainable and successful in the long term, at least two additional faculty lines for UK Forestry need to be established. Currently staffed with post-doctoral scholars, the FHREC needs a Forest Geneticist and an Extension Forest Health Specialist. The FHREC will submit a proposal to UK Administration for a cluster hire to accomplish these staffing needs.

Undergraduate Research

Where possible, faculty within UK Forestry incorporate undergraduate students into their research programs. The following undergraduate research projects took place during the period of review.

Several faculty in UK Forestry work with undergraduate students on various research initiatives; additionally, some of these satisfy required internships for NRES majors (Table 23).

Table 23. Department of Forestry faculty working with undergraduates on various research initiatives

Name	Area	Topic
Elizabeth Patten	NRES internship	Effects of roads on stream salamander populations
Ashlie Pool	NRES internship	Effects of roads on stream salamander populations
Waydon Yates	NRES internship	Overwintering in emydid turtles
Leo Fleckenstein	independent study student	Gap-based management and thermal biology of box turtles (research produced two publications)
Mariah Lewis	summer research student/independent study student	Thermal biology of box turtles (presented results at the research at Turtle Survival Alliance annual meeting in 2014)
Leo Fleckenstein	Undergraduate Research Technician	Numerous projects, including Paducah amphibian research and snake fungal disease research (one paper published)
Wade Boys	REU student (sponsored by Biology department)	Estimating survival in natricine snakes (two papers published)

UK Forestry Extension

Over the years, UK Forestry has also methodically developed an exceptionally strong Extension/outreach program that is widely recognized as having an effective team supporting clientele throughout the region. UK Forestry's Extension team is constantly analyzing and revising its strategic approaches to serving clientele and industry as effectively and efficiently as possible. The goal of the extension program within the department is to provide current, applicable information on the sustained use and management of the state's forest and natural resources to elevate the quality of life of the people of Kentucky. Forestry Extension focuses on program development and delivery for three specific audiences: forest industry including logging and primary and secondary industries, woodland owners and aligned natural resource professionals, and landowners and agencies involved in wildlife management. Programs include a strategic mix of traditional resources such as face-to-face meetings, workshops, and publications, as well as the incorporation of virtual and on-line resources. Needs assessments are used to establish program direction and post-program evaluation and monitoring is

completed to assess the effectiveness and impact of extension programming (Table 24).

Table 24. Summary of impacts and outcomes from Department of Forestry Extension programs fiscal year 2014-2015

Extension Activity	2014-2015
Total direct contacts (face-to-face programming, individual assistance) by extension faculty and associates	66,251 total direct contacts
Total indirect contacts by extension faculty and associates.	138,835 total indirect contacts
Total volunteers involved in extension programming	890 volunteers
Total businesses assisted or created and total number of jobs maintained or created in forest primary and secondary forest industries.	637 businesses were directly assisted or created in 7 states including Kentucky with over 556 jobs created directly from extension programs.
Total sustained or increased dollars saved/earned by primary and secondary forest industries.	51.761 million dollars saved/earned by forest industries (primary and secondary) impacting over 2,270 individuals in these industries.
Total acres impacted and economic contributions associated with logging programs conducted by extension.	1,836 logging business composed of over 2,000 owner operators and 2,201 employees in 2014-2015 impacted 224,100 acres (in Kentucky and surrounding states). These firms provide rural economies with 416 million dollars through the delivery and primary processing of 829 million board feet of timber.
Programs that result in sustainable impacts to forests and forest resources and the habitats and wildlife that they sustain.	45,621 acres improved through woodland owner programs and 993 perennial streams and 2,737 intermittent streams were provided environmental protection from potential impacts of nonpoint source pollution.
On-going production and distribution of education, awareness, and training resources including electronic, video, and hardcopy materials.	23 hardcopy publications and/or articles were produced along with Kentucky Woodlands Magazine direct mailed to 10,500 woodland owners. 3 bi-monthly electronic newsletters and 3 web-sites along with 2 web-based data bases for forest industry and logging were operational in 2014-2015.
Educational, awareness, and training programs/presentations developed and conducted for woodland owners, natural resource professionals, forest industry, youth and the general public.	131 presentations and programs were developed and presented

Summary of Extension Programs by Topic

Forest Industry/Wood Technology – providing established forestry industry with solutions associated with wood processing as well as entrepreneurial assistance to start-up wood based businesses in Kentucky. Programs and assistance on wood related issues are also provided for homeowners and the general public.

- **Wood Entrepreneur Assistance** – using the Robinson Center for Appalachian Resource Sustainability (RCARS) Wood Utilization Center for wood based entrepreneurs.
- **Forest Industry Support** – technical outreach to the primary and secondary wood industry, including lean manufacturing, energy audits, manufacturing efficiency, technical support, and log and lumber grading and drying.
- **Technical Training Classes** – computer-controlled and other machinery used in industry. For information go to www.ukforestry.org (Programs).
- **Chain-of-Custody Certification** – forest industries interested in developing chain-of-custody certification for Forestry Stewardship Council (FSC) and/or Sustainable Forestry Initiative (SFI) can contact the Center for Forest and Wood Certification at info@forestcertificationcenter.org or 855-579-2690.

Forest Management and Silviculture – includes continuing education programs, assistance and publications on forest management including timber production, sustainable timber management, timber sales and forest health and Best Management Practices.

- **Advanced Forestry and Forest Operations** – Jeff Stringer conducts advanced training for woodland owners, loggers, county agents, foresters and natural resource professionals on a wide array of topics including general hardwood forestry, pesticide applications, silviculture, harvesting, selling timber and certification.
- **Professional Forestry Workshops and Hardwood Notes** – technical workshops and publications on important aspects of hardwood silviculture available at www.ukforestry.org.
- **Forest and Woodland Certification** – information and assistance with certification for woodland owners can be obtained at the Center for Forest and Wood Certification (CFWC) or info@forestcertificationcenter.org.
- **Kentucky Woodland Owner Short Course** – a three day field-based education program offered three times a year specifically for Kentucky woodland owners. Go to www.ukforestry.org for more information.
- **Local Forestry Organizations** – grassroots organizations with strong support from local/state level forestry and natural resource agencies, formed to address forestry and related issues in their area. UK Forestry Extension and partners work to help establish county organizations. Publications and information are available at www.ukforestry.org.
- **Non-Timber Forest Products and Agro-Forestry** – UK Forestry Extension provides information and resources to aid those interested in agro-forestry and

producers of non-timber forest products with specialization in shiitake mushrooms and Christmas tree production. Contact Forestry Extension at <http://www2.ca.uky.edu/forestryextension/> for further information.

Logger Education and Training – UK Forestry Extension provides statewide comprehensive logger training and education programs, logger training publications, and Best Management Practices training and education materials.

- **Kentucky Master Logger Program** – cooperative program of UK Forestry, Kentucky Forest Industries Association, and Kentucky Division of Forestry which provides a comprehensive statewide education and training program for loggers. According to state law, a Kentucky Master Logger must be on-site and in charge of all commercial logging operations in Kentucky.
- **Certified Master Logger Program** – certifies the performance of logging firms owned by master loggers in Kentucky and Tennessee. The program is Rainforest Alliance certified under SmartLogging standards. See www.certifiedmasterlogger.com.
- **LogJam Newsletter** – quarterly publication targets the logging community with the objective of disseminating useful information related to updates on policies and practices. This color printed publication reaches over 2,800 individuals throughout the commonwealth.

Youth Programs – UK Forestry Extension manages several youth programs for Kentucky, including 4-H, FFA, and general youth education.

- **Kentucky Forest Leadership Program** – an annual forestry youth leadership program at Jabez Leadership Center. This weeklong camp uses state and local foresters including foresters from the KDF to assist in educating youth about forests and forestry.
- **Win With Wood** – a forestry competition program for youth in eastern Kentucky. It has many 4-H similarities; however, it is open to all schools and organizations in eastern Kentucky.

Media and Other Interactive Learning

UK Forestry has multiple outlets, which expand beyond the borders of the university. The Extension programs produce multiple publications, including newsletters, blogs, and magazines. Three Constant Contact newsletters are used to communicate breaking news on a monthly basis that impacts forestry and woodland owners, as well as the wood industry in Kentucky.

- **Tree, shrub, and wildflower** identification can be obtained directly from the UK Herbarium housed in the Department of Forestry. Rob Paratley, Curator of the Herbarium handles tree, shrub, and wildflower identification. Submit tree, shrub, and wildflower samples using the Woody Plant and Wildflower Identification Form found at www.ukforestry.org (Programs/Tree ID).
- **Wood** identification is provided by Dr. Terry Conners, send wood samples to the Forestry Extension office (see above).

- **Mushroom** identification was handled by the late Dr. Tom Barnes; currently this service is unavailable.
- **Kentucky Native Plant and Wildlife Blog** provides up to date information on native plants and wildlife. Tom Barnes administered this site prior to his death; no replacement has been identified to assume management of the site.
- **Wildlife and Outdoor Photography Blog** showcases Kentucky’s landscapes, habitats, wildlife, wildflowers and waterfalls. Currently static due to the death of Tom Barnes.
- **Snake Identification** is available online at www.kentuckysnakes.org. Dr. Steve Price has assumed management of this site following Tom Barnes’ death.
- **Forestry Television** program provides important and timely updates to forestry and industry professionals across the Commonwealth. Televised from the UK Forestry Extension web studio.
- **Kentucky Woodlands Magazine** is a full color publication for Kentucky woodland owners and the natural resource professionals that work with them. The magazine promotes the stewardship of Kentucky’s family-owned forests. *Kentucky Woodlands Magazine* is also available online at www.ukforestry.org. The magazine is a collaborative venture with the Kentucky Division of Forestry. Editors: Jeff Stringer and Diana Olszowy (KDF), associate and assistant editor, Billy Thomas and Reneé Williams.
- **County Webinars and Programs** at county cooperative Extension offices offers the Fall Webinar Series and other electronically delivered programs. Information at www.ukforestry.org.
- **Electronic Newsletters** include three Constant Contact newsletters, Wood E-News, Center for Forest and Wood Certification E-News, and Woodland E-News which are distributed bi-monthly.

Program Resources, Institutional Support, and Implementation of Policies and Procedures

Budgets/Program Resources

Despite several budget cuts since 2008, UK Forestry’s total budget has increased slightly over the last ten years (Table 25).

Table 25. Summary of the Department of Forestry’s budget through the last 10 years

Year/Source	Teaching (\$)	Research (\$)	Extension (\$)	Total (\$)	
2015-2016					
State (\$)	605,297.60	799,346.03	449,915.91	1,854,559.54	73.03%
Federal (\$)		475,420.21	209,509.93	684,930.14	26.97%
Total (\$)	605,297.60	1,274,766.24	659,425.84	2,539,489.68	
	23.83%	50.20%	25.97%		
2014-2015					

State (\$)	546,660.15	777,444.72	438,155.88	1,762,260.75	72.78%
Federal (\$)		461,947.70	197,145.28	659,092.98	27.22%
Total (\$)	546,660.15	1,239,392.42	635,301.16	2,421,353.73	
	22.58%	51.18%	26.24%		
2013-2014					
State (\$)	545,637.05	829,515.59	358,960.58	1,734,113.22	73.33%
Federal (\$)		423,631.70	207,028.29	630,659.99	26.67%
Total (\$)	545,637.05	1,253,147.29	565,988.87	2,364,773.21	
	23.07%	52.99%	23.94%		
2012-2013					
State (\$)	463,125.67	844,524.83	333,108.49	1,640,758.99	72.88%
Federal (\$)		409,942.70	200,683.28	610,625.98	27.12%
Total (\$)	463,125.67	1,254,467.53	533,791.77	2,251,384.97	
	18.32%	55.72%	23.71%		
2011-2012					
State (\$)	412,407.19	787,470.01	531,647.70	1,731,524.90	72.96%
Federal (\$)		459,506.00	182,206.29	641,712.29	27.04%
Total (\$)	412,407.19	1,246,976.01	713,853.99	2,373,237.19	
	17.38%	52.54%	30.08%		
2010-2011					
State (\$)	428,474.00	780,010.70	527,937.76	1,736,422.46	75.89%
Federal (\$)		375,775.26	175,980.60	551,755.86	24.11%
Total (\$)	428,474.00	1,155,785.96	703,918.36	2,288,178.32	
	18.73%	50.51%	30.76%		
2009-2010					
State (\$)	411,077.35	705,492.99	406,940.03	1,523,510.37	72.55%
Federal (\$)		394,316.26	181,975.60	576,291.86	27.45%
Total (\$)	411,077.35	1,099,809.25	588,915.63	2,099,802.23	
	19.58%	52.38%	28.05%		
2008-2009					
State (\$)	444,619.16	686,979.64	400,727.85	1,532,326.65	73.51%
Federal (\$)		370,821.48	181,380.60	552,202.08	26.49%
Total (\$)	444,619.16	1,057,801.12	582,108.45	2,084,528.73	
	21.33%	50.75%	27.93%		
2007-2008					
State (\$)	459,805.34	655,635.92	414,894.29	1,530,335.55	69.77%
Federal (\$)		457,309.46	205,810.66	663,120.12	30.23%
Total (\$)	459,805.34	1,112,945.38	620,704.95	2,193,455.67	
	20.96%	50.74%	28.30%		
2006-2007					
State (\$)	413,459.00	657,439.00	387,081.00	1,457,979.00	66.19%
Federal (\$)		576,489.00	168,126.00	744,615.00	33.81%

Total (\$)	413,459.00	1,233,928.00	555,207.00	2,202,594.00
	18.77%	56.02%	25.21%	
2005-2006				
State (\$)	381,250.00	622,771.00	337,442.00	1,341,463.00
Federal (\$)		424,918.00	289,568.62	714,486.62
Total (\$)	381,250.00	1,047,689.00	627,010.62	2,055,949.62
	18.54%	50.96%	30.50%	

UK Forestry also uses external funds to support its programs, predominantly research activities, although a number of awards are acquired annually to support Forestry Extension educational programming. Recent years have seen a decline in extramural funding which is likely due to several factors. First, in the early 2000s, faculty were very successful in acquiring a few large grants. Second, extramural funding has become increasingly competitive over the last decade and competition for resources has become even more severe. The department has seen a slight increase in grantsmanship over the last two years, due in part to newer faculty beginning to see success in attracting resources, a few senior faculty who have found success in their fields, and the Forest Health Research and Education Center, which has successfully begun attracting additional resources.

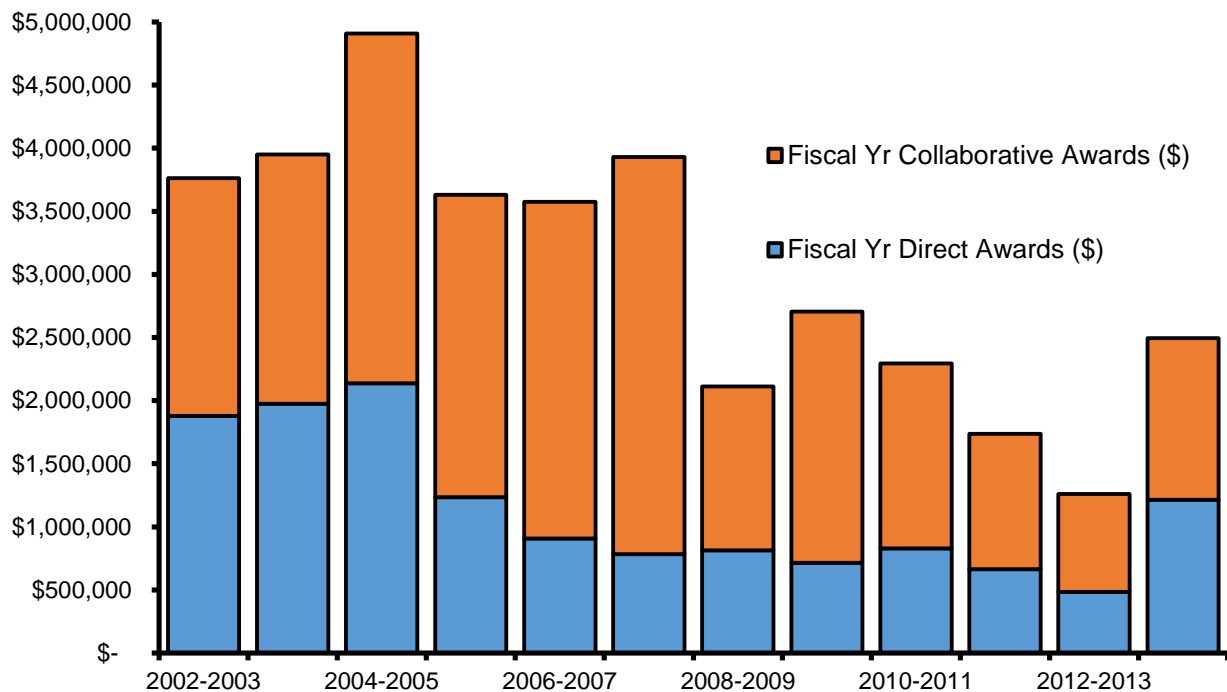


Figure 16. Direct and collaborative grants and contracts for the University of Kentucky's Department of Forestry 2002-2014

Comparing budget expenditures among our southern NAUFRP benchmark institutions, UK remains near the bottom of peer institutions (Figure 17). Care must be taken in evaluating these data as some of peer institutions are organized into much larger schools of forestry, with multiple programs, much larger numbers of faculty and staff, and a greater pool and diversity of resources to call upon in the exercising of mission critical functions. However, even among those programs that are similar in structure and size, UK Forestry remains near the bottom in terms of resources expended to achieve our missions.

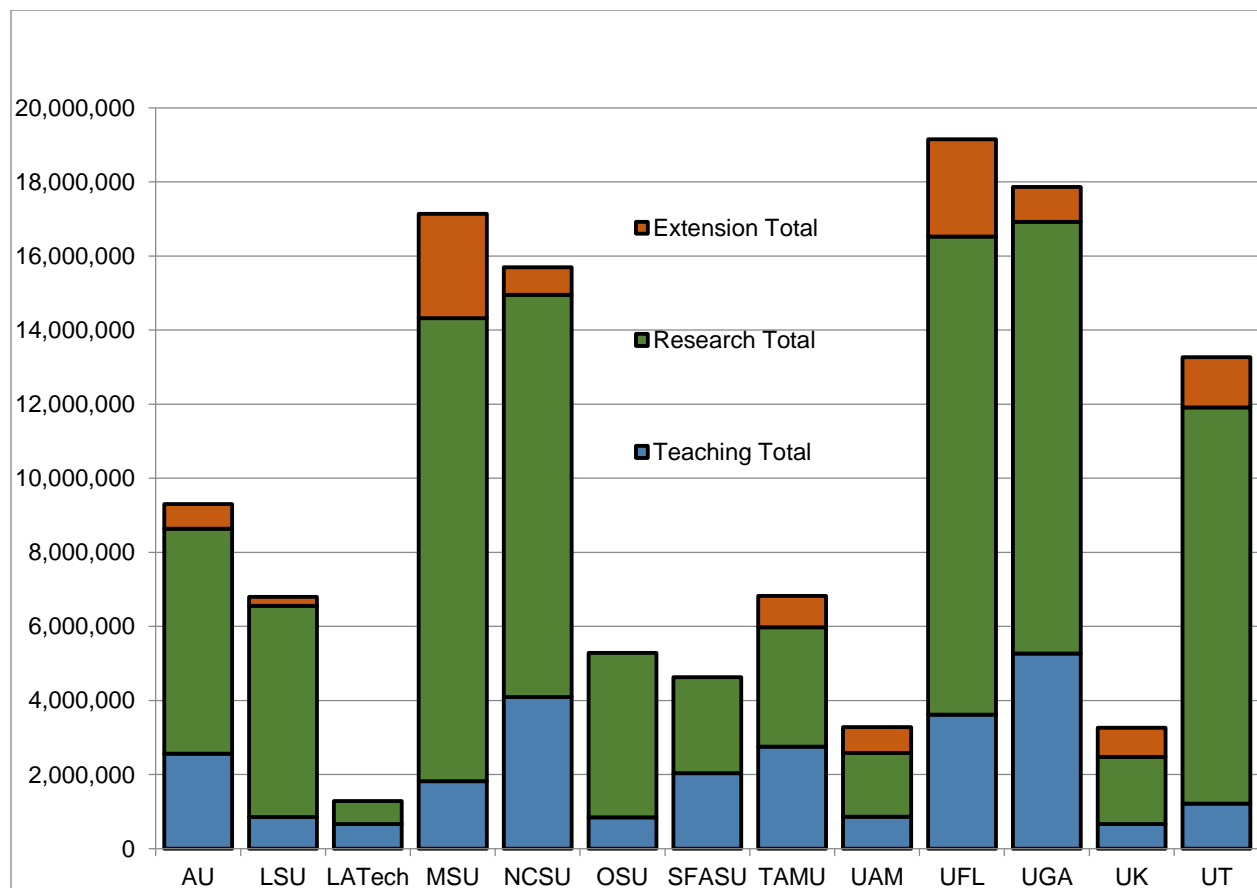


Figure 17. Comparison of budget expenditures among southern NAUFRP universities 2013-2014 (includes state and "other")

UK Forestry has also increased its development efforts in recent years (Figure 18). Most of the increases can be attributed to several new gift accounts within the last few years: the Forestry Alumni Scholarship Fund, the Pete McNeill Scholarship Fund, the Kentucky Forestry Research Cooperative, the Danny Koons Scholarship, and the Forest Health Research and Education Center Gift Fund. Healthy gains were also realized by donations to the Wood Zones gift account and the Green Forest Works gift

account. The department chair devotes time to development and several faculty and staff are important factors in helping to make these efforts succeed.

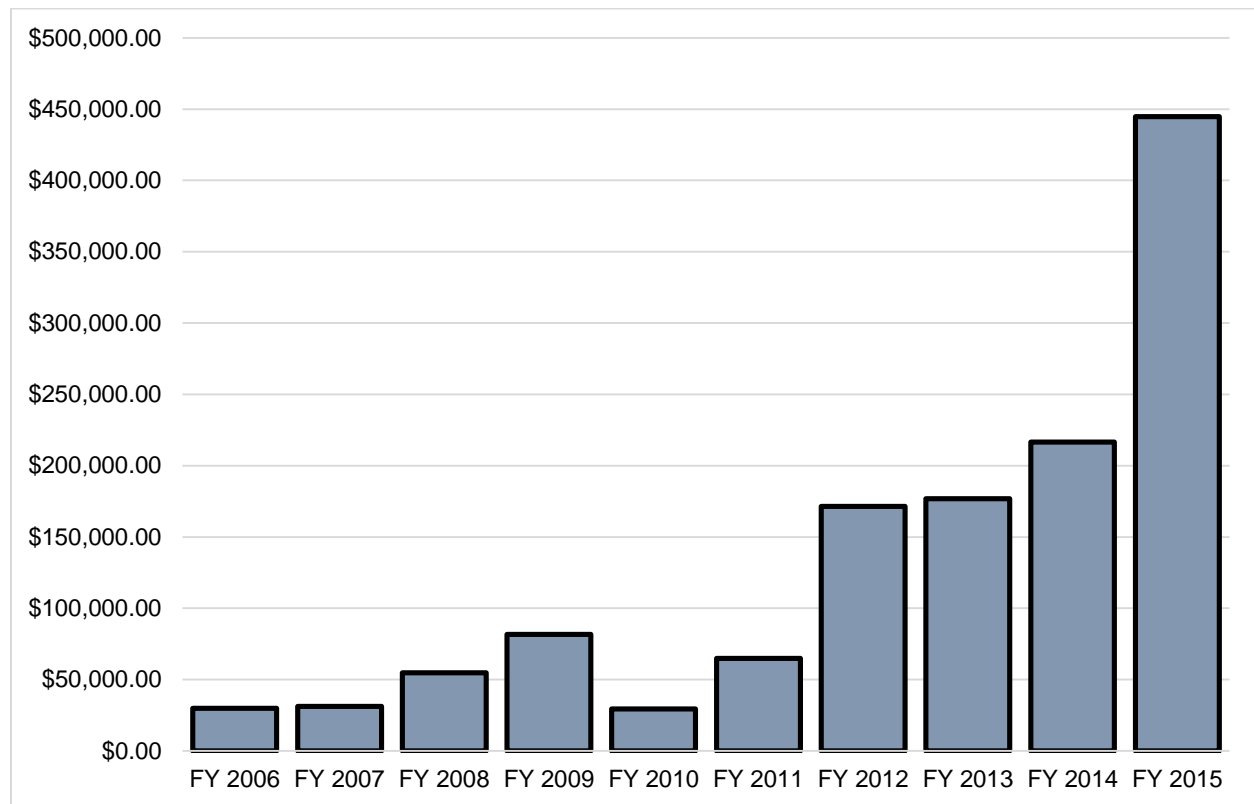


Figure 18. Ten-year development trend in Department of Forestry at the University of Kentucky

Personnel Adequacy

Two years ago, UK Forestry identified several faculty positions that would contribute to the overall effectiveness and breadth of our teaching, research, and Extension missions. Of the three positions identified, a Landscape Ecologist (Dr. Jian Yang) has been hired. Other positions identified during that process were a Forest Health Specialist (Extension/Research) and an Urban Forestry faculty member (Extension/Research/Teaching). Though Urban Forestry is clearly an increasingly important discipline, and one we do not adequately cover from the standpoint of teaching and Extension, the best path forward for accomplishing the hiring of these two positions remains unclear. The Department of Horticulture currently maintains an Urban Forester/Arborist on its Extension team and duplication of duties is a topic deserving of discussion with the Department of Horticulture and CAFE administration. We have effectively filled the Forest Health Specialist position for the next two years with a post-doctoral scientist (Dr. Ellen Crocker). The success of the Forest Health Research and Education Center has effectively identified an additional position the department needs

to fill - a Forest Geneticist. There are many students interested in the field of Forest Health/Genetics and extramural funding opportunities are available through a variety of agencies and organizations. UK Forestry, in cooperation with the FHREC and USDA Forest Service SRS, is currently preparing a prospectus proposing a cluster hire in Forest Health (1 Forest Geneticist, 1 Extension Forest Health Specialist) which would fill two critical positions for the department, the FHREC, and the region.

An additional position UK Forestry has discussed both internally and externally is an Extension Associate in Forest Economics. We envision this position being primarily responsible for continuing and expanding the Kentucky Forestry Economic Analysis that is currently in its third year. There has been considerable demand for expanded analyses (e.g., county- and region-level analyses of the wood industry, sensitivity analyses to prepare industry for potential changes in supply) that the department currently does not have the internal expertise to fill. It is envisioned that this position would work closely, or be hired jointly, with Kentucky Division of Forestry (KDF). We currently rely heavily on KDF for information that feeds our economic models and collaboration with this agency to produce reports and engage stakeholders, agencies, organizations, and policy makers makes sense.

UK Forestry has also identified the importance of adding Research Technician positions to the department. While our per-FTE research output remains strong, we believe there is potential to improve. The addition of research technicians to assist faculty and increase productivity has been proven in this department in recent years. This is particularly true because many of our faculty have heavy teaching loads and/or large classes, which requires considerable effort competing with research productivity. We further believe that our contributions to the interdisciplinary NRES program, in both teaching and administrative arenas, justify some consideration for college-level assistance in acquiring one or two research technicians within the department to help offset these faculty's investment and recognize the contributions that UK Forestry makes to this important program.

Facilities

UK Forestry occupies space on the Lexington campus in the Thomas Poe Cooper, Dimock Animal Pathology, and the Plant Sciences buildings. The T.P. Cooper building houses five classrooms; two computer rooms; meeting rooms; eight research labs; faculty, staff and graduate student offices; storage space; a student lounge; a walk-in cooler; a walk-in drier; a wood shop and a video studio. Our space in the Dimock building includes two research labs, graduate student offices, storage space, and the University's herbarium collection. In Plant Sciences, the FHREC currently occupies one research lab and space for faculty and post-doctoral offices. The department also has access to space in the CAFE greenhouses located on UK's South Farm.

The current research facilities for UK Forestry can only be described as dismal. The quality of the research and lab space available seriously constricts the type and quality

of research that faculty can pursue, limiting grantsmanship and participation in cutting-edge research topics. In the recent 2015 UK Work-Life Survey, UK Forestry was positively reflected according to most metrics. Two areas where faculty and staff ranked UK Forestry lowest were salaries and facilities, the latter being the lowest metric of all with only 25 respondents stating that facilities are adequate for the work we do (Appendix 1-D). CAFE has identified a new building, housing Forestry, Entomology, Landscape Architecture, and other affiliated programs, as the number one large project for the college. We have produced a new building prospectus to move this project forward and will work to identify private and public sources of funding to achieve this important goal. A significant component of this facility will be the capacity to bring the public to the university to participate in educational programs on-site.

Off campus, forestry personnel are located at the Robinson Center for Appalachian Resource Sustainability, the Wood Utilization Center, and Robinson Forest. The Wood Utilization Center is a 14,000 square foot facility containing an industrial hardwood furniture manufacturing laboratory, classrooms, computer laboratory and a 10,000 board foot hardwood lumber dry kiln. Robinson Forest is a collection of seven tracts totaling 14,800 acres making it one of the largest research and educational forests in the eastern United States. The camp at Robinson Forest includes a classroom, a computer lab, kitchen/dining hall, lodging cabins, hydrology lab, staff office, storage, and a workshop. Robinson Forest is a critical resource for conducting research, demonstration projects for Extension workshops, and teaching undergraduate students. Unfortunately, frequent Internet disruptions complicate the utility of Robinson Forest as a premier research, demonstration, and teaching facility. We are hopeful that recent negotiations with local internet providers will help overcome these issues. It is quite common for the Robinson Forest manager to work from home where to get a reliable internet connection, while classes taught at Robinson Forest have traveled to Hazard to find reliable internet connections.

Despite its infrastructure shortcomings, much of the work conducted at Robinson Forest informs forest management policy at the state level; most recently the Streamside Management Zone study produced numerous graduate degrees and over a dozen publications; it was also the basis for improved best management practices development and implementation in the Commonwealth. Despite being an exceptional and unique resource, Robinson Forest was not funded in a reliable way until 2011. At that time, UK agreed to provide operational support to Robinson Forest through the Robinson Trust (~\$80,000 annually), which also funds the Robinson Scholars Program. UK Forestry is currently lobbying for an increase in funding to approximately \$130,000 annually to cover expenses associated with the management of this unique resource. Mr. Chris Osborne, Management Forester, is responsible for managing the university's interests at Robinson Forest, and much of his time is spent working with mining companies, neighbors, and other external interests (e.g., ATV development) who want access to Robinson Forest. Currently, the Department of Forestry manages Robinson Forest partially with funds provided by the Robinson Trust and partially by UK Forestry

research funds. The Forestry Department believes the university should relieve the pressure on our research budget and provide full salary support to Robinson Forest staff.

Information Technologies

All personnel are supplied with the technology (desktops, laptops, tablets, etc.) needed to perform their jobs. All facilities contain wired and wireless internet connectivity. The department maintains one computer lab (26 seats) dedicated to forestry instruction. Another lab with 17 seats, where students can work on projects between classes, is being decommissioned in favor of creating much-needed office space for new UK Forestry personnel. Dr. Darryl Cremeans handles most of the construction and reconfiguration of space. The department operates servers for file services, FTP and network printing. Researchers can get access to university supercomputer resources as needed. UK provides instructional computing support in the classrooms shared with other programs. Classroom technologies include lecture recording via Echo360 and audience response systems via TurningPoint software. UK maintains computer labs outside forestry properties that our students may utilize. UK provides site-licenses for software that might otherwise be cost prohibitive like ArcGIS, Matlab, SAS, SPSS, etc. UK also provides virtual software access via an application server that can be utilized on underpowered computers.

Institutional Support

UK Forestry is administratively housed within the College of Agriculture, Food and Environment (CAFE) at UK. Many of our administrative operations (e.g., human resources, budgets, post-award support) are conducted by department personnel, but supported by college-level staff where necessary and appropriate. Pre-award functions are supported by staff at the college and university levels, but the department is increasing its involvement and support of faculty and staff grant applications in an effort to provide hands-on support and lessen the burden of increasingly complicated grant application preparation. Where necessary, department and/or college personnel will work with university-level staff on issues related to human resources, purchasing, and the Graduate School, among others. Development activities are supported both at the college and university levels. For the most part, these relationships and structure serve our faculty, staff, and department well. There appears to be little interest on the part of our alumni to become engaged in alumni affairs, so this is handled internally for the most part.

Implementation of Policies and Procedures

The College of Agriculture, Food and Environment, including the Department of Forestry, adheres to all University Senate rules¹².

Faculty members review all course substitutions requested by students. Once approved by the faculty, the department chair or director of undergraduate studies signs the course substitution form before it is submitted to the associate dean for instruction, where the request is further vetted. Equivalency credit and course transfers are reviewed by the director of undergraduate studies, in consultation with faculty when the requests are received from the registrar. The decision is forwarded to the registrar. All degree requirements and vetting of exceptions are reviewed by departmental faculty. When the faculty agrees to change course requirements, a program change proposal is submitted to the college undergraduate curriculum committee for review. After this review and approval by the associate dean for academic administration, the proposal is submitted for university approval.

The Department of Forestry adheres to the Rules of Procedure as established and approved by the College of Agriculture, Food and Environment on February 18, 2013¹³. In addition, the Department of Forestry maintains internal Rules of Procedure, which were approved by the faculty and implemented on February 8, 2001. These are due to be revisited, and perhaps updated. All faculty members attend meetings to discuss scheduling and teaching of classes in subsequent semesters. All courses required for a degree are offered during a scheduled four-year plan.

¹² The relevant rules, Section IV: Rules Relating to Admission to the University and [Section V: Rules Relating to Attending the University](#), may be found at the following link:
http://www.uky.edu/Faculty/Senate/rules_regulations/index.htm.

¹³ The relevant rule may be found at the following link:
http://administration.ca.uky.edu/files/College_of_Agriculture_Rules_of_Procedure_2013.pdf.



Department of Forestry Self-Study Report 2015-2016 Program Review

Appendices

Appendix 1-A	Implementation Plan Annual Reports (2014-2015)
Appendix 1-B	Forestry Undergraduate Curriculum Revision
Appendix 1-C	Proposal for Minor in Wildlife Biology and Management
Appendix 1-D	2015 UK Work-Life Survey, UK Forestry Results
Appendix 1-E	Wildlife Forester Program Coursework
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Appendix 1-A

Implementation Plan Annual Reports
(2014-2015)

**Department of Forestry Program Review Implementation Plan
Undergraduate Program
2014-2015 Annual Report**

Recommendations:

1. Although recruitment into the Forestry program is primarily the responsibility of the college, recruitment at the departmental level is fairly passive. The department could be more proactive in its recruiting efforts, including minority recruitment. Currently, the department's major effort toward recruitment appears to be through extension activities throughout the state.

Assessment Method: Increased enrollment figures.

Results: At the request of the incoming new Chair, the College administration provided funds for an Academic Coordinator position. We have hired a person into this position and she has begun her recruiting efforts. She will also concentrate on other student services such as retention, student life within the department, access to scholarships and programs within the College and University, placement of students into internships and employment, and finally, alumni relations. The Academic Coordinator will serve as a contact for visiting students, ensure a strategic and proactive effort takes place toward identifying prospective students, and providing materials to faculty and staff who are in contact with prospective students.

Analysis of results and reflection: During the first two years of the Academic Coordinator's (AC) hiring, enrollment numbers increased 30-40% over the department's 10-yr average. Over the last two years, the AC and the Chair have focused on retention issues and establishment of a variety of programs to enhance student competitiveness for internships and employment. For example, over 75% of juniors had career-relevant internships during 2014. The 2015 graduating class had over 90% employment in a field related to their major. We established the FireCats, a student wildland firefighting crew in cooperation with the Kentucky Division of Forestry and many of the students participating in this program have gone on, not only to internships in fire around the country, but also into permanent positions within Kentucky Division of Forestry. We have expanded professional development and communication training opportunities for students. These programs have been very successful.

Ongoing Improvement Actions: In the coming years we will make a concerted effort on recruiting and boosting enrollment. We have embarked on a curriculum revision that should expand student opportunities to explore forestry-related fields and gain experience and expertise in those disciplines (e.g., wildlife, business, communications) that will make them better and more well-rounded professionals. We have also expanded courses and advertising to attract more non-majors into our courses.

2. Students expressed disappointment that the Forestry department is obscure within the university, and there may be more opportunities for campus-wide engagement than the faculty is currently exploiting.

Assessment Method: Increased visibility of the Forestry Department.

Results: Additional steps are being taken to further “advertise” and inform our students of our larger mission and role, not only throughout the university, but also the state. These measures include, but are not limited to, a departmental newsletter, displays throughout the building of faculty and staff activities, and video/photographic exhibits of our efforts throughout the state. The Department also has supported more engagement by students into activities and programs across campus. The Forestry Club has expanded cooperation with other groups, offices, and organizations on campus. They took the lead in making UK a Tree Campus USA. Our faculty have been members of the Ag Faculty Council and Faculty Senate for the last 5 years.

Analysis of results and reflection: These efforts will also serve to better inform our stakeholders and university colleagues, visitors to the building, and alumni, about the breadth and scope of work in which our faculty and staff are involved. We have increased our visibility across campus and throughout the College. We would a

Ongoing Improvement Actions: One of our faculty members is the Chair of the College interdisciplinary NRES program. The same faculty member is one of the co-leaders of a new honors residence program addressing environmental sustainability. Our faculty are engaged in several different departments as adjunct faculty, participate on numerous college and university committees, and maintain active involvement in many college extracurricular activities. It should be noted that students’ conclusion on the issue of our faculty not being engaged across campus may reflect the students’ lack of awareness of the many involvements we do have across campus. We are attempting to better inform our students of the many ways we engage using various social media as well as getting our students engaged in a variety of campus-wide extracurricular activities.

3. There is no formal alumni program, and both students and faculty expressed a desire to develop closer relationships with their alumni.

Assessment Method: The update/upkeep of an alumni database and development of a department newsletter.

Results: We have installed a new student exit interview process, where all graduating students visit with the Department Chair in order to, among other things, build and develop the relationship between the department and our graduates. We have begun an active campaign of informing our alumni through a variety of media that we value their role as member of the Department’s extended family. We have completed an update of our alumni list and have begun publishing a departmental

newsletter as a means to re-establish close working relationships with our alumni and to serve as a starting point for getting them engaged with our students in a more formal way. We host an “alumni recognition” event in the fall that reaches a large group of former graduates. We also host a fall picnic for faculty, staff, students, and alumni and have held a similar and larger event for the Spring Semester to recognize students, friends, and partners who deserve recognition. We will continue to seek and develop ways to maintain and improve relations with our alumni both through formal and informal means. We have also established an Alumni Scholarship Committee which has, over the last 1.5 years, raised over \$13,000, more than halfway toward our goal to develop an alumni scholarship.

Analysis of results and reflection: Tremendous strides have been made and notable accomplishments recorded toward engaging our alumni.

Ongoing Improvement Actions: We will continue to develop alumni relations in the successful ways we have over the last four plus years.

4. Revision of the strategic plan to include addition of language that explicitly mentions the interdisciplinary efforts the department is hoping to achieve, as well as ethical behavior components. It is also recommended that the department review the metrics presented in the strategic plan, include quantitative metrics where they do not yet exist, and provide additional measurable metrics for financial support and fundraising strategies.

Assessment Method: Specific steps have been taken to improve interdisciplinary efforts in the Department and capitalize on recent advances in terms of curricula revision and strategic plan development. The Department recognizes that fundraising efforts need to be made both in terms of extramural research funding and endowments.

Results: We have developed an Undergraduate Program Committee (UPC) to create a venue for proactively and strategically thinking about how we are teaching our students and what adjustments can be made. Through this committee we have completed a curriculum revision and are currently awaiting results of that review. We have also established an Outreach Committee to deal specifically and proactively to share the accomplishments and activities of the Department to the outside world. The UPC developed a professionalism document that was signed by all faculty members and reviewed and signed by all students each year. The document outlines the professional, ethical, and academic expectations of students in the Forestry program. The Research Committee has begun to devote specific time and efforts toward identifying the Department’s strength areas, developing strategies for capitalizing on those strengths in the context of 1) communicating and collaborating internally, 2) identifying and pursuing funding sources, and 3) developing partnerships with peer departments and institutions to pursue funding in strength and strength-related areas. We are, essentially, taking a proactive role in pursuing extramural funding as related to our core faculty expertise. The Department Chair is

also developing relationships with alumni, stakeholders, and other clientele in an effort to pursue development opportunities.

Analysis of results and reflection: Significant strides have been made to improve the professionalism of our undergraduate student body and to reach out to our related programs. Our development efforts have yielded significant growth in our endowments. The university will no longer require strategic plans to be produced at the department level. However, Forestry has determined it will utilize the Program Review process for setting strategic objectives and tracking progress annually through the implementation plan.

Ongoing Improvement Actions: We continue to work toward improving our interdisciplinary cooperation and development efforts.

5. Create an organized, external advisory committee. An external committee might be an effective step toward greater departmental stature and influence. It is in the department's new strategic plan to create a standing Advisory Committee.

Assessment Method: The creation of an external advisory committee.

Results: We organized an external advisory group in the fall of 2013 comprised of approximately 20 individuals from a diversity of industries, organizations, agencies, and partners who have strategic interest in the success of the Forestry Department at UK. The Advisory Group met again in spring of 2015 with similar productive results.

Analysis of results and reflection: Excellent input continues to be received about ongoing growth and programmatic development within all three mission areas. Advisory group members were particularly impressed with the development of Economic Analyses of the Forest Industry in Kentucky, growth in the undergraduate program, the research significance and impact of our faculty and graduate students, and the impressive educational programming conducted by just a few extension faculty and staff. The quality of our undergraduate student body has also made an impression upon members of our Advisory Group. Improvement opportunities included new facilities, a revised curriculum to allow flexibility to expand coursework into burgeoning related areas, more emphasis on urban forest issues, and a greater recognition by the UK administration of the importance of forestry, wildlife, and natural resource pursuits.

Ongoing Improvement Actions: We will continue to meet with advisory group members individually and as a group annually. We postponed the annual fall meeting due to a variety of conflicting events and for a preference toward incorporating the meeting into the Spring 480 presentations and banquet.

6. Continued and increased participation by the faculty in sabbatical opportunities.

Assessment Method: Track the number of sabbaticals taken annually by the Department of Forestry faculty members.

Results: Dr. Chris Barton took sabbatical leave during the 2012-2013 Academic Year.

Analysis of results and reflection: No additional sabbaticals have been requested by faculty. This is partially explained by the bimodal nature of the faculty – approximately one-half is junior faculty and one-half is senior faculty who have expressed little interest in sabbaticals.

Ongoing Improvement Actions:

7. The Department of Forestry should be more proactive in its recruiting efforts, including minority recruitment. Cultural, ethnic, and gender diversity should be a priority for the department.

Assessment Method: Increased enrollment of cultural, ethnic, and gender diverse students.

Results: 96% of the students who enrolled in Forestry between 2006 and 2014 were “white or caucasian”. We have actively recruited students from all walks of life. We have participated in many events annually for the past five years aimed at minority recruitment. We have worked closely with the CAFÉ Office of Diversity for the last 5 years to identify additional opportunities to recruit diverse students.

Analysis of results and reflection: Virtually all 1862 Forestry programs struggle with the same issues of lack of diversity in their undergraduate populations. Graduate student diversity is not a problem.

Ongoing Improvement Actions: We have scaled back our efforts to participate in every event that offers potential minority recruitment opportunities. We have determined to be more strategic in our efforts over the coming years.

8. The department should address salary deficiencies at the professorial level.

Assessment Method: Using internal salary information and national salary data, the salary levels will be tracked to see if the forestry department has funded faculty salaries at all levels, particularly full professor, to at least 90% of benchmark institutions by 2014.

Results: The 2013-2014 mean faculty salaries increased to an average of \$75,933 for Assistant Professors (3.7% below southern NAUFRP institutions), decreased slightly to \$90,043 for Associate Professors (3.4% above southern NAUFRP institutions), and increased slightly to \$106,686 for Full Professors (4.2% below southern NAUFRP institutions).

Analysis of results and reflection: The 2014-2015 mean faculty salaries increased for most levels.

Ongoing Improvement Actions: We will continue to identify faculty salary disparities as compared to peer institutions and strive to meet regional averages. Excessive disparities are discussed with the College administration.

9. Improve Forestry Department facilities in the TP Cooper Building or move Forestry to a new building.

Assessment Method: Evaluate facilities annually.

Results: The Forestry Department lost two buildings (The Insectary, The Tobacco Research Lab) which housed the herbarium and the wildlife research lab to condemnation. These facilities were moved to Dimock, which reduced the size of our facilities, but improved the quality. We developed a building prospectus with the Department of Entomology, Landscape Architecture, and related interdisciplinary programs and initiatives to construct a new building in the neighborhood of the rest of the College's building. There would be obvious benefits to a new facility in terms of faculty access to high quality research space and equipment, recruiting, and demonstration of a university commitment to environmental programs.

Analysis of results and reflection: Little progress has been made, largely due to a UK-wide focus on dorm building and a perceived dearth of administrative advocacy for new facilities. However, we recently learned that the proposal for a new facility as described above has been placed on the UK Capital Improvement list and was forwarded to the Governor's office for review.

Ongoing Improvement Actions: We will continue to push for new facilities for the programs listed above. We are developing a Forest Health Research and Education Center (FHREC) with the Southern Research Station (USDA Forest Service) and Kentucky Division of Forestry; the former has agreed to provide some funding toward a new facility as it relates to the cooperative effort to develop the FHREC on UK's campus. We will continue to push for new facilities and attempt to identify large donors who could catalyze efforts to construct a new building.

**Department of Forestry Program Review Implementation Plan
Graduate and Extension Programs
2014-2015 Annual Report**

Recommendations:

1. Increase the number and diversity of graduate students in the Department of Forestry.

Assessment Method: We are tracking the number and demographics of graduate students in our MS program and for Ph.D. students advised by our faculty in other programs (i.e., Biology Department, IPSS, Animal and Food Sciences, Plant and Soil Sciences).

Results: Forestry continues to hire a number of international graduate students and women. Opportunities to hire diverse students from other sectors continues to be limited.

Analysis of results and reflection: Anecdotally, we have seen an increase in the number of women and international students coming to Forestry. However, we need to evaluate this against data coming from the Office of Institutional Effectiveness.

Ongoing Improvement Actions: We continue to recruit high-quality graduate students from a diversity of backgrounds. Perhaps the most effective means we have for increasing the number and diversity of students is to increase the number of assistantships we offer. We are also optimistic that our newer faculty will continue to recruit a diversity of students into our program.

2. Increase the number and amount of hard-money graduate assistantships in the Department of Forestry.

Assessment Method: Using forestry department internal records, the number of departmental assistantships will be tracked to see if the forestry department doubles the number of departmental assistantships by 2014.

Results: For the 2014-2015 academic year, four (4) departmental assistantships were awarded.

Analysis of results and reflection: We should begin to see this number maintained, if not increased, as several of our endowments recover from being under water and generating limited income for supporting graduate research.

Ongoing Improvement Actions: We will continue to seek cost-saving measures to increase the number of assistantships we can offer. We will continue to seek additional donations to bolster our graduate program.

3. Increase graduate teaching capacity in the Department of Forestry through direct increases in FTEs devoted to this purpose and through Adjunct faculty appointments.

Assessment Method: Count the number, quality, and diversity of faculty and adjunct faculty in the Department of Forestry.

Results: We appointed several Adjunct Faculty in the department over the last several years. Dr. Claudia Cotton (USFS Soil Scientist) has assisted with Landscape Assessment since 2012. Drs. Monte McGregor, John Brunjes, Dana Baxley, and Matt Thomas, all from Kentucky Department of Fish and Wildlife Resources, were accepted as Adjunct Faculty in 2013. We hope to involve these individuals in teaching classes in the near future, but in the meantime they are cooperating on various research endeavors. We have also hired Dr. Bert Abbott, Research Geneticist, to assist with the development of the Forest Health Research and Education Center at UK. Dr. Abbott has already reached out to undergraduate students to provide research opportunities and we anticipate his increased involvement in the graduate program in the coming year. Dr. Abbott continues to contribute to graduate research opportunities for students.

Analysis of results and reflection: These steps seem to be propelling us in the right direction for graduate instruction.

Ongoing Improvement Actions: In addition to the steps described above, we have also made several revisions to faculty DOEs to create more opportunity for graduate instruction. First and foremost, limiting junior faculty teaching time to undergraduate course to a certain level will permit more room for teaching a graduate course. Also, Dr. Dave Wagner has released a portion of his DOE previously dedicated to teaching an undergraduate course toward development of an additional graduate course.

4. Creation of a Ph.D. program in Forestry.

Assessment Method: Determine if a Forestry Ph.D. program has been developed in the department.

Results: The creation of the IPSS (Integrated Plant and Soil Sciences) Ph.D. program has reduced the urgency/need for a specific Ph.D. in Forestry. Several of our faculty are graduate faculty members in this program and can advise Ph.D. students under its umbrella.

Analysis of results and reflection: The department Research Committee recently forwarded a recommendation to the Forestry faculty that we pursue a Ph.D. program. Results of a meeting with the Graduate School suggests this may be more attainable than previously thought.

Ongoing Improvement Actions: The department will begin to prepare a petition to pursue a Ph.D. program in Forestry and Natural Resources. Forestry faculty currently advise approximately 12 Ph.D. students, suggesting the demand is there for such a program. Further, there is no other entity in Kentucky that currently offers a Ph.D. in forestry or natural resources; UK Forestry is the obvious choice to fill this demand. One significant improvement that could contribute to increasing the Ph.D. students advised by Forestry faculty would be additional hard-money resources to incentivize faculty recruitment of Ph.D. students. Currently our supply of assistantships is considerably less than the demand by potential students. While we have been very successful in acquiring extramural funding to support both MS and Ph.D. students, additional hard-money incentives could leverage opportunities and

result in increased Ph.D. student numbers. We also need to identify opportunities to recruit international students who may come to UK with their own financial support.

5. Increase hard-money Extension FTEs.

Assessment Method: Counting the number of Extension personnel.

Results: The number of Extension faculty decreased with the retirement, and concurrent lost of the position due to budget cuts, of Deborah Hill, Non-timber Forest Products Specialist in 2012. Also, Carroll Fackler, Extension Associate for the Primary Forest Products Industry, retired in June 2014.

Analysis of results and reflection: We don't expect to hire a recurring, tenure-track position to replace Dr. Deborah Hill. We have recently replaced Carroll Fackler with Mr. Chad Niman who started with the department summer 2015.

Ongoing Improvement Actions: The department conducted a strategic planning exercise in 2013 to identify the priority personnel needs in each mission area. It was determined that one of the critical needs for Forestry Extension was a Forest Health Specialist (to include a research appointment). Resources are currently not available to hire a tenure-track full-time Forest Health Extension Specialist, but we have acquired funds from the USDA Forest Service Southern Research Station to hire an Extension Forest Health Post-Doctoral scientist for two years to begin developing educational programs targeting forest health. A scientist to fill this position is currently being sought. We are currently developing a position description to fill the Primary Forest Products Extension Associate position. We are also currently conducting a search to replace Dr. Tom Barnes, who passed away unexpectedly in late 2014. This search should be completed by the end of October 2015.

6. Increase Extension grantsmanship.

Assessment Method: Track the number and dollars coming to Forestry Extension personnel.

Results: Forestry Extension faculty and staff are active in grantsmanship. Many of their programs would not be possible without the assistance of outside financial resources.

Analysis of results and reflection: Extension continues to do an excellent job of funding many of their programs and activities using extramural funding.

Ongoing Improvement Actions: UK Forestry will endeavor to better track the funding that comes specifically to UK Forestry Extension. This is often challenged by the fact that many of our efforts are integrated, meaning it is difficult to separate what is Extension versus applied research versus joint efforts.

7. Conduct forest landowners' needs assessment.

Assessment Method: We conducted a forest industry needs assessment as a precursor to the landowner needs assessment.

Results: The industry needs assessment identified several major areas in which the industry feels the need for more information. Common themes among those

surveyed included the need for additional information regarding marketing products, both domestically and overseas, employee training, and burdensome government regulations.

Analysis of results and reflection: While we don't have the personnel capacity to address these areas comprehensively currently, we can begin to organize conversations and periodic workshops to address some of these issues. In addition, as we seek to hire new personnel (to replace retiring staff and faculty), we can identify individuals who may have the capacity to offer some educational programming in these areas.

Ongoing Improvement Actions: At this time we don't have concrete plans to conduct a forest landowners' needs assessment. However, we will evaluate our current workload and ongoing relationships with partners to determine the degree to which this needs to become a priority.

Appendix 1-B

Forestry Undergraduate Curriculum Revision



UNIVERSITY
OF KENTUCKY

College of Agriculture, Food & Environment

Terrell T. "Red" Baker, Ph.D.
Chair & James Graham Brown Professor
of Forestry

Department of Forestry

106 Thomas Poe Cooper Bldg
Lexington, Kentucky 40546-0073
Phone: (859)257-7596
FAX: (859)323-1031
Email: terrellbaker@uky.edu

July 16, 2015

Dr. Larry Grabau
Associate Dean for Instruction
College of Agriculture, Food and Environment
N-6 Ag Science North
Lexington, KY 40546-0091

Dear Dr. Grabau,

The undergraduate forestry program, leading to a Bachelor of Science in Forestry at the University of Kentucky, is a professionally accredited degree program by the Society of American Foresters. It has been six years since extensive revisions were made to the undergraduate forestry degree program. Since this time, there have been changes to the university general education requirements, changes in the forestry faculty, and a diversifying range of opportunities for our forestry graduates. Adjustments to our forestry curriculum are needed to enhance our forestry program and prepare our students for success in a changing world.

About two years ago, an *ad hoc* curriculum revision committee was formed to receive and analyze input from forestry faculty, staff, students, alumni, employers, and other stakeholders. We also analyzed our assessment results, junior and senior exit interviews, and input from the Forestry Department Advisory Group. The curriculum revision committee used these inputs to help design a revised, relevant, and innovative forestry curriculum. After much useful discussion during the *ad hoc* curriculum revision committee meetings and subsequent Undergraduate Program Committee and faculty meetings, a final revised curriculum was approved by our forestry faculty.

One of the key changes to our proposed curriculum revision is to create nine hours of professional electives within our rigorous, already full, professionally accredited Forestry program. Because we have a strict set of professional degree requirements by the Society of American Foresters, there is little room for additional professional development. In order to provide society-ready forestry graduates that have the appropriate technical forestry background as well as the additional, more specialized skills to find employment in specific disciplines of forestry, wildlife, and natural resources management, we proposed to use nine credit hours of forestry courses towards the UK Core. Completing most of the UK Core forestry coursework early in the student's undergraduate career will allow the students to select upper-level professional development courses in a particular area such as business, communication,

see blue.

An Equal Opportunity University

leadership, geographic information systems, or wildlife. These upper-level courses in a student's particular career focus area will allow for a better prepared and more employable forestry graduate.

In addition, creating several forestry courses within the UK Core is beneficial to educating a broader spectrum of UK students (i.e., non-forestry majors) about the role and importance of forests and forestry for providing wildlife habitat, clean air, clean water, and other ecosystems services.

If you need additional information on our forestry curriculum revision package, please contact Laura Lhotka at (859) 257-8718 or laura.lhotka@uky.edu.

Sincerely,

A handwritten signature in blue ink, appearing to read 'TBaker', with a stylized flourish at the end.

Terrell T. "Red" Baker, Ph.D.
Chair/Professor
Department of Forestry

Table of Contents

Overview Materials

- Undergraduate Forestry Program Proposed Curriculum Revision

Required Paperwork

- Change Undergraduate Program Form

Copy of Materials Submitted Through eCATS

Major Change Form

- FOR 100 Forests and Forestry (3)*
- FOR 101 Keeping it Wild: Animal Conservation in the 21st Century (3)*
- FOR 200 Basics of Geospatial Technology (3)*
- FOR 230/435 Conservation Biology (3)*
- FOR 250 Statistics and Measurements I (4)*
- FOR 280 Forest Resource Policy and Law (3)
- FOR 310 Introduction to Forest Health and Protection (1)
- FOR 355/255 Forest Fire (1)
- FOR 356 Forest Soils and Hydrology (1)
- FOR 460 Forest Hydrology and Watershed Management (3)

**Submitted with UK Core paperwork*

Minor Change Form

- FOR 330 GIS and Spatial Analysis (3)
- FOR 357 Inventory and Measurements II (2)
- FOR 358 Silvicultural Practices (3)
- FOR 359 Forest Operations and Utilization (3)
- FOR 400 Human Dimensions of Forestry and Natural Resources (3)
- FOR 425 Forest Management (4)

New Course Form

- FOR 285 Communication and Professional Development in Forestry and Natural Resources I (1)
- FOR 286 Communication and Professional Development in Forestry and Natural Resources II (1)
- FOR 365 Wildlife Assessment (2)
- FOR 520 Mammals of the Eastern United States (4)
- FOR 530 Freshwater Ecology (3)
- FOR 540 Urban Ecology (3)
- FOR 550 U.S. Biodiversity Hotspots (3)
- FOR 560 Landscape Ecology for Natural Resources (3)

Drop Course Form

- FOR 375 Taxonomy of Forest Vegetation (1)
- FOR 376 Silvicultural Practices (2)
- FOR 377 Forest Surveying (1)
- FOR 378 Forest Mensuration (2)
- FOR 379 Harvest and Utilization of Wood (2)

Undergraduate Forestry Program

Proposed Curriculum Revision

Last Revised 07/09/2015

	FALL	SPRING
YEAR 1	FORESTRY 	
	FOR 100 FORESTS AND FORESTRY 3	FOR 240 FORESTRY AND NAT. RES. ETHICS 2
	FOR 285 COM. & PROF. DEV. IN FOR. & N.R. I 1	FOR 255 FOREST FIRE 1
	Humanities 3	BIO 103 Basic Ideas of Biology (Natural, Physical and Mathematical Sciences) (or BIO 148) 3
	Citizenship - U.S. (GEN 100 Issues in Ag., Food & Env.) 3	MA 109 College Algebra (or MA 123 or 113 or 137; which also meet Quantitative Foundations) 3
CIS/WRD 110 (Composition & Comm.) 3	CIS/WRD 111 (Composition & Communication) 3	
	Arts and Creativity 3	
	Forestry Credit Hours 3 Total Credit Hours 15	
YEAR 2	FOR 200 BASICS OF GEOSPATIAL TECHNOLOGY (Quantitative Foundations) 3	FOR 260 FOREST PRODUCTS & WOOD SCIENCE 4
	FOR 219 DENDROLOGY 4	FOR 330 GIS & SPATIAL ANALYSIS 3
	FOR 250 STATISTICS AND MEASUREMENTS I (Statistical Inferential Reasoning) 4	PLS 366 FUNDAMENTALS OF SOIL SCIENCE 4
	FOR 280 FOREST RESOURCE POLICY AND LAW 3	PROFESSIONAL ELECTIVE 3
	CHE 104 Introductory General Chemistry (or CHE 105) 3	Social Sciences 3
	Forestry Credit Hours 14 Total Credit Hours 17	Forestry Credit Hours 11 Total Credit Hours 17
YEAR 3	FOR 221 WINTER DENDROLOGY (2 nd half of semester) 1	FOR 286 COM. & PROF. DEV. IN FOR. & N.R. II 1
	FOR 320 FOREST VALUATION & ECONOMICS 3	FOR 310 INTRO TO FOREST HEALTH & PRO. 1
	FOR 340 FOREST ECOLOGY 4	FOR 356 FOREST SOILS AND HYDROLOGY 1
	FOR 350 SILVICULTURE 4	FOR 357 INVENTORY AND MEASUREMENTS II 2
	FOR 370 WILDLIFE BIOLOGY & MANAGEMENT 4	FOR 358 SILVICULTURAL PRACTICES 3
		FOR 359 FOREST OP. & UTILIZATION 3
		FOR 365 WILDLIFE ASSESSMENT 2
Forestry Credit Hours 16 Total Credit Hours 16	Forestry Credit Hours 13 Total Credit Hours 13	
YEAR 4	FOR 400 HUMAN DIMENSIONS OF FORESTRY & NATURAL RESOURCES* 3	FOR 435 CONSERVATION BIO. (Global Dynamics) 3
	FOR 402 FOREST ENTOMOLOGY 3	FOR 480 INTEGRATED FOREST RESOURCE MANAGEMENT* 5
	FOR 425 FOREST MANAGEMENT 4	PROFESSIONAL ELECTIVE 3
	FOR 460 FOREST HYDROLOGY AND WATERSHED MANAGEMENT 3	Free Elective 3
	PROFESSIONAL ELECTIVE 3	
	Forestry Credit Hours 13 Total Credit Hours 16	Forestry Credit Hours 8 Total Credit Hours 14

*Graduation Writing Requirement

	Credit Hours
REQUIRED FORESTRY COURSES	82
PROFESSIONAL ELECTIVES	9
Free Electives	3
Pre-Major Requirements	9
UK Core	18 (30)
Total Undergraduate Forestry Program	121

FORESTRY PROFESSIONAL ELECTIVES

The nine hours of professional electives are designed to give forestry students supplemental coursework to support their career interests. We encourage students to use these professional electives to enhance their knowledge base and build their resume.

Depending on a student's career interest they may take a series of courses in wildlife to help qualify them for the Associate Wildlife Biologist Certification by The Wildlife Society. Students interested in consulting forestry, timber investment management organizations, or forest industry may take courses in business, management, or economics. Students interested in extension or environmental education may take courses in education, leadership, communication, or agriculture. For students planning to attend graduate school, upper-level science courses or statistics may be used. Communication, GIS, policy, and agricultural economics are examples of other areas students

may choose as professional electives. We also encourage students to enroll in study abroad, research, or internship experiences to meet their professional elective requirements.

Students need to visit with their advisors early (freshman or sophomore year) to outline a plan for meeting the professional elective requirement. Be aware that some courses may have prerequisites. In general, the professional electives should be a 300-level or above course.

Below is a list of suggested courses that qualify as professional electives. If a student wants to take a course not on this list, the student must receive approval from the Department of Forestry Undergraduate Programs Committee (UPC). A student must provide a brief, written justification to their advisor for why they should receive approval to take the particular course. The advisor will then share this information with the UPC for final approval.

The professional electives listed below will be updated with additional courses as they are approved by the Department of Forestry Undergraduate Programs Committee.

Business/Management/Economics

ACC 201 Financial Accounting I (3)
ACC 202 Managerial Uses Of Accounting Information (3)
ACC 300 Financial Accounting II (3)
ACC 301 Intermediate Accounting I (3)
ACC 302 Intermediate Accounting II (3)
ACC 324 Accounting Information Systems (3)
AEC 201 Introduction To Farm And Natural Resource Finance (3)
AEC 302 Agricultural Management Principles (4)
AEC 303 Microeconomic Concepts In Agricultural Economics (3)
AEC 304 Macroeconomic Concepts In Agricultural Economics (3)
AEC 305 Food And Agricultural Marketing Principles (3)
AEC 306 Technical Communication In Economics (2)
AEC 309 International Agriculture, World Food Needs
And U.S. Trade In Agricultural Products (3)
AEC 326 Principles Of Environmental Law (3)
AEC 340 Human Resource Management In Agriculture (3)
AEC 445G Intro. To Resource And Environmental Economics (3)
B&E 201 Introduction To Business (3)
ECO 201 Principles Of Economics I (3)
ECO 202 Principles Of Economics II (3)
FIN 360 Principles Of Real Estate (3)
MGT 292 Introduction To Entrepreneurship (3)
MGT 301 Business Management (3)
MGT 450 Negotiations And Conflict Resolution (3)
MKT 300 Marketing Management (3)
NRE 545 Resource And Environmental Economics (3)

Communication/Leadership

CIS 300 Strategic Business And Professional Communication (W) (3)
CLD 360 Environmental Sociology (3)
CLD 400 Agricultural Communications Campaigns (3)
CLD 401 Principles Of Cooperative Extension (3)
CLD 402 Principles Of Leadership (3)
CLD 403 Leadership And Communication (3)
CLD 404 Contemporary Leadership Applications (3)
NRE 381 Natural Resource And Environmental Policy Analysis (3)
WRD 425 Environmental Writing (3)

Experiential Education

FOR 399 Field-Based Education In Forestry (1-3)
Pre-Approved Study Abroad Courses

GIS/Remote Sensing/Land Use

GEO 409 Advanced GIS (3)
GEO 419 Introduction To Remote Sensing (3)
GEO 506 Introduction To Computer Cartography (3)
LA 308 Regional Land Use Planning Systems (3)
LA 457 Contemporary Regional Land Use Planning Applications (3)
LA/NRE 355 Intro. Geospatial Applications For Land Analysis (3)
LA/NRE 556 Contemporary Geospatial App. For Land Analysis (3)

Plant Sciences

BIO 351 Plant Kingdom (3)
BIO 361 Ecology Of The Kentucky Flora And Vegetation (3)
BIO/NRE 420G Taxonomy Of Vascular Plants (4)
FOR 325 Economic Botany: Plants And Human Affairs (3)
PLS 220 Introduction To Plant Identification (3)
PLS 320 Woody Horticultural Plants (4)
PLS 451 Landscape Management And Arboriculture (3)

Sciences

ABT 360 Genetics (3)
ABT 361 Genetics Lab Online (1)
ABT 460 Introduction To Molecular Genetics (3)
ABT/BIO/ENT/FOR 461 Introduction To Population Genetics (3)
BIO 300 General Entomology (3)
NRE/PLS 455G Wetland Delineation (3)
NRE/PLS 456G Constructed Wetlands (3)

Wildlife Sciences

FOR 510 Herpetology (4)
FOR 520 Mammals Of The Eastern United States (4)
FOR 530 Freshwater Ecology (3)
FOR 540 Urban Ecology (3)
FOR 550 U.S. Biodiversity Hotspots (3)
FOR 560 Landscape Ecology for Natural Resources (3)

Undergraduate Forestry Program

Proposed Curriculum Revision

Last Revised 07/09/2015

New Course *Does not include new courses for the professional elective*

FOR 285 COMMUNICATION & PROFESSIONAL DEVELOPMENT IN FORESTRY & NATURAL RESOURCES I	1
FOR 286 COMMUNICATION & PROFESSIONAL DEVELOPMENT IN FORESTRY & NATURAL RESOURCES II	1
FOR 365 WILDLIFE ASSESSMENT	2

Removed Course

FOR 110 NATURAL RESOURCE ISSUES (Content covered in FOR 100 Forests and Forestry)
FOR 150 COMPUTER APPLICATIONS IN NATURAL RESOURCE PROFESSIONS
FOR 470 INTERDEPENDENT NATURAL RESOURCE ISSUES

Added Course *Does not include added courses for the professional elective*

FOR 100 FORESTS AND FORESTRY	3
FOR 221 WINTER DENDROLOGY	1
FOR 402 FOREST ENTOMOLOGY	3

Modified Course

FOR 200 BASICS OF GEOSPATIAL TECHNOLOGY(Quantitative Foundations)
FOR 230/435 CONSERVATION BIOLOGY (Global Dynamics)
FOR 250 STATISTICS AND MEASUREMENTS I (Statistical Inferential Reasoning)
FOR 280 FOREST RESOURCE POLICY AND LAW
FOR 310 INTRO TO FOREST HEALTH AND PROTECTION
FOR 355/255 FOREST FIRE
FOR 356 LANDSCAPE ASSESSMENT
FOR 460 FOREST HYDROLOGY AND WATERSHED MANAGEMENT

Undergraduate Forestry Program

Proposed Curriculum Revision

Last Revised 07/09/2015

Current Curriculum	Revised Curriculum	Comment
<i>FOR 110 Natural Resource Issues (1)</i>	<i>removed</i>	<i>Course removed from required curriculum. Content expanded and covered in FOR 100 Forests and Forestry.</i>
----	FOR 100 Forests and Forestry (3)	Existing course. Added to fall of freshman year.
<i>FOR 150 Computer Applications in Natural Resource Professions</i>	<i>removed</i>	<i>Course removed. Content covered in FOR 200, FOR 250, and others.</i>
FOR 200 Basics of Geospatial Technology (2)	FOR 200 Basics of Geospatial Technology (3)	Add to UK Core course list for Quantitative Foundations. Increased by one credit hour.
FOR 219 Dendrology (4)	same	No change
----	FOR 221 Winter Dendrology (1)	Existing course. Added to fall of junior year.
FOR 230 Conservation Biology (3)	FOR 435 Conservation Biology (3)	Add to UK Core course list for Global Dynamics. Changed from a 200 to 400 level course. Changed to spring of senior year.
FOR 240 Forestry and Natural Resource Ethics (2)	same	No change
FOR 250 Statistics and Measurements I (3)	FOR 250 Statistics and Measurements I (4)	Add to UK Core course list for Statistical Inferential Reasoning. Increased by one credit hour.
FOR 260 Forest Products and Wood Science (4)	same	Course moved from fall to spring semester.
FOR 280 Forest Policy (2)	FOR 280 Forest Resource Policy and Law (3)	Course name and description changed to include law. Increased to a three credit hour course.
----	FOR 285 Communication and Professional Development in Forestry and Natural Resources I (1)	New course
----	FOR 286 Communication and Professional Development in Forestry and Natural Resources II (1)	New course
FOR 310 Introduction to Forest Health and Protection (3)	FOR 310 Introduction to Forest Health and Protection (1)	Moved to Spring Field Semester. Reduced to a one credit hour course.
FOR 320 Forest Valuation and Economics (3)	same	No change
FOR 330 GIS and Spatial Analysis (3)	same	No change to course. Moved from fall to spring.
FOR 340 Forest Ecology (4)	same	No change
FOR 350 Silviculture (4)	same	No change
FOR 355 Forest Fire Control and Use (1)	FOR 255 Forest Fire (1)	Course level, title, and description changed. Moved out of the Spring Field Semester.
FOR 356 Landscape Assessment (5)	FOR 356 Forest Soils and Hydrology (1)	Reduced to a one credit hour course covering hydrology, watersheds, and soils. Course name and description changed.
FOR 357 Inventory and Measurements II (2)	same	No change

Undergraduate Forestry Program

Proposed Curriculum Revision

Last Revised 07/09/2015

Current Curriculum	Revised Curriculum	Comment
FOR 358 Silvicultural Practices (3)	same	No change
FOR 359 Forest Operations and Utilization (3)	same	No change
----	FOR 365 Wildlife Assessment (2)	Separated and expanded the wildlife component from the FOR 356 course to create a new two-hour course.
FOR 370 Wildlife Biology and Management (4)	same	No change to course. Moved from spring to fall.
FOR 400 Human Dimensions of Forestry and Natural Resources (3)	FOR 400 Human Dimensions of Forestry and Natural Resources (3)	Updated course description. FOR 400 and FOR 480 together meet the new university Graduation Composition and Communications Requirement
<i>FOR 402 currently used in place of FOR 310</i>	FOR 402 Forest Entomology (3)	Existing course. Added to curriculum.
FOR 425 Forest Management (4)	same	No change
FOR 460 Forest Hydrology and Watershed Management (4)	FOR 460 Forest Hydrology and Watershed Management (3)	Reduced to three credit hours. Lab component covered in FOR field semester and NRES summer camp.
<i>FOR 470 Interdependent Natural Resource Issues (3)</i>	<i>removed</i>	<i>Course removed.</i>
FOR 480 Integrated Forest Resource Management (5)	same	FOR 480 and FOR 400 together meet the new university Graduation Composition and Communications Requirement
NON FORESTRY COURSES		
PLS 366 Fundamentals of Soil Science (4)	same	No change
GEN 100 Issues in Agriculture, Food and Environment (3)	same	No change. Still used to fulfill the UK Core Citizenship - U.S. course
BIO 103 Basic Ideas of Biology (3)	same	No change
MA 109 College Algebra (3)	same	No change
CHE 104 Introductory General Chemistry (3)	same	No change

Forestry

College of Agriculture,
Food and Environment

Kentucky boasts many forested areas with famous reputations, such as Natural Bridge, Red River Gorge, Daniel Boone National Forest, and Robinson Forest. Robinson Forest is one of the largest research and educational forests in the eastern United States. It is managed by the Department of Forestry, and as a forestry student at the University of Kentucky all of its resources will be available to you as a unique outdoor laboratory.

The missions of the Department of Forestry are to identify and address the challenges and opportunities facing sustained management of our renewable natural resources, including forests, soils, water, and wildlife. These missions involve three interrelated functions: research, extension, and education. The research goal of the department is to obtain basic and applied information leading to wise and effective management of our natural resources. Forestry extension seeks to inform land owners and the general public about forest stewardship. Forestry education prepares students for careers as forestry and natural resource professionals. The objectives of the required courses in the forestry curriculum are to educate and train students in the communication, managerial, scientific, processing, and administrative skills and principles related to the stewardship and utilization of renewable natural resources. Accomplishment of these objectives will ensure a continuing supply of entry-level professionals for Kentucky and the nation.

The undergraduate (B.S.) program leading to the professional degree in forestry is accredited by the Society of American Foresters (SAF). SAF is the specialized accrediting body recognized by the Commission on Recognition of Postsecondary Accreditation as the accrediting agency for forestry in the United States. Additionally, you may become certified by The Wildlife Society if you choose appropriate elective courses.

Career Opportunities

Forestry graduates are employed as professional foresters in private forest industries and organizations, consulting companies, and public agencies, including the U.S. Forest Service, Soil Conservation Service, and state, county, or urban forestry programs. Graduates are also qualified to be research technicians in government, university, and private laboratories, or may continue their studies in specialized graduate programs.

The inclusion in the curriculum of management and processing principles makes UK forestry graduates attractive to the forest products industry; graduates are often employed as technical specialists, managers, and marketing and wood procurement personnel.

Graduation Requirements

To earn the Bachelor of Science in Forestry, the student must complete a minimum of 121 semester hours. A 2.0 grade-point standing (on a 4.0 scale) is necessary and remedial courses may **not** be counted toward the total hours required for the degree.

Students will complete a field semester in the spring of their junior year. Throughout the spring field semester, students will visit numerous sites to see different ecosystems in the region. Students will periodically return to one site, or sample property, that will be used for in-depth analysis to show integration and application of field semester concepts.

The curriculum consists of UK Core requirements, preprofessional, professional, and specialty support components. Preprofessional, professional, and specialty support courses provide the skills and understanding to manage forest resources. Electives, chosen with the assistance of your advisor, strengthen your knowledge of basic principles in areas of special interest to you.

UK Core Requirements

See the *UK Core* section of the 2014-2015 *Undergraduate Bulletin* for the complete UK Core requirements. The courses listed below are (a) recommended by the college, or (b) required courses that also fulfill UK Core areas. Students should work closely with their advisor to complete the UK Core requirements.

I. Intellectual Inquiry in Arts and Creativity

Choose one course from approved list..... 3

II. Intellectual Inquiry in the Humanities

Choose one course from approved list..... 3

III. Intellectual Inquiry in the Social Sciences

Choose one course from approved list..... 3

IV. Intellectual Inquiry in the Natural, Physical, and Mathematical Sciences

BIO 103 Basic Ideas of Biology 3

V. Composition and Communication I

CIS/WRD 110 Composition and Communication I..... 3

VI. Composition and Communication II

CIS/WRD 111 Composition and Communication II 3

VII. Quantitative Foundations

*One calculus course from approved list 3

VIII. Statistical Inferential Reasoning

Recommended:

STA 210 Making Sense of Uncertainty:

An Introduction to Statistical Reasoning 3

IX. Community, Culture and Citizenship in the USA

GEN 100 Issues in Agriculture, Food and Environment 3

X. Global Dynamics

Choose one course from approved list..... 3

UK Core hours 30

**Students who do not take calculus will use three hours of free electives taking MA 109 College Algebra.*

Graduation Composition and Communication Requirement (GCCR)

FOR 400 Human Dimensions of Forestry and Natural Resources 3

FOR 480 Integrated Forest Research Management 5

Graduation Composition and Communication Requirement hours (GCCR)..... 8

Premajor Requirements

Hours

GEN 100 Issues in Agriculture, Food and Environment 3

BIO 103 Basic Ideas of Biology

or

BIO 150 Principles of Biology I 3

CHE 104 Introductory General Chemistry

or

CHE 105 General College Chemistry I 3-4

Subtotal: Premajor hours 9-10

–CONTINUED–

University of Kentucky is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award associate, baccalaureate, masters, and doctorate degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097, call 404-679-4500, or online at www.sacscoc.org for questions about the accreditation of University of Kentucky.

Forestry • 2

Major Requirements	Hours
FOR 110 Natural Resource Issues	1
FOR 150 Computer Applications in Natural Resource Professions	2
FOR 200 Basics of Geospatial Technology	2
FOR 219 Dendrology	4
FOR 230 Conservation Biology	3
FOR 240 Forestry and Natural Resource Ethics	2
FOR 250 Statistics and Measurements I	3
FOR 260 Forest Products and Wood Science	4
FOR 280 Forest Policy	2
FOR 310 Introduction to Forest Health and Protection	3
FOR 320 Forest Valuation and Economics	3
FOR 330 GIS and Spatial Analysis	3
FOR 340 Forest Ecology	4
FOR 350 Silviculture	4
FOR 355 Forest Fire Control and Use	1
FOR 356 Landscape Assessment	5
FOR 357 Inventory and Measurements II	2
FOR 358 Silvicultural Practices	3
FOR 359 Forest Operations and Utilization	3
FOR 370 Wildlife Biology and Management	4
FOR 400 Human Dimensions of Forestry and Natural Resources	3
FOR 425 Forest Management	4
FOR 460 Forest Hydrology and Watershed Management	4
FOR 470 Interdependent Natural Resource Issues	3
FOR 480 Integrated Forest Resource Management	5
PLS 366 Fundamentals of Soil Science	4
Subtotal: Major hours	81
Electives	
Elective courses should be selected by the student to lead to the minimum total of 121 hours required for graduation.	
Subtotal: Electives	2
TOTAL HOURS:	121

CHANGE UNDERGRADUATE PROGRAM FORM

1. General Information

College: <u>Agriculture, Food and Environment</u>		Department: <u>Forestry</u>	
Current Major Name: <u>Forestry</u>		Proposed Major Name: <u>Forestry</u>	
Current Degree Title: <u>Bachelor of Science in Forestry</u>		Proposed Degree Title: <u>Bachelor of Science in Forestry</u>	
Formal Option(s): <u>n/a</u>		Proposed Formal Option(s): <u>n/a</u>	
Specialty Field w/in Formal Option: <u>n/a</u>		Proposed Specialty Field w/in Formal Options: <u>n/a</u>	
Date of Contact with Associate Provost for Academic Administration ¹ : <u>11/11/2014</u>			
Bulletin (yr & pgs): <u>2014-2015 pg.109-110</u>	CIP Code ¹ : <u>B03.0502</u>	Today's Date: <u>07/15/2015</u>	
Accrediting Agency (if applicable): <u>Society of American Foresters</u>			
Requested Effective Date: <input checked="" type="checkbox"/> Semester following approval. OR <input type="checkbox"/> Specific Date ² : _____			
Dept. Contact Person: <u>Laura R. Lhotka</u>		Phone: <u>859-257-8718</u>	Email: <u>laura.lhotka@uky.edu</u>

2. General Education Curriculum for this Program:

The new General Education curriculum is comprised of the equivalent of 30 credit hours of course work. There are, however, some courses that exceed 3 credits & this would result in more than 30 credits in some majors.

- There is no foreign language requirement for the new Gen Ed curriculum.
- There is no General Education Electives requirement.

Please list the courses/credit hours currently used to fulfill the University Studies/General Education curriculum:

I. Intellectual Inquiry in Arts and Creativity

Choose one course from approved list (3)

II. Intellectual Inquiry in the Humanities

Choose one course from approved list (3)

III. Intellectual Inquiry in the Social Sciences

Choose one course from approved list (3)

IV. Intellectual Inquiry in the Natural, Physical, and Mathematical Sciences

BIO 103 Basic Ideas of Biology (3)

V. Composition and Communication I

CIS/WRD 110 Composition and Communication I (3)

VI. Composition and Communication II

CIS/WRD 111 Composition and Communication II (3)

¹ Prior to filling out this form, you MUST contact the Associate Provost for Academic Administration (APAA). If you do not know the CIP code, the (APAA) can provide you with that during the contact.

² Program changes are typically made effective for the semester following approval. No program will be made effective until all approvals are received.

CHANGE UNDERGRADUATE PROGRAM FORM

VII. Quantitative Foundations

One calculus course from approved list (3). Students who do not take calculus will use three hours of free electives taking MA 109 College Algebra.

VIII. Statistical Inferential Reasoning

Recommended: STA 210 Making Sense of Uncertainty: An Introduction to Statistical Reasoning (3)

IX. Community, Culture and Citizenship in the USA

GEN 100 Issues in Agriculture, Food and Environment (3)

X. Global Dynamics

Choose one course from approved list (3)

Please identify below the suggested courses/credit hours to fulfill the General Education curriculum.

General Education Area	Course	Credit Hrs
I. Intellectual Inquiry (one course in each area)		
Arts and Creativity	<u>Any from list</u>	<u>3</u>
Humanities	<u>Any from list</u>	<u>3</u>
Social Sciences	<u>Any from list</u>	<u>3</u>
Natural/Physical/Mathematical	<u>BIO 103 Basic Ideas of Biology</u>	<u>3</u>
II. Composition and Communication		
Composition and Communication I	CIS or WRD 110	3
Composition and Communication II	CIS or WRD 111	3
III. Quantitative Reasoning (one course in each area)		
Quantitative Foundations ³	<u>FOR 200 Basics of Geospatial Technology (submitted for approval)</u>	<u>3</u>
Statistical Inferential Reasoning	<u>FOR 250 Statistics and Measurements I (submitted for approval)</u>	<u>4</u>
IV. Citizenship (one course in each area)		
Community, Culture and Citizenship in the USA	<u>GEN 100 Issues in Agriculture, Food and Environment</u>	<u>3</u>
Global Dynamics	<u>FOR 435 Conservation Biology (submitted for approval)</u>	<u>3</u>
Total General Education Hours		<u>31</u>

3. Explain whether the proposed changes to the program (as described in sections 4 to 12) involve courses offered by

³ Note that MA 109 is NOT approved as a Quantitative Foundations course. Students in a major requiring calculus will use a calculus course (MA 113, 123, 137 or 138) while students not requiring calculus should take MA 111, PHI 120 or another approved course.

CHANGE UNDERGRADUATE PROGRAM FORM

another department/program. Routing Signature Log must include approval by faculty of additional department(s).

The Forestry Department contributes to the Natural Resources and Environmental Science (NRES) interdisciplinary degree program. The proposed changes involve courses in the NRES program taught by forestry faculty.

4. Explain how satisfaction of the University Graduation Writing Requirement will be changed.

Current		Proposed	
<input type="checkbox"/> Standard University course offering. List: _____		<input type="checkbox"/> <i>Standard University course offering.</i> List: _____	
<input checked="" type="checkbox"/> Specific course – list:	FOR 400 <u>Human Dimensions of Forestry and Natural Resources (3)</u> FOR 480 <u>Integrated Forest Research Management (5)</u>	<input checked="" type="checkbox"/> <i>Specific course) – list:</i>	<u>No change</u>

5. List any changes to college-level requirements that must be satisfied.

Current		Proposed	
<input type="checkbox"/> Standard college requirement. List: _____		<input type="checkbox"/> <i>Standard college requirement.</i> List: _____	
<input type="checkbox"/> Specific required course – list: _____		<input type="checkbox"/> <i>Specific course – list:</i> _____	

6. List pre-major or pre-professional course requirements that will change, including credit hours.

Current	Proposed
<u>GEN 100 Issues in Agriculture, Food and Environment</u>	<i>not required</i>
<u>MA 109 College Algebra (3) (Students who do not take calculus in the UK Core will use three hours of free electives taking MA 109 College Algebra.)</u>	<i>MA 109 College Algebra (3) or MA 123 Elementary Calculus & Its Applications (4) or MA 113 Calculus I (4) or MA 137 Calculus I with Life Science Applications (4)</i>
<u>BIO 103 Basic Ideas of Biology (3)</u> or <u>BIO 150 Principles of Biology I (3)</u>	<i>BIO 103 Basic Ideas of Biology (3) or BIO 148 Introductory Biology I (3)</i>
<u>CHE 104 Introductory General Chemistry (3)</u> or <u>CHE 105 General College Chemistry I (4)</u>	<i>CHE 104 Introductory General Chemistry (3) or CHE 105 General College Chemistry I (4)</i>

7. List the major's course requirements that will change, including credit hours.

Current	Proposed
<u>FOR 110 Natural Resource Issues (1)</u>	<i>FOR 110 - removed</i>
<u>FOR 150 Computer App. in Nat. Res. Professions (2)</u>	<i>FOR 150 - removed</i>

CHANGE UNDERGRADUATE PROGRAM FORM

<u>FOR 200 Basics of Geospatial Technology (2)</u>	<u>FOR 200 Basics of Geospatial Technology (3)</u>
<u>FOR 219 Dendrology (4)</u>	<u>FOR 219 - same</u>
<u>FOR 230 Conservation Biology (3)</u>	<u>FOR 435 Conservation Biology (3)</u>
<u>FOR 240 Forestry and Natural Resource Ethics (2)</u>	<u>FOR 240 - same</u>
<u>FOR 250 Statistics and Measurements I (3)</u>	<u>FOR 250 Statistics and Measurements I (4)</u>
<u>FOR 260 Forest Products and Wood Science (4)</u>	<u>FOR 260 - same</u>
<u>FOR 280 Forest Policy (2)</u>	<u>FOR 280 - Forest Resource Policy and Law (3)</u>
<u>FOR 310 Intro. to Forest Health and Protection (3)</u>	<u>FOR 310 Intro. to Forest Health and Protection (1)</u>
<u>FOR 320 Forest Valuation and Economics (3)</u>	<u>FOR 320 - same</u>
<u>FOR 330 GIS and Spatial Analysis (3)</u>	<u>FOR 330 - same</u>
<u>FOR 340 Forest Ecology (4)</u>	<u>FOR 340 - same</u>
<u>FOR 350 Silviculture (4)</u>	<u>FOR 350 - same</u>
<u>FOR 355 Forest Fire Control and Use (1)</u>	<u>FOR 255 Forest Fire (1)</u>
<u>FOR 356 Landscape Assessment (5)</u>	<u>FOR 356 Forest Soils and Hydrology (1)</u>
<u>FOR 357 Inventory and Measurements II (2)</u>	<u>FOR 357 - same</u>
<u>FOR 358 Silvicultural Practices (3)</u>	<u>FOR 358 - same</u>
<u>FOR 359 Forest Operations and Utilization (3)</u>	<u>FOR 359 - same</u>
<u>FOR 370 Wildlife Biology and Management (4)</u>	<u>FOR 370 - same</u>
<u>FOR 400 Human Dimensions of For. & Nat. Res. (3)</u>	<u>FOR 400 - same</u>
<u>FOR 425 Forest Management (4)</u>	<u>FOR 425 - same</u>
<u>FOR 460 Forest Hydrology & Watershed Mgmt (4)</u>	<u>FOR 460 Forest Hydrology & Watershed Mgmt (3)</u>
<u>FOR 470 Interdependent Natural Resource Issues (3)</u>	<u>FOR 470 - removed</u>
<u>FOR 480 Integrated Forest Resource Management (5)</u>	<u>FOR 480 - same</u>
<u>PLS 366 Fundamentals of Soil Science (4)</u>	<u>PLS 366 - same</u>
---	<u>FOR 100 Forests and Forestry (3)</u>
---	<u>FOR 221 Winter Dendrology (1)</u>
---	<u>FOR 285 Com. & Prof. Dev. in For. & Nat. Res. I (1)</u>
---	<u>FOR 286 Com. & Prof. Dev. in For. & Nat. Res. II (1)</u>
---	<u>FOR 365 Wildlife Assessment (2)</u>
---	<u>FOR 402 Forest Entomology (3)</u>

8. Does the pgm require a minor AND does the proposed change affect the required minor? N/A Yes No
 If "Yes," indicate current courses and proposed changes below.

Current	Proposed
_____	_____

9. Does the proposed change affect any option(s)? N/A Yes No
 If "Yes," indicate current courses and proposed changes below, including credit hours, and also specialties and subspecialties, if any.

Current	Proposed
_____	_____

10. Does the change affect pgm requirements for number of credit hrs outside the major subject in a related field? Yes No
 If so, indicate current courses and proposed changes below.

Current	Proposed
_____	_____

11. Does the change affect pgm requirements for technical or professional support electives? Yes No
 If so, indicate current courses and proposed changes below.

CHANGE UNDERGRADUATE PROGRAM FORM

Current <u>Not required</u>	Proposed <u>Nine hours of professional electives. In general, the professional electives should be a 300-level or above course. If a student wants to take a course not on the forestry program's professional elective list, the student must receive approval from the Department of Forestry Undergraduate Programs Committee.</u>
--------------------------------	--

12. Does the change affect a minimum number of free credit hours or support electives?

Yes No

If "Yes," indicate current courses and proposed changes below.

Current _____	Proposed _____
------------------	-------------------

13. Summary of changes in required credit hours:

	Current	Proposed
a. Credit Hours of Premajor or Preprofessional Courses:	<u>9</u>	<u>9</u>
b. Credit Hours of Major's Requirements:	<u>81</u>	<u>82</u>
c. Credit Hours for Required Minor:	<u>n/a</u>	<u>n/a</u>
d. Credit Hours Needed for a Specific Option:	<u>n/a</u>	<u>n/a</u>
e. Credit Hours Outside of Major Subject in Related Field:	<u>n/a</u>	<u>n/a</u>
f. Credit Hours in Technical or Professional Support Electives:	<u>none</u>	<u>9</u>
g. Minimum Credit Hours of Free/Supportive Electives:	<u>2</u>	<u>3</u>
h. Total Credit Hours Required by Level:	100: <u>12</u>	<u>12</u>
	200: <u>20</u>	<u>24</u>
	300: <u>39</u>	<u>34</u>
	400-500: <u>19</u>	<u>21</u>
i. Total Credit Hours Required for Graduation:	<u>121</u>	<u>121</u>

14. Rationale for Change(s) – if rationale involves accreditation requirements, please include specific references to that.

The undergraduate forestry program, leading to a Bachelor of Science in Forestry at the University of Kentucky, is a professionally accredited degree program by the Society of American Foresters. It has been six years since extensive revisions were made to the undergraduate forestry degree program. Since this time, there have been changes to the university general education requirements, changes in the forestry faculty, and a diversifying range of opportunities for our forestry graduates. Adjustments to our forestry curriculum are needed to enhance our forestry program and prepare our students for success in a changing world.

About two years ago, an ad hoc curriculum revision committee was formed to receive and analyze input from forestry faculty, staff, students, alumni, employers, and other stakeholders. We also analyzed our assessment results, junior and senior exit interviews, and input from the Forestry Department Advisory Group. The curriculum revision committee used these inputs to help design a revised, relevant, and innovative forestry curriculum. After much useful discussion during the ad hoc curriculum revision committee meetings and subsequent Undergraduate Program Committee and faculty meetings, a final revised curriculum was approved by our forestry faculty.

CHANGE UNDERGRADUATE PROGRAM FORM

One of the key changes to our proposed curriculum revision is to create nine hours of professional electives within our rigorous, already full, professionally accredited Forestry program. Because we have a strict set of professional degree requirements by the Society of American Foresters, there is little room for additional professional development. In order to provide society-ready forestry graduates that have the appropriate technical forestry background as well as the additional, more specialized skills to find employment in specific disciplines of forestry, wildlife, and natural resources management, we proposed to use nine credit hours of forestry courses towards the UK Core. Completing most of the UK Core forestry coursework early in the student's undergraduate career will allow the students to select upper-level professional development courses in a particular area such as business, communication, leadership, geographic information systems, or wildlife. These upper-level courses in a student's particular career focus area will allow for a better prepared and more employable forestry graduate.

In addition, creating several forestry courses within the UK Core is beneficial to educating a broader spectrum of UK students (i.e., non-forestry majors) about the role and importance of forests and forestry for providing wildlife habitat, clean air, clean water, and other ecosystems services.

15. List below the typical semester by semester program for the major. If multiple options are available, attach a separate sheet for each option.

<p>YEAR 1 – FALL: (e.g. "BIO 103; 3 credits")</p>	<p><u>FOR 100 Forests and Forestry 3</u></p> <p><u>FOR 285 Com. & Prof. Dev. in For. & Nat. Res. I 1</u></p> <p><u>Humanities 3</u></p> <p><u>Citizenship - U.S. (required GEN 100) 3</u></p> <p><u>CIS/WRD 110 3</u></p> <p style="text-align: right;"><u>Total 13</u></p>	<p>YEAR 1 – SPRING:</p>	<p><u>FOR 240 Forestry and Natural Resource Ethics 2</u></p> <p><u>FOR 255 Forest Fire 1</u></p> <p><u>BIO 103 Basic Ideas of Biology (Natural, Physical, and Mathematical Sciences) (or BIO 148) 3</u></p> <p><u>MA 109 College Algebra (or MA 123 or 113 or 137; which meet Quantitative Foundations) 3</u></p> <p><u>CIS/WRD 111 3</u></p> <p><u>Arts and Creativity 3</u></p> <p style="text-align: right;"><u>Total 15</u></p>
<p>YEAR 2 - FALL :</p>	<p><u>FOR 200 Basics of Geospatial Technology (Quantitative Foundations) 3</u></p> <p><u>FOR 219 Dendrology 4</u></p> <p><u>FOR 250 Statistics and Measurements I (Statistical Inferential Reasoning) 4</u></p> <p><u>FOR 280 Forest Resource Policy and Law 3</u></p> <p><u>CHE 104 Introductory General</u></p>	<p>YEAR 2 – SPRING:</p>	<p><u>FOR 260 Forest Products and Wood Science 4</u></p> <p><u>FOR 330 GIS and Spatial Analysis 3</u></p> <p><u>PLS 366 Fundamentals of Soil Science 4</u></p> <p><u>Professional Elective 3</u></p> <p><u>Social Sciences 3</u></p> <p style="text-align: right;"><u>Total 17</u></p>

CHANGE UNDERGRADUATE PROGRAM FORM

	<u>Chemistry (or CHE 105) 3</u> <u>Total 17</u>		
YEAR 3 - FALL:	<u>FOR 221 Winter Dendrology 1</u> <u>FOR 320 Forest Valuation and Economics 3</u> <u>FOR 340 Forest Ecology 4</u> <u>FOR 350 Silviculture 4</u> <u>FOR 370 Wildlife Biology and Management 4</u> <u>Total 16</u>	YEAR 3 - SPRING:	<u><i>SPRING FIELD SEMESTER</i></u> <u><i>FOR 286 Com. & Prof. Dev. in For. & Nat. Res. II 1</i></u> <u><i>FOR 310 Intro. to Forest Health and Protection 1</i></u> <u><i>FOR 356 Forest Soils and Hydrology 1</i></u> <u><i>FOR 357 Inventory and Measurements II 2</i></u> <u><i>FOR 358 Silvicultural Practices 3</i></u> <u><i>FOR 359 Forest Operations and Utilization 3</i></u> <u><i>FOR 365 Wildlife Assessment 2</i></u> <u><i>Total 13</i></u>
YEAR 4 - FALL:	<u>FOR 400 Human Dimensions of For. & Nat. Res. 3</u> <u>FOR 402 Forest Entomology 3</u> <u>FOR 425 Forest Management 4</u> <u>FOR 460 Forest Hydrology & Watershed Mgmt 3</u> <u>Professional Elective 3</u> <u>Total 16</u>	YEAR 4 - SPRING:	<u><i>FOR 435 Conservation Biology (Global Dynamics) 3</i></u> <u><i>FOR 480 Integrated Forest Resource Management 5</i></u> <u><i>Professional Elective 3</i></u> <u><i>Free Elective 3</i></u> <u><i>Total 14</i></u>

CHANGE UNDERGRADUATE PROGRAM FORM

Signature Routing Log

General Information:



Current Degree Title and Major Name: Bachelor of Science in Forestry; Forestry

Proposal Contact Person Name: Laura Lhotka Phone: 859-257-8718 Email: laura.lhotka@uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
Forestry	7.16.15	Terrell Baker / 257-7596 / terrellbaker@uky.edu	
NRES Steering Committee	7.17.15	Mary Arthur / 257-5762 / mary.arthur@uky.edu	
		/ /	
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision ⁴
Undergraduate Council			
Graduate Council			
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

⁴ Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

Appendix 1-C

Proposal for Minor in Wildlife Biology and Management



UNIVERSITY
OF KENTUCKY

College of Agriculture, Food & Environment

Terrell T. "Red" Baker, Ph.D.
Chair & James Graham Brown Professor
of Forestry

Department of Forestry

106 Thomas Poe Cooper Bldg
Lexington, Kentucky 40546-0073
Phone: (859)257-7596
FAX: (859)323-1031
Email: terrellbaker@uky.edu

July 16, 2015

Dr. Larry Grabau
Associate Dean for Instruction
College of Agriculture, Food and Environment
N-6 Ag Science North
Lexington, KY 40546-0091

Dear Dr. Grabau,

Enclosed is the Department of Forestry's proposal for a Minor in Wildlife Biology and Management. Updates have been made to the proposal based on the feedback from the College of Agriculture, Food and Environment's Undergraduate Curriculum Committee.

We are proposing this minor because over the past two decades, there has been an increased demand nationally for collegiate programming in the natural resource sciences. Just in the past few years, the Department of Forestry has experienced an annual increase in enrollment of ~5-10% in courses such as FOR 230/435 Conservation Biology and FOR 370 Wildlife Biology and Management. An important first step in response to enrollment increases in said classes, and importantly based on oral and survey feedback from undergraduate students who expressed a desire for increased offerings in the wildlife sciences, was the implementation of a Wildlife Forester undergraduate curricular option for forestry majors in Fall 2012. A student enrolled in the Wildlife Forester option pursues a major in forestry and completes a sufficient number of wildlife and other classes to satisfy the course requirements needed to apply for certification as an Associate Wildlife Biologist by The Wildlife Society, the most recognized society of wildlife professionals in North America. The Wildlife Forester option offering is primarily designed to offer a more diverse and robust preparation of students interested in forestry or natural resource-related fields where more detailed knowledge of wildlife, its management and habitats are encouraged or required (e.g. wildlife management and ecology).

The Department was able to satisfy the teaching requisites of the wildlife option by annually offering the course, FOR 101 Introduction to Wildlife Conservation, and via hiring of an additional wildlife faculty member in summer 2012 who will teach a 500-level course in herpetology.

An important second step to satisfying student demands for increased programming in wildlife studies would be the creation of a formal minor in Wildlife Biology and Management. A formal

see blue.

An Equal Opportunity University

minor would provide official university recognition of students that completed the Wildlife Forester option without taking additional courses. In addition, a minor would provide a formalized learning opportunity for students of non-Forestry majors (e.g. biology) that may be interested in developing knowledge of wildlife studies, yet are unable to fully pursue the Wildlife Forester option.

If you need additional information on our proposed Wildlife Biology and Management Minor, please contact Laura Lhotka at (859) 257-8718 or laura.lhotka@uky.edu.

Sincerely,

A handwritten signature in blue ink, appearing to read 'TBaker', with a stylized flourish at the end.

Terrell T. "Red" Baker, Ph.D.
Chair/Professor
Department of Forestry

Proposal for a Minor
Wildlife Biology and Management Minor
Last Revised 07/15/2015

WILDLIFE BIOLOGY AND MANAGEMENT MINOR

Minor Prerequisites

BIO 148 Introductory Biology I 3

Minor Requirements (minimum 21 hours)

FOR 101 Keeping it Wild: Animal Conservation in
the 21st Century 3
FOR 370 Wildlife Biology and Management 4
FOR 230/435 Conservation Biology 3

TWO of the following courses

FOR 510 Herpetology 4
FOR 520 Mammals of the Eastern United States 4
BIO 559 Ornithology 4

ONE of the following courses

ASC 435 Wildlife Science and Applications 3
BIO 303 Introduction to Evolution 4
BIO 375 Behavioral Ecology and Sociobiology 3
BIO 555 Vertebrate Zoology 5
FOR 340 Forest Ecology 4
FOR 400 Human Dimensions of Forestry & Nat. Res. 3
FOR 530 Freshwater Ecology 3
FOR 540 Urban Ecology 3
FOR 550 U.S. Biodiversity Hotspots 3
FOR 560 Landscape Ecology for Natural Resources 3
NRE/LA 556 Contemporary Geospatial Applications
for Land Analysis 3

Proposal for a Minor
Wildlife Biology and Management Minor
 Last Revised 07/15/2015

Current Courses	Proposed Minor	Comment
FORESTRY COURSES		
FOR 101 Introduction to Wildlife Conservation (3)	FOR 101 Keeping it Wild: Animal Conservation in the 21st Century (3)	Update course title. Add to UK Core course list for Global Dynamics.
FOR 230 Conservation Biology (3)	FOR 435 Conservation Biology (3)	Change based on proposed curriculum of moving to a 400 level course. Add to UK Core course list for Global Dynamics.
FOR 370 Wildlife Biology and Management (4)	same	No change
FOR 510 Herpetology (4)	same	No change
----	FOR 520 Mammals of the Eastern United States (4)	New course
FOR 340 Forest Ecology (4)	same	No change
FOR 400 Human Dimensions of Forestry and Natural Resources (3)	same	No change
----	FOR 530 Freshwater Ecology (3)	New course
FOR 599 Urban Ecology (3)	FOR 540 Urban Ecology (3)	Existing course taught as an FOR 599. Paperwork to be filed for new course number.
FOR 599 Wildlife Ecology, Management, and Policy of Highly Biodiverse Ecosystems in the U.S. (3)	FOR 550 U.S. Biodiversity Hotspots (3)	Existing course taught as an FOR 599. Paperwork to be filed for new course.
----	FOR 560 Landscape Ecology for Natural Resources(3)	New course
NON FORESTRY COURSES		
BIO 148 Introductory Biology I (3)	same	No change
BIO 559 Ornithology (4)	same	No change
ASC 435 Wildlife Science and Applications (3)	same	No change
BIO 303 Introduction to Evolution (4)	same	No change
BIO 375 Behavioral Ecology and Sociobiology (3)	same	No change
BIO 555 Vertebrate Zoology (5)	same	No change
NRE/LA 556 Contemporary Geospatial Applications for Land Analysis (3)	same	No change

NOTE: A forestry major interested in wildlife has 3 options. They can complete the forestry curriculum and fulfill the:

1. 9 hours of **professional electives** with wildlife courses.
2. 21 hours of **Wildlife Biology and Management Minor** requirements.
3. 81 hours of The Wildlife Society educational requirements for **certification for Associate Wildlife Biologist**.

NEW UNDERGRADUATE MINOR / CHANGE UNDERGRADUATE MINOR FORM

Please fill out Section I.

SECTION I: GENERAL INFORMATION

Program: Forestry

Minor: Wildlife Biology and Management Minor

College: Agriculture, Food and Environment

Department: Forestry

Bulletin PP: new minor

CIP Code: B03.0502

Accrediting Agency (if applicable): n/a

⇒ Fill out Section II if you are proposing a NEW minor.

Section II: New Minor

Minor Prerequisites (list course prefix, number and title): BIO 148 Introductory Biology I (3)

Minor Requirements (list course prefix, number and title): FOR 101 Keeping it Wild: Animal Conservation in the 21st Century (3)
FOR 370 Wildlife Biology and Management (4)
FOR 430 Conservation Biology (3)

TWO of the following courses:

FOR 510 Herpetology (4)

FOR 520 Mammals of the Eastern United States (4)

BIO 559 Ornithology (4)

Minor Electives (list course prefix, number and title): ONE of the following courses:
ASC 435 Wildlife Science and Applications (3)
BIO 303 Introduction to Evolution (4)
BIO 375 Behavioral Ecology and Sociobiology (3)
BIO 555 Vertebrate Zoology (5)
FOR 340 Forest Ecology (4)
FOR 400 Human Dimensions of Forestry & Nat. Res. (3)
FOR 530 Freshwater Ecology (3)
FOR 540 Urban Ecology (3)
FOR 550 U.S. Biodiversity Hotspots (3)
FOR 560 Landscape Ecology for Natural Resources (3)
NRE/LA 556 Contemporary Geospatial Applications for Land Analysis (3)

Total Hours Required: Minimum 21 hours

Rationale for Proposal: Over the past two decades, there has been an increased demand nationally for collegiate programming in the natural resource sciences. Just in the past few years, the Department of Forestry has experienced an annual increase in enrollment of ~5-10% in courses such as FOR 230/435 Conservation Biology and FOR 370 Wildlife Biology and Management. An important first step in response to enrollment increases in said classes, and importantly based on oral and survey feedback from undergraduate students who expressed a desire for increased offerings in the wildlife sciences, was the implementation of a Wildlife Forester undergraduate curricular option for forestry majors in Fall 2012. A student enrolled in the Wildlife Forester option

NEW UNDERGRADUATE MINOR / CHANGE UNDERGRADUATE MINOR FORM

pursues a major in forestry and completes a sufficient number of wildlife and other classes to satisfy the course requirements needed to apply for certification as an Associate Wildlife Biologist by The Wildlife Society, the most recognized society of wildlife professionals in North America. The Wildlife Forester option offering is primarily designed to offer a more diverse and robust preparation of students interested in forestry or natural resource-related fields where more detailed knowledge of wildlife, its management and habitats are encouraged or required (e.g. wildlife management and ecology).

The Department was able to satisfy the teaching requisites of the wildlife option by annually offering the course, FOR 101 Introduction to Wildlife Conservation, and via hiring of an additional wildlife faculty member in summer 2012 who will teach a 500-level course in herpetology.

An important second step to satisfying student demands for increased programming in wildlife studies would be the creation of a formal minor in Wildlife Biology and Management. A formal minor would provide official university recognition of students that completed the Wildlife Forester option without taking additional courses. In addition, a minor would provide a formalized learning opportunity for students of non-Forestry majors (e.g. biology) that may be interested in developing knowledge of wildlife studies, yet are unable to fully pursue the Wildlife Forester option.

⇒ Fill out Section III if you are *CHANGING* requirements for an existing minor.

Section III: Change in Minor Requirements

<u>Current</u>	<u>Proposed</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Current Total Hours: _____

Proposed Total Hours: _____

Rationale for Proposal: _____

Will this program be printed in the Bulletin?

Yes No

NEW UNDERGRADUATE MINOR / CHANGE UNDERGRADUATE MINOR FORM

Signature Routing Log

General Information:



Proposal Name: Wildlife Biology and Management Minor

Proposal Contact Person Name: Laura R. Lhotka Phone: 7-8718 Email: laura.lhotka@uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
Department of Forestry	7.16.15	Terrell Baker / 257-7596 / terrellbaker@uky.edu	
Department of Biology		Vincent Cassone / 257-6766 / vincent.cassone@uky.edu	SEE EMAIL
Department of Animal & Food Sciences		Robert Harmon / 257-2686 / rharmon@uky.edu	SEE EMAIL
Department of Landscape Architecture		Ned Crankshaw / 257-4691 / ned.crankshaw@uky.edu	SEE EMAIL
NRES Steering Committee	7.17.15	Mary Arthur / 257-5762 / mary.arthur@uky.edu	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision ¹
Undergraduate Council			
Graduate Council			
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

¹ Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

Appendix 1-D

2015 UK Work-Life Survey,
UK Forestry Results

2015 UK@WORK RESULTS, FORESTRY

Category	Item Text	Provost Overall (n=2,795)	CAFE Overall (n=694)	CAFE Faculty Overall (n=103)	CAFE Staff Overall (n=591)	Forestry (n=16)
Career Dev.	At UK, there are sufficient opportunities for me to receive training to improve my skills in my current faculty/staff position.	72	76	66	77	94
Career Dev.	I believe I have the opportunity for personal development and growth at the University.	74	73	77	73	94
Career Dev.	I have a reasonably good idea of my possible career paths at UK.	67	70	N/A	70	82
Career Dev.	I think the University is doing a good job of retaining its most talented faculty and staff.	41	46	35	48	81
Career Dev.	In my opinion, the most competent people get promoted.	41	44	55	42	69
Averages for Career Development category		59	62	58	62	84
Communication	UK does an excellent job of keeping faculty/staff informed about matters affecting us.	68	74	55	77	69
Communication	Sufficient effort is made to get the opinions and thinking of faculty/staff.	55	64	47	66	69
Averages for Communication category		62	69	51	72	69
Diversity & Inclusion	UK leadership recognizes and respects the value of human differences.	73	79	73	80	94
Diversity & Inclusion	I feel a sense of community at UK.	70	74	67	76	81
Diversity & Inclusion	I feel that UK leadership supports equal opportunity for all faculty/staff.	63	71	66	71	75
Diversity & Inclusion	UK effectively addresses campus incidents of intolerance and bigotry.	62	62	57	63	81
Averages for Diversity & Inclusion category		67	72	66	73	83
Empowerment	I have a very clear idea of the responsibilities for my faculty/staff position/job.	89	92	90	92	100
Empowerment	The information I need to do my work is readily available.	77	81	70	83	88
Empowerment	I am satisfied with my involvement in decisions that affect my work.	68	76	66	77	81
Empowerment	Colleagues in my department are encouraged to come up with innovative solutions to work-related problems.	71	71	67	72	81
Empowerment	UK has established a climate where people can challenge our traditional ways of doing things.	49	60	37	64	50
Empowerment	I am satisfied with the procedures available for resolving faculty/staff complaints.	45	51	47	52	69
Averages for Empowerment category		67	72	63	73	78
Engagement	I am proud to be associated with UK.	92	94	88	95	88
Engagement	I work beyond what is required to help the University succeed.	94	94	93	94	100
Engagement	My work gives me a sense of personal accomplishment.	88	91	93	90	100
Engagement	I believe strongly in the goals and mission of the University.	87	88	86	88	94
Engagement	I am able to sustain the level of energy I need throughout the work day.	79	84	75	86	87
Engagement	I have the equipment/resources I need to do my work effectively.	74	83	64	86	88
Engagement	My colleagues usually get along well together.	83	80	76	81	69
Engagement	My department is able to meet our work challenges effectively.	73	79	67	81	88
Engagement	There are no substantial obstacles at the University to doing my work well.	65	74	56	77	69
Averages for Engagement category		82	85	78	86	87

2015 UK@WORK RESULTS, FORESTRY

Category	Item Text	Provost Overall (n=2,795)	CAFE Overall (n=694)	CAFE Faculty Overall (n=103)	CAFE Staff Overall (n=591)	Forestry (n=16)
Leadership	UK leadership decisions are consistent with the values.	70	77	66	79	81
Leadership	Faculty/Staff are treated with respect here regardless of their position.	62	70	64	71	75
Leadership	I have confidence in the decisions made by UK leadership.	58	67	52	70	56
Leadership	There is sufficient contact between leadership and faculty/staff at UK.	53	60	46	63	69
Leadership	I think action will be taken based on the problems identified in the survey.	39	43	31	45	56
Averages for Leadership category		56	63	52	66	67
Operating Effectively	My department operates effectively.	75	79	76	79	81
Operating Effectively	Decisions at UK are made at the appropriate level.	53	59	44	61	69
Operating Effectively	In my opinion, decisions at UK are made in a timely manner.	43	51	34	53	50
Averages for Operating Effectively category		57	63	51	64	67
Pay & Benefits	From what I hear, our benefits are as good as or better than the benefits in similar institutions.	82	84	69	87	75
Pay & Benefits	From what I hear, our pay is as good as or better than the pay in similar institutions.	33	32	21	34	38
Averages for Pay and Benefits category		58	58	45	61	57
Perf. Eval	At UK, I understand how my work performance is evaluated.	80	85	80	86	88
Perf. Eval	At UK, I think my work performance is evaluated fairly.	71	77	69	79	88
Perf. Eval	Where I work, my colleagues are accountable for following through on what they have promised.	69	69	66	70	69
Averages for Performance Evaluation category		73	77	72	78	82
Retention	At the present time, are you seriously considering leaving UK?	66	70	58	72	93
Averages for Retention category		66	70	58	72	93
Stress, Bal, Wkld	My work schedule allows sufficient flexibility to meet my personal/family needs.	88	90	88	90	94
Stress, Bal, Wkld	There is usually sufficient staffing in my department to handle the workload.	55	72	46	77	75
Stress, Bal, Wkld	Overall, the physical working conditions at my location are satisfactory (e.g., ventilation, temperature, space to work).	60	69	39	75	25
Stress, Bal, Wkld	I find it very difficult to balance my work and my personal responsibilities. (N)	66	67	52	69	81
Stress, Bal, Wkld	Work is usually appropriately distributed among faculty/staff in my department.	61	66	51	68	63
Stress, Bal, Wkld	The amount of stress I experience at work significantly reduces my effectiveness. (N)	56	60	52	61	75
Averages for Stress, Balance, Workload category		64	71	55	73	69

2015 UK@WORK RESULTS, FORESTRY

Category	Item Text	Provost Overall (n=2,795)	CAFE Overall (n=694)	CAFE Faculty Overall (n=103)	CAFE Staff Overall (n=591)	Forestry (n=16)
Supervision	My Department Chair/Director/Dean/Supervisor: Treats me with respect.	88	91	90	92	88
Supervision	My Department Chair/Director/Dean/Supervisor effectively works with people who are different from him- or herself.	79	82	80	83	81
Supervision	My Department Chair/Director/Dean/Supervisor: Communicates effectively.	77	80	80	81	88
Supervision	My Department Chair/Director/Dean/Supervisor: Gives me regular feedback on my performance.	75	80	77	81	81
Supervision	My supervisor does a good job of building teamwork.	71	72	N/A	72	82
Averages for Supervision category		78	81	80	82	84

Univ. Culture	We have an institutional culture that promotes collaboration.	66	72	64	73	94
Univ. Culture	UK is highly regarded by its faculty/staff.	60	70	54	73	63
Univ. Culture	I think I could report instances of dishonest or unethical practices to the appropriate level of authority without fear of reprisal.	66	67	64	67	75
Averages for University Culture category		64	70	61	71	77

Work Relationship	People in my department treat each other with respect.	81	81	81	81	88
Work Relationship	My colleagues/The people I work with are willing to help each other, even if it means doing something outside their usual activities.	77	77	66	79	81
Work Relationship	There is a great sense of collaboration and collegiality at UK.	65	69	63	70	88
Work Relationship	In my department, our meetings/briefings are generally informative and useful.	69	69	70	68	88
Work Relationship	There is a strong feeling of trust between members of my department.	64	66	66	66	75
Work Relationship	Differing opinions are openly discussed in reaching decisions in my department.	59	57	63	56	81
Averages for Work Relationship category		69	70	69	70	84

Appendix 1-E

Wildlife Forester Program Coursework

Wildlife Forester

Undergraduate Forestry Program
University of Kentucky

What is a wildlife forester?

A wildlife forester has the skills to manage wildlife and their forested habitats. Beginning in fall 2012, UK students with an interest in both forestry and wildlife studies will have the opportunity to combine these exciting outdoor career paths. For most students, adding a little over a semester of credit hours to our accredited professional forestry program provides the courses necessary to meet the minimum requirements for the Associate Wildlife Biologist Certification by The Wildlife Society (TWS). If a student is interested in becoming a wildlife forester, it is important that students work closely with the wildlife advisor when they enter the forestry program to map out a series of courses to accomplish the TWS requirements.

Why become a wildlife forester?

In the increasingly integrated and connected world of natural resource management, coupling TWS certification with a forestry degree puts graduates at a competitive advantage for forestry jobs and provides the minimum qualifications for state and federal wildlife agency jobs. Wildlife and fisheries-related activities contribute an estimated \$4.5 billion dollars to Kentucky's economy. Many agencies and organizations provide wildlife-related services to the Commonwealth, including The National Park Service, U.S. Fish and Wildlife Services, U.S. Geological Survey, U.S. Dept. of Agriculture, Office of Surface Mining, U.S. Forest Service, KY Dept. of Fish and Wildlife Resources, KY State Parks, KY Division of Forestry, KY State Nature Preserves Commission, university faculty and staff, local government staff, private outfitters, non-governmental organizations, and various consulting or other for-hire companies. These entities require graduates well-trained in the wildlife sciences and knowledge of forested habitats.

How does a UK forestry student become a wildlife forester?

Students working towards their Bachelor of Science in Forestry at the University of Kentucky can take a series of additional courses to qualify them for the Associate Wildlife Biologist Certification by The Wildlife Society (TWS). The Wildlife Society has detailed guidelines on the Program for Certification of Professional Wildlife Biologists (<http://certification.wildlife.org/learn/professional-development-certification/certification-programs/>). The requirements specify a series of coursework in the biological sciences; physical sciences; quantitative sciences; humanities and social sciences; communication; and policy, administration, and law. Appendix A contains sample wildlife forester curriculums for 1) forestry students entering the program as freshman and 2) students transferring to the forestry program. Appendix B contains detailed course requirements and credit hours needed as specified by The Wildlife Society.

By working closely with the wildlife advisor, students can map out a series of carefully planned UK Core courses and electives to accomplish the TWS requirements in four years. **While the UK forestry department can help students determine a curricular path to meet the certification requirements, the application and certification process is up to the individual student.** Students will need to work directly with The Wildlife Society for Associate Wildlife Biologist Certification program <http://certification.wildlife.org/learn/professional-development-certification/certification-programs/> to apply for certification.

For additional information on becoming a wildlife forester, please contact:

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Selected University of Kentucky Coursework to Meet the Program for Certification of Professional Wildlife Biologists Associate Wildlife Biologist

Black text – From The Wildlife Society Program for Certification of Professional Wildlife Biologist¹
Blue text – From the University of Kentucky 2012-2013 Bulletin²
Red text – Indicates the expected number of credit hours to count towards TWS Wildlife Certification
Green text – Semester the course is typically offered
 *Indicates course may not be offered at regular intervals, based on IRPE Course History³

1. Biological Sciences: Thirty-six (36) semester hours* categories a-e 33; the remaining 3 hours may be in any of these five subject areas.

a. Wildlife Management: 6 hours

FOR 101 INTRODUCTION TO WILDLIFE CONSERVATION (3) (3)	<i>Fall</i>
FOR 230 CONSERVATION BIOLOGY (3) (1)	<i>Fall</i>
FOR 356 LANDSCAPE ASSESSMENT (<i>Wildlife</i>) (5) (1)	<i>Spring</i>
FOR 370 WILDLIFE BIOLOGY AND MANAGEMENT (4) (2)	<i>Spring</i>

b. Wildlife Biology: 6 hours

FOR 370 WILDLIFE BIOLOGY AND MANAGEMENT (4) (2)	<i>Spring</i>
FOR 599 HERPETOLOGY (4) (4)	<i>Spring</i>
BIO 559 ORNITHOLOGY (4) (4)	<i>Spring even years</i>

c. Ecology: 3 hours

FOR 340 FOREST ECOLOGY (4) (3)	<i>Fall</i>
BIO 325 ECOLOGY (4) (4)	<i>Fall and Spring</i>

d. Zoology: 9 hours

(<i>Prereq</i>) BIO 148 INTRODUCTORY BIOLOGY I (3) (3)	<i>Fall and Spring</i>
(<i>Prereq</i>) BIO 155 LABORATORY FOR INTRODUCTORY BIOLOGY I (1) (1)	<i>Fall and Spring</i>
BIO 152 PRINCIPLES OF BIOLOGY II (3) (1)	<i>Fall and Spring</i>
BIO 153 PRINCIPLES OF BIOLOGY LABORATORY II (2) (1)	<i>Fall and Spring</i>
BIO 300 GENERAL ENTOMOLOGY (3) (3)	<i>Fall</i>
BIO 303 INTRODUCTION TO EVOLUTION (4) (4)	<i>Fall, Spring, Summer</i>
BIO 340 COMPARATIVE ANATOMY* (5) (5)	<i>not offered since 2004</i>
BIO 375 BEHAVIORAL ECOLOGY AND SOCIOBIOLOGY (3) (3)	<i>Fall</i>
BIO 553 FISH BIOLOGY (4)* (4)	<i>not in the Course History</i>
BIO 555 VERTEBRATE ZOOLOGY (5)* (5)	<i>not in the Course History</i>
BIO 561 INSECTS AFFECTING HUMAN AND ANIMAL HEALTH (3) (3)	<i>Fall odd years</i>
BIO 563 GENERAL PARASITOLOGY (4)* (4)	<i>Fall periodically</i>
BIO 564 INSECT TAXONOMY (4)* (4)	<i>not recently</i>
BIO 568 INSECT BEHAVIOR (3) (3)	<i>Spring odd years</i>
ENT 110 INSECT BIOLOGY (3) (3)	<i>Fall, Spring, Summer</i>
ENT 402 FOREST ENTOMOLOGY (3) (3)	<i>Fall</i>
ENT 550 SPIDER ECOLOGY AND BEHAVIOR (3)* (3)	<i>not in the Course History</i>

e. Botany: 9 hours

FOR 219 DENDROLOGY (4) (4)	<i>Fall</i>
FOR 260 FOREST PRODUCTS AND WOOD SCIENCE (4) (1)	<i>Fall</i>
FOR 340 FOREST ECOLOGY (4) (1)	<i>Fall</i>
FOR 356 LANDSCAPE ASSESSMENT (<i>Winter Dendrology</i>) (5) (1)	<i>Spring</i>

¹ The Wildlife Society Program for Certification of Professional Wildlife Biologist (Valid thru 31 December 2012)
<http://joomla.wildlife.org/documents/certbook.pdf> (site accessed Oct. 4, 2012)

² University of Kentucky. 2012-2013 Bulletin <http://www.uky.edu/registrar/2012toc> (site accessed Oct. 2, 2012)

³ University of Kentucky Office of Institutional Effectiveness Course History <http://www.uky.edu/IRPE/faculty/coursehistory.html> (site access Oct. 2012)

BIO 351 PLANT KINGDOM (3) (3)	Fall
BIO 420G TAXONOMY OF VASCULAR PLANTS (4) (4)	Spring
BIO 430G PLANT PHYSIOLOGY (4) (4)	Spring recently
BIO 551 THE LIFE CYCLE OF FLOWERING PLANTS* (3) (3)	Spring periodically
BIO 575 PLANT ANATOMY AND MORPHOLOGY* (4) (4)	Spring periodically
2. Physical Sciences: Nine (9) at least two disciplines represented.	
PLS 366 FUNDAMENTALS OF SOIL SCIENCE (4) (4)	Fall and Spring
CHE 105 GENERAL COLLEGE CHEMISTRY I (4) (4)	Fall and Spring
CHE 111 LABORATORY TO ACCOMPANY GENERAL CHEMISTRY I (1) (1)	Fall and Spring
3. Quantitative Sciences: Nine (9) semester hours:	
a. Basic Statistics: 3 hours	
STA 210 MAKING SENSE OF UNCERTAINTY: AN INTRODUCTION TO STATISTICAL REASONING (3) (3)	Fall, Spring, Winter, Summer
b. Quantitative Sciences: 6 hours	
MA 109 COLLEGE ALGEBRA (3) (3)	Fall, Spring, Summer
MA 123 ELEMENTARY CALCULUS AND ITS APPLICATIONS (4) (3)	Fall and Spring
4. Humanities and Social Sciences: Nine (9) semester hours in humanities and social sciences, such as economics, sociology, psychology, political science, government, history, literature, or foreign language.	
GEN 100 ISSUES IN AGRICULTURE. (3) (3)	Fall
UK Core - Humanities (3) (3)	Fall and Spring
UK Core – Global Dynamics (3) (3)	Fall and Spring
5. Communications: Twelve (12) semester hours	
FOR 400 HUMAN DIMENSIONS OF FORESTRY AND NATURAL RESOURCES (3) (1)	Fall
FOR 470 INTERDEPENDENT NATURAL RESOURCE ISSUES (3) (1)	Spring
FOR 480 INTEGRATED FOREST RESOURCE MANAGEMENT (5) (2)	Spring
COM 101 INTRODUCTION TO COMMUNICATIONS (3) (3)	Fall and Spring
CIS/WRD 110 COMPOSITION AND COMMUNICATION I (3) (3)	Fall, Spring, Summer
CIS/WRD 111 COMPOSITION AND COMMUNICATION II (3) (3)	Fall, Spring, Summer
COM 181 BASIC PUBLIC SPEAKING* (3) (3)	Fall and Spring
COM 249 MASS MEDIA AND MASS CULTURE (3) (3)	Fall and Spring
COM 252 INTRODUCTION TO INTERPERSONAL COMMUNICATION (3) (3)	Fall, Spring, Summer
COM 281 COMMUNICATION IN SMALL GROUPS (3) (3)	Fall, Spring, Summer
COM 287 PERSUASIVE SPEAKING (3) (3)	Fall, Spring, Summer
COM 312 LEARNING INTERCULTURAL COMMUNICATION THROUGH MEDIA AND FILM (3) (3)	Spring, Summer
COM 313 INTERPERSONAL COMMUNICATION IN CLOSE RELATIONSHIPS (3) (3)	Spring
COM 315 UNDERSTANDING WORKPLACE COMMUNICATION IN DIVERSE U.S. SOCIETY (3) (3)	Spring
JOU 101 INTRODUCTION TO JOURNALISM (3) (3)	Fall and Spring
WRD 203 BUSINESS WRITING (3) (3)	Fall, Spring, Summer
WRD 204 TECHNICAL WRITING (3) (3)	Fall, Spring, Summer
6. Policy, Administration, and Law: Six (6) semester hours	
FOR 230 CONSERVATION BIOLOGY (3) (1)	Fall
FOR 240 FORESTRY AND NATURAL RESOURCE ETHICS (2) (2)	Spring
FOR 280 FOREST POLICY (2) (2)	Spring
FOR 400 HUMAN DIMENSIONS OF FORESTRY AND NATURAL RESOURCES (3) (2)	Fall
FOR 470 INTERDEPENDENT NATURAL RESOURCE ISSUES (3) (1)	Spring
FOR 480 INTEGRATED FOREST RESOURCE MANAGEMENT (5) (1)	Spring

Appendix B

Detailed Course Requirements and Credit Hours Needed to Meet the Program for Certification of Professional Wildlife Biologists Associate Wildlife Biologist

Black text – From *The Wildlife Society Program for Certification of Professional Wildlife Biologist*⁴

Blue text – From the *University of Kentucky 2012-2013 Bulletin*⁵

Red text – Indicates the expected number of credit hours to count towards TWS Wildlife Certification

Green text – Semester the course is typically offered

*Indicates course may not be offered at regular intervals, based on IRPE Course History⁶

1. Biological Sciences: Thirty-six (36) semester hours* in biological sciences are required and must include courses in the following subcategories (Note: the sum of hours required in subcategories a-e is 33; the remaining 3 hours may be in any of these five subject areas):

a. Wildlife Management: Courses emphasizing the principles and practices of wildlife management. **Course descriptions, immediately following course listing, are required** and should demonstrate training in understanding and manipulating habitat relationships and population dynamics in the context of objectives and influences established by human concerns and activities. Conservation biology courses count if they contain a specific focus on management and decision making (6 hours).

FOR 101 INTRODUCTION TO WILDLIFE CONSERVATION (3) (3) *Fall*

An introduction to the history, concepts, and principles of wildlife biology and management. The role of wildlife in ecological systems and human-altered environments will be discussed. Lecture, two hours; laboratory, two hours per week.

FOR 230 CONSERVATION BIOLOGY (3) (1) *Fall*

The basic history and principles of conservation biology, including diversity, extinction, evolution, and fragmentation. Students will learn the applications of conservation biology to such topics as forest management and wetland management and study the ethical perspectives related to conservation biology, including environmental ethics, deep ecology, and the land ethic.

FOR 356 LANDSCAPE ASSESSMENT (5) (1) *Spring*

Students will learn to assess various landscape types through week-long, in-depth studies of five topic areas, while studying how the topics are interrelated. The topic areas are winter dendrology, wildlife, soils, hydrology, and health and protection. During the module, students will visit sites throughout Kentucky and the region. Prereq: FOR 150, FOR 219, FOR 250, FOR 370, FOR 330, FOR 340, FOR 350, PLS 366, or consent of the field semester coordinator.

FOR 370 WILDLIFE BIOLOGY AND MANAGEMENT (4) (2) *Spring*

Applications of basic biological concepts such as physiology, energetics, nutrition, digestive systems, and anatomy to the study of wildlife and wildlife management. In addition to basic wildlife biology, students will also learn taxonomy and identification of wildlife and the principles of wildlife management as well as applied field techniques such as trapping and radio telemetry.

b. Wildlife Biology: Courses in the biology and behavior of birds, mammals, reptiles, or amphibians. **Course descriptions, immediately following course listing, are required.** Courses should demonstrate training in understanding the biology of wildlife species and their habitat relationships

⁴ The Wildlife Society Program for Certification of Professional Wildlife Biologist (Valid thru 31 December 2012) <http://joomla.wildlife.org/documents/certbook.pdf> (site accessed Oct. 4, 2012)

⁵ University of Kentucky. 2012-2013 Bulletin <http://www.uky.edu/registrar/2012toc> (site accessed Oct. 2, 2012)

⁶ University of Kentucky Office of Institutional Effectiveness Course History <http://www.uky.edu/IRPE/faculty/coursehistory.html> (site access Oct. 2012)

as the basis for management and must include at least one course dealing **solely** with the science of mammalogy, ornithology, or herpetology (this course must be taken at a college/university and cannot be substituted by another course or experience). Ichthyology, marine biology (except focusing on marine mammals or reptiles), microbiology, entomology, or related courses will not count in this category, but will qualify in the Zoology category (6 hours).

FOR 370 WILDLIFE BIOLOGY AND MANAGEMENT (4) (2)

Spring

Applications of basic biological concepts such as physiology, energetics, nutrition, digestive systems, and anatomy to the study of wildlife and wildlife management. In addition to basic wildlife biology, students will also learn taxonomy and identification of wildlife and the principles of wildlife management as well as applied field techniques such as trapping and radio telemetry.

FOR 599 HERPETOLOGY (4) (4)

Spring

This is a 4-credit total, advanced biology and wildlife course about amphibians and reptiles. Lectures and labs follow two concurrent themes: 1) a survey of amphibians and reptiles, with special emphasis of Kentucky and Southeastern U.S. species, and 2) a general analysis of amphibian and reptile biology, ecology, conservation and management. Prereq: BIO 103, FOR 370 or consent of instructor.

BIO 559 ORNITHOLOGY (4) (4)

Spring even years

A study of the life histories, habits, identification, structure, adaptations, and physiology of birds. Special emphasis upon migrations, songs, nests and economic importance of our native birds. Lecture, field excursions, laboratory studies. Prereq: BIO 104, 105 or BIO 150, 151, 152, 153 or consent of instructor.

c. Ecology: Courses in general plant or animal ecology (excludes human ecology). **Course descriptions, immediately following course listing, are required (3 hours).**

FOR 340 FOREST ECOLOGY (4) (3)

Fall

The study of the forest as a biological community, covering ecosystem concepts such as energy flow, forest nutrition, nutrient cycling, and decomposition. Interrelationships between trees and other organisms comprising the community is also examined through concepts of disturbance, succession, population dynamics, biological and ecosystem diversity, ecosystem management, and ecosystem services. Prereq: BIO 103 or BIO 150.

BIO 325 ECOLOGY (4) (3)

Fall and Spring

This course introduces the scientific study of relationship between organisms and their environment. The course is structured around levels of organization – from physiological ecology to individuals, populations, communities, ecosystems, landscapes, regions, and the biosphere. Students will be expected to develop a solid knowledge base and understanding of key concepts and issues in contemporary ecology; to become familiar with how ecological understanding is attained by researchers; and to see how ecological knowledge and methods can be used to address important societal problems. Lecture, three hours per week; laboratory, an average of three hours per week. Prereq: BIO 150-153 or equivalent introductory biology sequence; and BIO 304 or equivalent genetics course; or consent of instructor.

d. Zoology: Courses in the taxonomy, biology, behavior, physiology, anatomy, and natural history of vertebrates and invertebrates. **Course descriptions, immediately following course listing, are required.** Courses in genetics, nutrition, physiology, disease, and other biology or general zoology courses are accepted. Ichthyology or fisheries biology courses are accepted (9 hours).

(Prereq) **BIO 148 INTRODUCTORY BIOLOGY I (3) (3)**

Fall and Spring

BIO 148 introduces the student to the biological mechanisms operating at the molecular, cellular, and population level that contribute to the origin, maintenance, and evolution of biodiversity including the origins and history of the evolutionary process. Course material is presented within a phylogenetic context, emphasizing the shared history of all living organisms on earth through common ancestry. The first semester of an integrated one-year sequence (BIO 148 and BIO 152). Prereq: Math ACT of 23 or above or MA 109, past or concurrent enrollment in CHE 105.

(Prereq) **BIO 155 LABORATORY FOR INTRODUCTORY BIOLOGY I (1) (1)** *Fall and Spring*

This course is designed to provide a broad introduction into the data, results, and information associated with biological research, and into some of the analytical approaches used to test biological hypotheses. Communication of these aspects of biological research is crucial, and much of this lab course will be focused on the development of effective writing skills for the delivery of this information. Prereq: Math ACT of 23 or above or MA 109, past or concurrent enrollment in CHE 105.

BIO 152 PRINCIPLES OF BIOLOGY II (3) (1)

Fall and Spring

The second semester of an integrated one-year sequence (BIO 150 and 152) that is designed to develop understanding and appreciation for the diverse forms of plant and animal life, and their relationships to each other and to their environment. Structure and function relationships will be explored at many levels of organization: cell, tissue, organ, organism, population and community. Prereq: CHE 105, or Math ACT of 26 or above plus concurrent enrollment in CHE 105, or chemistry placement test passed plus concurrent enrollment in CHE 105.

BIO 153 PRINCIPLES OF BIOLOGY LABORATORY II (2) (1) *Fall and Spring*

An introductory laboratory course in which biological systems are investigated at the organismal, population and community levels. Laboratory, four hours per week. Prereq: CHE 105, or Math ACT of 26 or above plus concurrent enrollment in CHE 105, or chemistry placement test passed plus concurrent enrollment in CHE 105.

BIO 300 GENERAL ENTOMOLOGY (3) (3) *Fall*

Fundamentals of insect biology and relationships among insects, plants, and other organisms; identification of commonly encountered insects. Beneficial and detrimental effects of insects are discussed. Lecture, two hours; laboratory, two hours per week. Prereq: One course in introductory biology. (Same as ENT 300.)

BIO 303 INTRODUCTION TO EVOLUTION (4) (4) *Fall and Spring*

This course covers topics in evolution, concentrating on the Darwinian theories of evolution including descent with modification, natural selection, and sexual selection. Topics will include: patterns of evolution, the genetic source of variation, measuring evolution, adaptation, speciation, human evolution, "evo-devo", and evolutionary medicine. Taught on campus (lecture: three hours; recitation, three hours) or online. Prereq: BIO 148, BIO 152 and BIO 155 or equivalent.

BIO 340 COMPARATIVE ANATOMY* (5) (5) *not offered since 2004*

Comparative study of the anatomy of vertebrates with emphasis on evolutionary change, adaptive and functional significance of structural organization and basic concepts of the comparative approach. Laboratory studies on representative vertebrates involving dissections, models, and demonstrations. Lecture, three hours; laboratory, four hours per week. Prereq: BIO 150, 151, 152, 153 or BIO 104, 105 or equivalent course in animal biology.

BIO 375 BEHAVIORAL ECOLOGY AND SOCIOBIOLOGY (3) (3) *Fall*

This course will explore the selective forces influencing animal behavior, such as foraging, predator avoidance, mate choice, parental care, and social interaction. Specific phenomena to be explored include the evolution of optimal foraging and search images, extravagant male characteristics, female preferences, conflicts between the sexes, infanticide, parent-offspring conflict, dominance hierarchies, optimal group size, altruism, and eusociality. The study of these behaviors integrates ideas and approaches from ecology, genetics, physiology, and psychology. Students will be encouraged to read outside material, to think carefully, logically, and critically about ideas, and to ask questions and defend their views in class. Prereq: A year of introductory biology (BIO 150/152).

BIO 553 FISH BIOLOGY* (4) (4) *not in the Course History*

This course explores the biology of fishes from an evolutionary perspective. Lectures cover physiology, functional morphology, ecology, population biology, behavior, evolutionary relationships, and fisheries biology. Laboratory exercises include development of a fish collection; experiments in fish physiology, behavior and ecology; computer modeling of problems in fisheries biology; and field trips. Lecture, three hours; laboratory, two hours per week. Prereq: BIO 150, 151, 152 and 153 or consent of instructor.

BIO 555 VERTEBRATE ZOOLOGY* (5) (5) *not in the Course History*

An intensive survey of the vertebrate classes with emphasis on trends and processes in evolution, classification, phylogeny, ecology, and adaptations in morphology and behavior. Lecture, three hours; laboratory, four hours per week. Prereq: BIO 150, 151, 152, 153 or consent of instructor.

BIO 561 INSECTS AFFECTING HUMAN AND ANIMAL HEALTH (3) (3) *Fall odd years*

Discussion of arthropod parasites and disease vectors. Topics include an overview of disease transmission and public health, epidemiology, vector biology, important arthropod groups and their control. Prereq: One year of biology. (Same as ENT 561.)

BIO 563 GENERAL PARASITOLOGY* (4) (4) *Fall periodically*

Protozoan, helminth and arthropod parasites of man and domestic animals, emphasis on etiology, epidemiology, methods of diagnosis, control measures, and life histories. Techniques for host examination and preparation of material for study. Prereq: BIO 150, 151, 152, 153 or consent of instructor. (Same as ENT 563.)

BIO 564 INSECT TAXONOMY* (4) (4) *not recently*

A study of insect taxonomy including the collection, preparation, and identification of adult insect specimens. Prereq: Consent of instructor. (Same as ENT 564.)

BIO 568 INSECT BEHAVIOR (3) (3) *Spring odd years*

The principles of animal behavior will be stressed using insects as examples. Physiology, mechanisms, behavioral ecology and evolution of insect behavior will be covered. Prereq: One year of biology. (Same as ENT 568.)

ENT 110 INSECT BIOLOGY (3) (3)

Fall, Spring, Summer

Overview of the biology of insects. Emphasizes how this enormously abundant and important group of animals has resolved the basic challenges of survival and reproduction. Principles of physiology, behavior, ecology, and evolution are introduced using insects as examples. The roles of both beneficial and detrimental insects will be discussed.

ENT 402 FOREST ENTOMOLOGY (3) (3)

Fall

The principles of forest entomology, including the detection, collection, identification, appraisal of damage, and control of forest insect pests. Lecture, two hours; laboratory, two hours. Prereq: One year of biology or consent of instructor. (Same as FOR 402.)

ENT 550 SPIDER ECOLOGY AND BEHAVIOR* (3) (3)

not in the Course History

Spiders are fascinating in their own right, and also are major predators in terrestrial food webs. This course examines the ecology and behavior of spiders as model predators in systems ranging from undisturbed forests and meadows to agroecosystems and the urban landscape. While focusing on spiders, the course also intertwines two general sub-themes: (1) the advantages of employing diverse approaches (e.g. field and laboratory experiments, non-manipulative observations, and meta-analyses) in ecological and behavioral research; and (2) the strengths, and limitations, of using model organisms to develop and test theory. Prereq: One year of undergraduate biology.

e. Botany: Courses in general botany, plant genetics, plant morphology, plant physiology, or plant taxonomy (9 hours). **Course descriptions, immediately following course listing, are required. At least one course must deal with plant taxonomy or identification** (this course must be taken at a college/university and cannot be substituted by another course or experience).

FOR 219 DENDROLOGY (4) (4)

Fall

A study of the basic concepts of botany related to woody species and their use, along with basic soil and site characteristics in the identification of trees and forest vegetation.

FOR 260 FOREST PRODUCTS AND WOOD SCIENCE (4) (1)

Fall

An examination of basic material properties of wood, methods by which it is used, and issues and economic conditions in which domestic and global wood markets operate. Concepts covered include species identification, chemical and mechanical properties and their effect on utilization, utilization technologies and their linkage to silvicultural practices, and affiliated issues such as recycling, product certification, environmental concerns, and alternative products.

FOR 340 FOREST ECOLOGY (4) (1)

Fall

The study of the forest as a biological community, covering ecosystem concepts such as energy flow, forest nutrition, nutrient cycling, and decomposition. Interrelationships between trees and other organisms comprising the community is also examined through concepts of disturbance, succession, population dynamics, biological and ecosystem diversity, ecosystem management, and ecosystem services. Prereq: BIO 103 or BIO 150.

FOR 356 LANDSCAPE ASSESSMENT (Winter Dendrology) (5) (1)

Spring

Students will learn to assess various landscape types through week-long, in-depth studies of five topic areas, while studying how the topics are interrelated. The topic areas are winter dendrology, wildlife, soils, hydrology, and health and protection. During the module, students will visit sites throughout Kentucky and the region. Prereq: FOR 150, FOR 219, FOR 250, FOR 370, FOR 330, FOR 340, FOR 350, PLS 366, or consent of the field semester coordinator.

BIO 351 PLANT KINGDOM (3) (3)

Fall

An evolutionary survey of the morphology, taxonomy, life histories and biological relationships of all plant groups comprising the plant kingdom. Lecture, two hours; laboratory, two hours. Prereq: An introductory course in biology.

BIO 420G TAXONOMY OF VASCULAR PLANTS (4) (4)

Spring

A survey of the evolutionary relationships among the major of vascular plant groups, concentrating heavily on important families flowering plants. Issues in contemporary systematics, including cladistic methods, will be covered. Students will gain practical experience learning the language of descriptive botany and using botanical keys in technical manuals for species identification. Field trips highlight the local spring flora. Lecture, three hours; laboratory, three hours; plus two Saturday field trips. Prereq: Junior standing; BIO 150, 152 or one course in introductory botany, or consent of instructor. (Same as NRE 420G.)

BIO 430G PLANT PHYSIOLOGY (4) (4)

Spring recently

Basic principles of plant physiology; the physiological processes of green plants and the effect of the environment on these processes. Lecture (three hours) and laboratory (three hours). Prereq: BIO 148, 152, 155 (or equivalent); CHE 230/231 (or equivalent); BIO 315 (or equivalent) or consent of instructor.

BIO 551 THE LIFE CYCLE OF FLOWERING PLANTS* (3) (3)

Spring periodically

The effect of physical and biotic factors on plants and environment. Physiological, morphological and anatomical adaptations of plants to the physical factors of the environment are emphasized. Some of the laboratory exercises are carried out in the field. Lecture, three hours; laboratory, two hours. Prereq: BIO 325 (Ecology) or consent of instructor.

BIO 575 PLANT ANATOMY AND MORPHOLOGY* (4) (4)

Spring periodically

A survey of the diverse structural features of plants and their functional and phylogenetic significance. Emphasis will be on the adaptive design of modern vascular plants as a response to natural and artificial selection. Lecture, three hours; laboratory, two hours per week. Prereq: Introductory biology sequence (six hours) or consent of instructor.

2. Physical Sciences: Nine (9) semester hours in physical sciences such as chemistry, physics, geology, or soils, with at least two disciplines represented.

PLS 366 FUNDAMENTALS OF SOIL SCIENCE (4) (4)

Fall and Spring

Study of the physical, chemical and biological properties of soils and how these properties relate to plant nutrient availability and plant growth, land-use planning and management issues, and soil and water quality issues. Lecture, three hours; laboratory, three hours. Prereq: CHE 105.

CHE 105 GENERAL COLLEGE CHEMISTRY I (4) (4)

Fall and Spring

A study of the principles of chemistry and their application to the more important elements and their compounds. Not open to students who have already completed both CHE 104 and 106 or CHE 104 and CHE 108, but open to students who have completed just CHE 104. Prereq: Math ACT of 23 or above (or Math placement test), or MA 109, or MA 110, or the KCTCS course CHE 102R or CHM 100.

CHE 111 LABORATORY TO ACCOMPANY GENERAL CHEMISTRY I (1) (1) *Fall and Spring*

A laboratory course, to accompany CHE 105, dealing with the properties of chemical substances and providing an introduction to quantitative chemical analysis. Prereq or concur: CHE 105.

3. Quantitative Sciences: Nine (9) semester hours in quantitative sciences that must include:

a. Basic Statistics: A course in basic statistics (3 hours). **Course description, immediately following course listing, is required.**

STA 210 MAKING SENSE OF UNCERTAINTY: AN INTRODUCTION TO STATISTICAL REASONING (3) (3)

Fall and Spring

The goal of this course is to help students develop or refine their statistical literacy skills. Both the informal activity of human inference arising from statistical constructs, as well as the more formal perspectives on statistical inference found in confidence intervals and hypothesis tests are studied. Throughout, the emphasis is on understanding what distinguishes good and bad inferential reasoning in the practical world around us.

b. Quantitative Sciences: Courses in calculus, biometry, advanced algebra, systems analysis, mathematical modeling, sampling, computer science, or other quantitative science. **Course descriptions, immediately following course listing, are required.** Introductory GIS courses and introductory personal computing courses do not count in this category (6 hours).

MA 109 COLLEGE ALGEBRA (3) (3)

Fall, Spring, Summer

Selected topics in algebra. Develops manipulative algebraic skills and mathematical reasoning required for further study in mathematics. Includes brief review of basic algebra, quadratic formula, systems of linear equations, introduction to functions and graphing. This course is not available for credit to persons who have received credit in any mathematics course of a higher number with the exceptions of MA 111, 112, 123, 162, 201 and 202. Credit not available on the basis of special examination. Prereq: Two years of high school algebra and a Math ACTE score of 21 or above or a Math SAT score of 510 or above; or MA 108R; or appropriate score on the math placement test or grade of C or better in MA 111.

MA 123 ELEMENTARY CALCULUS AND ITS APPLICATIONS (4) (3)

Fall and Spring

An introduction to differential and integral calculus, with applications to business and the biological and physical sciences. Not open to students who have credit in MA 113 or MA 137. Note: Math placement test recommended. Prereq: Math ACT

score of 26 or above, or math SAT of 600 or above, or MA 109, or appropriate math placement score, or consent of department.

4. Humanities and Social Sciences: Nine (9) semester hours in humanities and social sciences, such as economics, sociology, psychology, political science, government, history, literature, or foreign language.

GEN 100 ISSUES IN AGRICULTURE (3) (3)

Fall

An introductory course requiring critical analysis of the major social, economic, political and scientific issues in agriculture and related disciplines. An evaluation of the multiple positions taken on such issues as affected by the broad range of societal dynamics. Development of skills in information gathering, critical analysis of issues, and written and oral communication will be emphasized. Satisfies the U.S. Citizenship category of General Education. Prereq: Students enrolled in the College of Agriculture; freshmen only in fall semesters and transfers only in spring semesters.

UK Core - Humanities (3) (3)

Fall and Spring

Economics, sociology, psychology, political science, government, history, literature, or foreign language

UK Core – Global Dynamics (3) (3)

Fall and Spring

Economics, sociology, psychology, political science, government, history, literature, or foreign language

5. Communications: Twelve (12) semester hours in courses designed to improve communication skills such as English composition, technical writing, journalism, public speaking, or use of mass media. **Course descriptions, immediately following course listing, are required.** A maximum of three (3) semester hours each will be allowed for a completed Master's thesis and Ph.D. dissertation. Courses in literature interpretation, foreign languages, classes requiring a term paper, class projects, and seminars in non-communication courses will not count toward this category.

FOR 400 HUMAN DIMENSIONS OF FORESTRY AND NATURAL RESOURCES (3) (2)

Fall

In an issues based format, students will study societal trends and their impact on natural systems, the disconnect between society and nature, wildlife-human interactions, as well as problems related to globalization and urbanization. Prereq: Senior Standing or consent of the instructor. This is a writing-intensive (W) course approved to fulfill the upper tier of the graduation writing requirement (GWR). To receive W credit for this course, you must have successfully completed the first-year writing requirement (ENG 104 or its equivalent) and have completed at least 30 hours of course work. Forestry majors must complete this course and FOR 470 to fulfill upper tier of the GWR.

FOR 470 INTERDEPENDENT NATURAL RESOURCE ISSUES (3) (1)

Spring

Culmination of the student's study of public concerns and problems related to natural resources. Work in teams to find and verify information on diverse topics, listen to and address public concerns, communicate natural resource information to a wide range of audiences, and be effective professionals in working toward solutions. Prereq: Senior Standing. This is a writing-intensive (W) course approved to fulfill the upper tier of the graduation writing requirement (GWR). To receive W credit for this course, you must have successfully completed the first-year writing requirement (ENG 104 or its equivalent) and have completed at least 30 hours of course work. Forestry majors must complete this course and FOR 400 to fulfill the upper tier graduation writing requirements.

FOR 480 INTEGRATED FOREST RESOURCE MANAGEMENT (5) (2)

Spring

Capstone course. Students will be presented with a real life management scenario in a forested location in Kentucky. Working in teams, students will collect data, determine management objectives, and develop action plans for managing the forest according to the desires of the owner, subject to realistic legal, economic, ethical, and social constraints. Students will be required to produce a professional management plan and present the plan in a public forum at the end of the semester. Prereq: Completion of Field Semester, FOR 425, FOR 460, and Senior Standing.

COM 101 INTRODUCTION TO COMMUNICATIONS (3) (3)

Fall and Spring

An introduction to the process of communication as a critical element in human interaction and in society. Designed to enhance effective communication and informed use of the mass media.

CIS/WRD 110 COMPOSITION AND COMMUNICATION I (3) (3)

Fall, Spring, Summer

Composition and Communication I is the introductory course in a two-course sequence designed to engage students in composing and communicating ideas using speech, writing, and visuals. Students will develop interpersonal communication, critical thinking, and information literacy skills by exploring what it means to be engaged, twenty-first century citizens.

Students will practice composing, critiquing, and revising ideas based on personal experience, observation, and fieldwork in the community, culminating in several discrete projects using oral, written, and visual modalities.

CIS/WRD 111 COMPOSITION AND COMMUNICATION II (3) (3) *Fall, Spring, Summer*
Composition and Communication II is the advanced course in a two-course sequence designed to engage students in composing and communicating ideas using speech, writing, and visuals. In this course, students will work in small groups to explore issues of public concern using rhetorical analysis, engage in deliberation, compose conscientious and well-developed arguments, and propose viable solutions to different audiences. Students will sharpen their ability to conduct research; compose and communicate in spoken, written, and visual forms; and work effectively in teams through sustained interrogation of an issue. A significant component of the class will involve learning to use visual and digital resources both to enhance written and oral presentations and to communicate with public audiences. Prereq: CIS 110.

COM 181 BASIC PUBLIC SPEAKING* (3) (3) *Fall and Spring*
A course designed to give the student platform experience in the fundamentals of effective speaking.

COM 249 MASS MEDIA AND MASS CULTURE (3) (3) *Fall and Spring*
An examination of the interplay between the technology and content of the mass communication media. Prereq: COM 101 or its equivalent.

COM 252 INTRODUCTION TO INTERPERSONAL COMMUNICATION (3) (3) *Fall, Spring, Summer*
This course examines basic verbal and nonverbal concepts affecting the communication process between individuals in various interpersonal contexts. Course also requires participation in written and oral activities designed to develop and improve interpersonal skills. Topics may include: perspective-taking, relationship and conversation management, effective listening, conflict management, communication climate, communication anxiety, and cultural/gender differences in interpersonal communication.

COM 281 COMMUNICATION IN SMALL GROUPS (3) (3) *Fall, Spring, Summer*
A study of communication processes in small group situations. Topics include conflict, leadership, and decision-making. Students will participate in group discussion and develop skills in analyzing group performance.

COM 287 PERSUASIVE SPEAKING (3) (3) *Fall, Spring, Summer*
A study of the processes involved in attitude change, with emphasis on the preparation and delivery of persuasive messages.

COM 312 LEARNING INTERCULTURAL COMMUNICATION THROUGH MEDIA AND FILM (3) (3) *Spring, Summer*
This course examines intercultural and co-cultural divides using a skills-based approach. Students will be exposed to cultural communication situations and will apply skills using lecture, discussion, and various media (e.g., news, radio, film, blogs), equipping them with more effective skills for communicating with other groups, communities, and cultures.

COM 313 INTERPERSONAL COMMUNICATION IN CLOSE RELATIONSHIPS (3) (3) *Spring*
Focuses on describing and explaining communication processes that occur within the context of close relationships. Three general topic areas include: (1) developing and escalating relationships, (2) satisfying relationships, and (3) coping with relational challenges.

COM 315 UNDERSTANDING WORKPLACE COMMUNICATION IN DIVERSE U.S. SOCIETY (3) (3) *Spring*
This course gives students both a theoretical and practical understanding of communication in a wide variety of business settings, with a particular emphasis on the influences of communication in the workplace. Elements from the organization's external environment that have an impact on business communication are also discussed and analyzed.

JOU 101 INTRODUCTION TO JOURNALISM (3) (3) *Fall and Spring*
This course surveys the history and social theories of journalism and introduces students to contemporary journalistic practice. Students will learn about the function and operation of print, electronic and on-line news media. Issues and concepts to be covered include the relationship of government to media; press freedom and controls; media ethics, and the impact of global communications. The course also covers the relationship of journalism to advertising, public relations and telecommunications, particularly with regard to new technologies. Prereq: JOU pre-majors only or consent of instructor.

WRD 203 BUSINESS WRITING (3) (3) *Fall, Spring, Summer*
Instruction and experience in writing for business, industry, and government. Emphasis on clarity, conciseness, and effectiveness in preparing letters, memos, and reports for specific audiences. Prereq: Completion of University Writing requirement or new general education Communications (6 hour) sequence.

WRD 204 TECHNICAL WRITING (3) (3)*Fall, Spring, Summer*

Instruction and experience in writing for science and technology. Emphasis on clarity, conciseness, and effectiveness in preparing letters, memos, and reports for specific audiences. Prereq: Completion of University Writing requirement.

6. Policy, Administration, and Law: Six (6) semester hours in courses that demonstrate significant content or focus on natural resource policy and/or administration, wildlife or environmental law, or natural resource/land use planning will apply; as will courses that document contributions to the understanding of social, political and ethical decisions for wildlife or natural resource management. **Course descriptions, immediately following course listing, are required.** Up to three (3) semester hours in classes dealing with human dimension issues may count in this category depending on course content. Conservation Biology courses that effectively integrate legal and policy aspects of conservation planning will count toward this category. Courses that are tools supporting professional practice, e.g., Landsat, GIS techniques, or more general courses such as environmental science, resource management, law enforcement, criminology, political science, and introductory survey courses in conservation will not apply.

FOR 230 CONSERVATION BIOLOGY (3) (1)*Fall*

The basic history and principles of conservation biology, including diversity, extinction, evolution, and fragmentation. Students will learn the applications of conservation biology to such topics as forest management and wetland management and study the ethical perspectives related to conservation biology, including environmental ethics, deep ecology, and the land ethic.

FOR 240 FORESTRY AND NATURAL RESOURCE ETHICS (2) (2)*Spring*

A study of the key ethical concepts of conservation, preservation, deep ecology, land ethic, spiritualism/religion, and multiple value systems as applied to forestry and natural resource issues. Students will gain an understanding of the ethical dilemmas faced by natural resource professionals, and will be able to identify ways of handling these dilemmas, including application of professional associations' codes of ethics.

FOR 280 FOREST POLICY (2) (2)*Spring*

Examine the political process as it relates to formulation, analysis, evaluation, and implementation of forest policies. Assess the impacts of various policy decisions and employ the policy process to address such forestry issues as urbanization, fragmentation, invasive species, global competition, certification, and climate change.

FOR 400 HUMAN DIMENSIONS OF FORESTRY AND NATURAL RESOURCES (3) (2)*Fall*

In an issues based format, students will study societal trends and their impact on natural systems, the disconnect between society and nature, wildlife-human interactions, as well as problems related to globalization and urbanization. Prereq: Senior Standing or consent of the instructor. This is a writing-intensive (W) course approved to fulfill the upper tier of the graduation writing requirement (GWR). To receive W credit for this course, you must have successfully completed the first-year writing requirement (ENG 104 or its equivalent) and have completed at least 30 hours of course work. Forestry majors must complete this course and FOR 470 to fulfill upper tier of the GWR.

FOR 470 INTERDEPENDENT NATURAL RESOURCE ISSUES (3) (1)*Spring*

Culmination of the student's study of public concerns and problems related to natural resources. Work in teams to find and verify information on diverse topics, listen to and address public concerns, communicate natural resource information to a wide range of audiences, and be effective professionals in working toward solutions. Prereq: Senior Standing. This is a writing-intensive (W) course approved to fulfill the upper tier of the graduation writing requirement (GWR). To receive W credit for this course, you must have successfully completed the first-year writing requirement (ENG 104 or its equivalent) and have completed at least 30 hours of course work. Forestry majors must complete this course and FOR 400 to fulfill the upper tier graduation writing requirements.

FOR 480 INTEGRATED FOREST RESOURCE MANAGEMENT (5) (1)*Spring*

Capstone course. Students will be presented with a real life management scenario in a forested location in Kentucky. Working in teams, students will collect data, determine management objectives, and develop action plans for managing the forest according to the desires of the owner, subject to realistic legal, economic, ethical, and social constraints. Students will be required to produce a professional management plan and present the plan in a public forum at the end of the semester. Prereq: Completion of Field Semester, FOR 425, FOR 460, and Senior Standing.

Appendix 1-F

UK Forestry Assessment
(Graduate and Undergraduate)

2013 – 2014 Academic Year BS FORE Assessment Results

Student Learning Outcome	Early-Academic-Career Course	Late-Academic-Career Course	Median Score of Late-Career Students (Benchmark = 3)	Late-Career Students Outperformed Early-Career Students?	Comments
1a (Find, read, interpret professional docs; evaluate viewpoints)	FOR 110 Fall 2013 Mean=1.17	FOR 400 Fall 2013 Mean=2.50	2.5 (Benchmark not achieved)	Yes $p \approx 0.01$	All p-values in this table are from chi-square tests. H_0 : There is no difference in performance between early- and late-academic-career students.
1b-i (Oral/visual presentations)	FOR 110 Fall 2013 Mean=1.67	FOR 470 Spring 2014 Mean=3.32	3 (Benchmark achieved)	Yes $p < 0.001$	
1b-ii (Technical / business writing)	FOR 110 Fall 2013 Mean=1.00	FOR 470 Spring 2014 Mean=3.53	4 (Benchmark achieved)	Yes $p < 0.001$	
1b-iii (Writing for nonprofessional audiences)	FOR 110 Fall 2013 Mean=1.25	FOR 470 Spring 2014 Mean=3.37	3 (Benchmark achieved)	Yes $p < 0.001$	
5a-i (Dendrology)	N/A	FOR 480 Spring 2014 Mean=1.84	2 (Benchmark not achieved)	N/A	These results are from the re-assessment prescribed by 26 April 2013 faculty meeting decision (refer to next row of cells)
5a-i (Dendrology)	FOR 110 Fall 2012 Mean=1.77	FOR 480 Spring 2013 Mean=2.33	2 (Benchmark not achieved)	Yes $p \approx 0.02$	Faculty decided 26 April 2013 to re-assess this outcome more thoroughly in 2013-14 seniors (refer to preceding row of cells)
5a-ii (Wildlife taxonomy, identification and distribution)	N/A	FOR 480 Spring 2014 (Mean=1.79)	2 (Benchmark not achieved)	N/A	These results are from the re-assessment prescribed by 26 April 2013 faculty meeting decision (refer to next row of cells)
5a-ii (Wildlife taxonomy, identification and distribution))	FOR 110 Fall 2012 Mean=1.41	FOR 480 Spring 2013 Mean=2.33	2 (Benchmark not achieved)	Yes, but . . . $p \approx 0.06$	Faculty decided 26 April 2013 to re-assess this outcome more thoroughly in 2013-14 seniors (refer to preceding row of cells)

2013 – 2014 Academic Year BS FORE Assessment Results *(continued)*

Student Learning Outcome	Early-Academic-Career Course	Late-Academic-Career Course	Median Score of Late-Career Students (Benchmark = 3)	Late-Career Students Outperformed Early-Career Students?	Comments
7b-i (Forest management – economic aspects)	FOR 110 Fall 2013 Mean=1.17	FOR 480 Spring 2014 Mean=2.26	2 (Benchmark not achieved)	Yes $p \approx 0.05$	
7b-ii (Forest management – social aspects)	NRE 381 Spring 2014 Mean=2.1	FOR 400 Fall 2013 Mean=3.5	4 (Benchmark achieved)	Yes $p < 0.001$	
7d (Forest management – valuation, market forces, operational systems, non-market forces, consumable & non-consumptive products / services)	FOR 110 Fall 2013 Mean=1.42	FOR 480 Spring 2014 Mean=2.21	2 (Benchmark not achieved)	Yes $p \approx 0.004$	
7e (Forest management – administration, ownership, organization)	FOR 110 Fall 2013 Mean=1.58	FOR 480 Spring 2014 Mean=1.95	2 (Benchmark not achieved)	No $p \approx 0.29$	

BS FORE: Plan for Assessment of Student Learning Outcomes*
Revised 31 March 2015

B.S. (Forestry) 2015-2018 SLO Reporting Cycle				
Student Learning Outcome Number	Student Learning Outcome	Cycle	Academic Year	Reporting Year
Outcome 1 *GCCR*	Graduates will meet the “Communications” General Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate ability to: <ul style="list-style-type: none"> a. find, read and interpret professional documents. b-i. communicate information effectively in oral/visual presentations. b-ii. communicate information effectively in writing, on technical / business levels. b-iii. communicate information effectively, in writing, to non-professional audiences. 	Year 1	2015-2016	31 October 2016
Outcome 2	Graduates will meet the “Management Plans” Professional Education Accreditation Requirement of the Society of American Foresters, <i>i.e.</i> they will demonstrate ability to develop management plans with specific multiple objectives and constraints.	Year 2	2016-2017	31 October 2017
Outcome 1 *GCCR*	Graduates will meet the “Communications” General Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate ability to: <ul style="list-style-type: none"> a. find, read and interpret professional documents. b-i. communicate information effectively in oral/visual presentations. b-ii. communicate information effectively in writing, on technical / business levels. b-iii. communicate information effectively, in writing, to non-professional audiences. 	Year 3	2017-2018	31 October 2018

*The revised plan has two student learning outcomes, each of which is assessed every other academic year.

University of Kentucky

Annual Assessment Reporting

2013-2014

Please complete this form for the program's 2013-2014 academic year student learning outcomes assessment. If you conducted multiple assessments, please fill in as needed by starting a new section. If you have documents relevant to the assessment conducted, please add them as an appendix. Add hyperlinks to websites as necessary. For our records, please save the file as Program Name and Level (e.g. English_Master).

College: Agriculture, Food and Environment

Department: Forestry

Program Name: Forestry

Level (Bachelor, Master, Doctorate, Certificate, or Other): Bachelor

University of Kentucky

Annual Assessment Reporting 2013-2014

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Assessment #1	
Outcome(s) Assessed	Forestry BS: 1a. Communications. Graduates will meet the “Communications” General Education Accreditation requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate ability to <u>find, read and interpret professional documents, and critically evaluate opposing viewpoints.</u>
Assessment Method/Tools	<ul style="list-style-type: none"> • An <i>ad hoc</i> faculty committee (M. Lacki, J. Ringe, D. Wagner) partitioned Outcome 1 (Communications) into two sub-outcomes, and developed a 4-point assessment rubric for Sub-outcome 1a (see Appendix, below), which was approved by the Department of Forestry faculty in fall semester 2013. (Sub-outcome 1b information is reported in Assessment #2.) • Early-academic-career assessment: Using the rubric, each fall 2013 student of FOR 110 (Natural Resource Issues) was assessed by the course instructor, D. Wagner (FOR 110 represents one of the first occasions when forestry students encounter topics of the sub-outcome). The assessment used a PowerPoint assignment (see Sub-outcome 1a section of Appendix), which was written by the course instructor to provide students an opportunity to demonstrate competence. • Late-academic-career assessment: For each student enrolled in FOR 400 (Human Dimensions of Forestry and Natural Resources) in fall 2013, the course instructor, G.A. Stainback, used the same rubric to assess competency of students nearing graduation (because FOR 400 is one of the final courses in the forestry curriculum in which students encounter topics related to the sub-outcome). The assessment was based on a term paper assignment written by the course instructor (see Sub-outcome 1a section of Appendix, below) to provide students an opportunity to demonstrate competence. • The faculty members of the Department of Forestry consider that the FOR 110 instructor (who is also the Director of Forestry Degree Programs Assessment) and the FOR 400 instructor are appropriate individuals to evaluate student performance, for the same reason they are entrusted with course instruction and advising of undergraduate students, <i>i.e.</i> they are knowledgeable about the learning outcome. This is affirmed by the University, which recognizes FOR 400 as fulfilling part of the upper-tier Graduation Writing Requirement.
Benchmark/Target	The benchmark is that the median rubric score would be at least 3 (“Accomplished”) for late-academic-career students. This was adopted by consensus during a 27 April 2012 faculty meeting of the Department of Forestry.
Results	<p>The rubric in the Sub-outcome 1a section of the Appendix below provides:</p> <ol style="list-style-type: none"> 1. a summary of early-academic-career assessment results. 2. a summary of late-academic-career assessment results. 3. a comparison of early-academic-career student performance with late-academic-career student performance. <p>Late academic career students statistically outperformed early-academic-career students. However, the benchmark was not achieved. Results for individual students are available upon request from dwagner@uky.edu.</p>

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Interpretation of Results	<p><u>Summary Analysis</u></p> <p>The data in the rubric below (see Sub-outcome 1a section of the Appendix) represent a complete census during fall 2013 of all BS FORE students enrolled in FOR 110 and a complete census of all BS FORE students enrolled in FOR 400. For this student learning outcome, the median rubric score of graduating seniors was 2.5, just below the benchmark. Encouragingly however, late-academic-career students statistically outperformed early-academic-career students, for whom the median score was 1.</p> <p><u>Process</u></p> <p>D. Wagner (Director of Forestry Degree Programs Assessment) summarized the results and conducted statistical analyses to compare the performance of early-academic-career students with that of late-academic-career students. The summaries and statistical results, as well as the original rubrics for all students included in the assessment, were made available to the Department of Forestry faculty prior to a 16 May 2014 faculty meeting. Discussion during that meeting produced a consensus decision regarding action for this learning outcome. The decision and current progress in implementing it are reported in the "Improvement Action" cell, immediately below. Relevant excerpts from the faculty meeting are in the Appendix.</p>
Improvement Action	<p><u>Consensus Recommendation of Faculty (16 May 2014)</u></p> <p>D. Wagner (Director of Degree Programs Assessment, Department of Forestry) should convene a small group of faculty members who teach courses that introduce, reinforce, or expect proficiency in this learning outcome, to identify ways that relevant threads could be strengthened throughout the curriculum, as well as to brainstorm other ways that student competency might be improved. The Forestry Undergraduate Program Committee should use the small group's recommendations to develop an implementation plan for consideration by the faculty as a whole.</p> <p><u>Current Status</u></p> <p>D. Wagner met on 6 August 2014 with J. Lhotka, J. Ringe, and J. Stringer (three faculty members who have experience working with practicing professionals and assessing the competencies of graduating seniors), to identify faculty members for involvement in small-group discussions regarding this learning outcome. The resulting small group (G.A. Stainback, J. Ringe and D. Wagner) met 10 September 2014. The group's report (in the Outcome 1a section of the Appendix, below) was submitted to the Forestry Undergraduate Program Committee, which recommended approval by the faculty. The report was approved and adopted by the Department of Forestry faculty at its meeting on 1 October 2014. D. Wagner is to work with the UPC and relevant faculty to facilitate implementation of the report's recommendations.</p>

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Assessment #2	
Outcome(s) Assessed	Forestry BS: 1b . Communications. Graduates will meet the “Communications” General Education Accreditation requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate ability to communicate information effectively in oral/visual presentations and in writing, on technical/business levels and non-professional levels.
Assessment Method/Tools	<p>An <i>ad hoc</i> faculty committee (M. Lacki, J. Ringe, D. Wagner) partitioned Outcome 1 (Communications) into two sub-outcomes and divided Sub-outcome 1b into three components, as indicated below. (Sub-outcome 1a information is reported in Assessment #1.) The committee developed a 4-point assessment rubric for each component (see Outcome 1b section of Appendix, below), which was approved by the faculty of the Department of Forestry in fall semester 2013.</p> <p>Forestry BS: 1b. Communications. Graduates will meet the “Communications” General Education Accreditation requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate ability to communicate information effectively:</p> <ol style="list-style-type: none"> i. in oral/visual presentations. ii. in writing, on technical/business levels. iii. in writing, on non-professional levels. <p><u>Sub-outcome 1b-i (oral/visual presentations):</u></p> <ul style="list-style-type: none"> • Early-academic-career assessment: For each student enrolled in FOR 110 (Natural Resource Issues) during fall 2013, the course instructor, D. Wagner, used the relevant rubric to assess competency of students entering the B.S. (Forestry) degree program. FOR 110 was used to assess the performance of <u>early-academic-career</u> students, because it represents one of the first occasions when undergraduate forestry students encounter significant topics related to the outcome. The assessment was based on student team presentations of background, history and current status of a current forestry issue, following semester-long research of a specific topic. Topics varied among teams, each team member spoke during a team’s presentation, and each student used PowerPoint to support the presentation. The presentation assignment was written by the course instructor, to provide students an opportunity to demonstrate competence relative to the outcome (see Outcome 1b section of Appendix, below). Assignment details available upon request (dwagner@uky.edu). • Late-academic-career assessment: For each student enrolled during spring 2014 in FOR 470 (Interdependent Natural Resource Issues), one of two required capstone courses in the B.S. (Forestry) curriculum, one of the FOR 470 course instructors, M. Lacki, used the same rubric to assess competency of students nearing graduation from the B.S. (Forestry) degree program. FOR 470 was used to assess the performance of <u>late-academic-career</u> students, because it is one of the final courses in the forestry curriculum when students encounter significant topics related to the outcome. The assessment was based on team presentations of capstone projects, synthesizing forest management solutions to achieve

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landowner objectives while accommodating stakeholder concerns. Each student of a team spoke during each team's presentation. The capstone project assignment was written by the course instructors (M. Lacki and J. Ringe), to provide students an opportunity to demonstrate their level of competence relative to the outcome. Assignment details are available upon request from dwagner@uky.edu.

- The faculty members of the Department of Forestry consider that the FOR 110 instructor (who is also the Director of Forestry Degree Programs Assessment) and the FOR 470 instructors are appropriate individuals to evaluate student performance, for the same reason they are entrusted with course instruction and advising of undergraduate students, *i.e.* they are knowledgeable about the learning outcome.

Sub-outcome 1b-ii (technical/business writing):

- **Early-academic-career assessment:** For each student enrolled in FOR 110 during fall 2013, the course instructor, D. Wagner, used the relevant rubric to assess competency of students entering the B.S. (Forestry) degree program. This introductory course was used to assess the performance of early-academic-career students, because it represents one of the first occasions when undergraduate forestry students encounter significant topics related to the outcome. The assessment used individual assignments that required students to read several documents about characteristics of forestry in the United States and in Kentucky, and then to write a one-page statement regarding the economic value of forestry in comparison with other natural-resource-based activities in Kentucky. The assignment was written by the course instructor, to provide students an opportunity to demonstrate their level of competence relative to the outcome. Assignment details are available upon request from dwagner@uky.edu.
- **Late-academic-career assessment:** For each student enrolled in FOR 470 during spring 2014, one of the FOR 470 course instructors, M. Lacki, used the same rubric to assess competency of students nearing graduation from the B.S. (Forestry) degree program. FOR 470 was used to assess the performance of late-academic-career students, because, as one of the two capstone forestry courses, it is one of the final courses in which forestry students encounter significant topics related to the outcome. The assessment used individual assignments that required students to identify and describe stakeholders relevant to the forest management situation (landowner objectives, natural resource issues) of concern for the capstone projects of the class. The assignment was written by the course instructors (M. Lacki and J. Ringe), to provide students an opportunity to demonstrate their level of competence relative to the outcome. Assignment details are available upon request from dwagner@uky.edu.
- The faculty members of the Department of Forestry consider that the FOR 110 instructor (who is also the Director of Forestry Degree Programs Assessment) and the FOR 470 instructors are appropriate individuals to evaluate student performance, for the same reason they are entrusted with course instruction and advising of undergraduate students,

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	<p><i>i.e.</i> they are knowledgeable about the learning outcome. This is affirmed by the University, which recognizes FOR 470 as fulfilling part of the upper-tier Graduation Writing Requirement.</p> <p><u>Sub-outcome 1b-iii (writing for non-professionals):</u></p> <ul style="list-style-type: none"> • <u>Early-academic-career assessment:</u> For each student enrolled in FOR 110 during fall 2013, the course instructor, D. Wagner, used the relevant rubric to assess competency of students entering the B.S. (Forestry) degree program. FOR 110 was used to assess the performance of <u>early-academic-career</u> students, because it is one of the first courses in which undergraduate forestry students encounter significant topics related to the outcome. The assessment used individual assignments that required students to identify potential current forestry issues for presentation later in the semester, to identify their questions about the presentation instructions, and to post their issues/questions on the FOR 110 Blackboard discussion board. The assignment was written by the course instructor, to provide students an opportunity to demonstrate their level of competence relative to the outcome. Assignment details are available upon request from dwagner@uky.edu. • <u>Late-academic-career assessment:</u> For each student enrolled in FOR 470 during spring 2014, one of the FOR 470 course instructors, M. Lacki, used the same rubric to assess competency of students nearing graduation from the B.S. (Forestry) degree program. FOR 470 was used for <u>late-academic-career</u> students, because, as one of the two capstone forestry courses, it is one of the final courses in which forestry students encounter significant topics related to the outcome. The assessment used individual assignments that required students to write reflective self-evaluations with regard to their performance in addressing the forest management situations of concern for the capstone projects of the class. The assignment was written by the course instructors (M. Lacki and J. Ringe), to provide students an opportunity to demonstrate competence relative to the outcome. Assignment details available upon request (dwagner@uky.edu). • The faculty members of the Department of Forestry consider that the FOR 110 instructor (who is also the Director of Forestry Degree Programs Assessment) and the FOR 470 instructors are appropriate individuals to evaluate student performance, for the same reason they are entrusted with course instruction and advising of undergraduate students, <i>i.e.</i> they are knowledgeable about the learning outcome. This is affirmed by the University, which recognizes FOR 470 as fulfilling part of the upper-tier Graduation Writing Requirement.
Benchmark/ Target	The benchmark is that the median rubric score would be at least 3 (“Accomplished”) for late-academic-career students, for each component of Sub-outcome 1b (adopted by consensus during a 27 April 2012 faculty meeting of the Department of Forestry).
Results	For each of the three components of Sub-outcome 1b, the rubrics in the Appendix below provide: <ol style="list-style-type: none"> 1. a summary of early-academic-career assessment results.

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	<p>2. a summary of late-academic-career assessment results.</p> <p>3. a comparison of early-academic-career student performance with late-academic-career student performance.</p> <p>For all three components, (a) late academic career students statistically outperformed early-academic-career students, and (b) our benchmark was achieved. Results for individual students available upon request (dwagner@uky.edu).</p>
<p>Interpretation of Results</p>	<p><u>Summary Analysis</u></p> <p>The data in the rubrics (Outcome 1b section of the Appendix, below) represent a complete census during fall 2013 of all BS FORE students enrolled in FOR 110 and a complete census during spring 2014 of all BS FORE students enrolled in FOR 470. The median rubric scores of our seniors ranged from 3 to 4, <i>i.e.</i> at or above the previously-established benchmark. Encouragingly, there was little doubt ($p < 0.001$) that late-academic-career students outperform early-academic-career students.</p> <p><u>Process</u></p> <p>D. Wagner (Director of Forestry Degree Programs Assessment) summarized the results and conducted statistical analyses to compare the performance of early-academic-career students with that of late-academic-career students. The summaries and statistical results, as well as the original rubrics for all students included in the assessment, were made available to the Department of Forestry faculty prior to a 16 May 2014 faculty meeting. Discussion during that meeting produced a consensus decision regarding how to proceed for this learning outcome (reported in the "Improvement Action" cell, immediately below). Relevant excerpts from the faculty meeting are in the Appendix.</p>
<p>Improvement Action</p>	<p><u>Consensus Recommendation of Faculty (16 May 2014)</u></p> <p>Given that our benchmark was achieved for all three of its components, we plan to maintain and monitor student success for Sub-outcome 1b (it will be assessed again in several years). At this time no specific intervention is required, particularly in light of the fact that our benchmarks were <u>not</u> achieved for several other B.S. (Forestry) learning outcomes. Instead, it is more appropriate for the Department of Forestry to address the outcomes for which students did not achieve the benchmark.</p>

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	Assessment #3
Outcome(s) Assessed	Forestry BS: 5a. Ecology & Biology. Graduates will meet the “Ecology and Biology” Professional Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate knowledge of <u>taxonomy, identification, and distribution of tree species and associated vegetation and wildlife.</u>
Assessment Method/Tools	<p>The Department of Forestry faculty previously divided this learning sub-outcome (which is one of four sub-outcomes of Outcome 5 – Ecology & Biology) into the following two components (as documented in our 2012-13 assessment report):</p> <p>Forestry BS: 5a. Ecology & Biology. Graduates will meet the “Ecology and Biology” Professional Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate knowledge of:</p> <ol style="list-style-type: none"> i. taxonomy, identification, and distribution of tree species and associated vegetation. ii. taxonomy, identification, and distribution of forest wildlife. <p>Because 2012-13 assessments failed to meet our benchmark (and tests used for the assessments were brief), the Department faculty decided to re-assess both components. Unlike other assessments, value added was not of interest, because we had already found in 2012-13 that late-academic-career students outperformed early-academic-career students. Instead, the goal was to learn whether or not the 2013 seniors’ failure to achieve the benchmark was real. J. Lhotka, M. Lacki, R. Paratley, S. Price, and D. Wagner developed a new, more thorough, assessment test, to provide a better opportunity for seniors to demonstrate competence. They also modified the rubric for each component of the sub-outcome, to correspond to the new test (see Sub-outcome 5a section of Appendix). Each spring 2014 student of FOR 480 (Integrated Forest Resource Management) took the new assessment test (because these students were in the final semester before graduation). D. Wagner (Director of Forestry Degree Programs Assessment) completed a rubric for each student for each component of Sub-outcome 5a, based on the test results.</p> <p>The faculty members of the Department of Forestry consider that the individuals identified in the preceding paragraph are appropriate individuals to evaluate student performance for this learning sub-outcome, because they are knowledgeable about assessment of the topic area and/or they teach courses that instruct students in the relevant information content.</p>
Benchmark/Target	For each component of this sub-outcome, the benchmark is that the median rubric score would be at least 3 (“Accomplished”) for late-academic-career students (adopted by consensus during a 27 April 2012 Department of Forestry faculty meeting).
Results	The rubrics in the Sub-outcome 5a section of the Appendix provide a summary of late-academic-career assessment results. As in spring 2013, the benchmark was not achieved by our spring 2014 seniors for either of the sub-outcome’s two components. Results for individual students are available upon request from dwagner@uky.edu .
Interpretation	Summary Analysis

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of Results	<p>The data (see Sub-outcome 5a rubrics in Appendix) represent a complete census of all spring 2014 BS FORE students enrolled in FOR 480. The median score of graduating seniors was 1.8 for both components, well below the benchmark. Because in 2013-14 we were interested in the performance of seniors relative to the benchmark, we did not assess early-academic-career.</p> <p><u>Process</u></p> <p>D. Wagner (Director of Forestry Degree Programs Assessment) summarized the results and made the summaries, individual rubrics and individual assessment test results available to Department of Forestry faculty prior to a 16 May 2014 faculty meeting. Discussion in that meeting produced a consensus decision for how to proceed for this learning outcome. The decision and current progress in implementing it are reported in the "Improvement Action" cell, immediately below. Relevant excerpts from the faculty meeting are in the Appendix</p>
Improvement Action	<p><u>Consensus Recommendation of Faculty (16 May 2014)</u></p> <p>For each component of Sub-outcome 5a, D. Wagner (Director of Degree Programs Assessment, Department of Forestry) should convene a small group of faculty members who teach courses that introduce, reinforce, or expect proficiency in the component, to brainstorm ways that student competency might be improved. The Forestry Undergraduate Program Committee should use the small groups' ideas to develop implementation plans for consideration by the faculty as a whole.</p> <p><u>Current Status</u></p> <p>D. Wagner met on 6 August 2014 with J. Lhotka, J. Ringe, and J. Stringer (who are experienced in working with practicing professionals and in assessing competencies of graduating seniors), to identify faculty members for the small-group discussions.</p> <ul style="list-style-type: none"> • <u>5a-i (taxonomy, identification, and distribution of tree species and associated vegetation)</u>: The working group for this component, R. Paratley, J. Stringer, and D. Wagner, met 22 and 29 September 2014. • <u>5a-ii (taxonomy, identification, and distribution of forest wildlife)</u>: The working group for this component, J. Cox, M. Lacki, J. Lhotka, and D. Wagner, met 10 and 24 September 2014. <p>The reports of both working groups are in the Sub-outcome 5a section of the Appendix. The Forestry Undergraduate Program Committee recommended that the Department of Forestry approve both reports, which was done at a faculty meeting on 1 October 2014, with one amendment. The amendment (to the 5a-i report) provides that the late-academic-career assessment specified in the report could take place in any course toward the end of the junior spring field semester (<i>i.e.</i> this new assessment would not necessarily have to take place in the winter dendrology course). D. Wagner is to work with the UPC and relevant faculty to facilitate implementation of the recommendations of both reports.</p>

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	Assessment #4
<p>Outcome(s) Assessed</p>	<ul style="list-style-type: none"> • Forestry BS: 7b. Management of Forest Resources. Graduates will meet the “Management of Forest Resources” Professional Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate ability to analyze economic, environmental, and social consequences of forest resource management strategies and decisions. • Forestry BS: 7d. Management of Forest Resources. Graduates will meet the “Management of Forest Resources” Professional Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate knowledge of valuation procedures, market forces, operational systems and activities, and non-market forces that affect production of consumable and non-consumptive forest products and services. • Forestry BS: 7e. Management of Forest Resources. Graduates will meet the “Management of Forest Resources” Professional Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate knowledge of administration, ownership, and organization of forest management enterprises.
<p>Assessment Method/Tools</p>	<p>For these sub-outcomes of learning outcome 7 (Management of Forest Resources), an <i>ad hoc</i> faculty committee (M. Contreras, J. Lhotka, J. Ringe, G.A. Stainback, D. Wagner) developed an assessment plan (see Outcome 7 section of Appendix, below), which was approved by the faculty of the Department of Forestry in fall semester 2013 to provide an opportunity for students to demonstrate their competence. Sub-outcome 7b was subdivided into two components, as follows:</p> <p style="padding-left: 20px;">Forestry BS: 7b. Management of Forest Resources. Graduates will meet the “Management of Forest Resources” Professional Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate:</p> <ul style="list-style-type: none"> i. ability to analyze economic consequences of forest resource management strategies and decisions. ii. ability to analyze social consequences of forest resource management strategies and decisions. <p>The environmental component of sub-outcome 7b was not assessed at this time.</p> <p><u>Sub-outcomes 7b-i, 7d, 7e):</u></p> <ul style="list-style-type: none"> • Early-academic-career assessment: Each fall 2013 student of FOR 110 (Natural Resource Issues) took an assessment test (because FOR 110 students are just beginning the forestry degree program). D. Wagner (Director of Forestry Degree Programs Assessment) completed a rubric for each student for each sub-outcome, based on performance on relevant questions of the test (see Outcome 7 section of Appendix, below). • Late-academic-career assessment: Each spring 2014 student of FOR 480 (Integrated Forest Resource Management) took the same assessment test as the FOR 110 students. This course was used, because its students are near graduation. D. Wagner (Director of Forestry Degree Programs Assessment) completed the same rubrics as for the FOR 110 students (see Outcome 7 section of Appendix, below).

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	<ul style="list-style-type: none"> The Department of Forestry considers the faculty members named above to be appropriate individuals to evaluate student performance, for the same reason they are entrusted with course instruction and advising, <i>i.e.</i> they are knowledgeable about the learning outcome. <p><u>Sub-outcome 7b-ii:</u></p> <ul style="list-style-type: none"> Early-academic-career assessment: Each spring 2014 student of NRE 381 (Natural Resource and Environmental Policy Analysis) was assessed by the course instructor, G. Andrew Stainback (because NRE 381 students were just beginning to be introduced to social consequences of forest resource management). The assessment was based on application of a rubric to individual student responses to questions from three exams (see Outcome 7 section of Appendix). The questions were written by the course instructor, to provide students an opportunity to demonstrate competence. Late-academic-career assessment: Each fall 2013 student of FOR 400 (Human Dimensions of Forestry and Natural Resources) was assessed by the course instructor G. Andrew Stainback (because FOR 400 students are nearing graduation from the forestry degree program). The assessment was based on application of a rubric to individual student responses to midterm and final exam questions (see Outcome 7 section of Appendix). The questions were written by the course instructor, to provide students an opportunity to demonstrate competence. The faculty members of the Department of Forestry consider Dr. Stainback to be the appropriate individual to evaluate student performance for this sub-outcome, for the same reason he is entrusted with course instruction and advising of undergraduate students, <i>i.e.</i> he is knowledgeable about relevant topic areas.
Benchmark/ Target	The benchmark is that the median rubric score would be at least 3 (“Accomplished”) for late-academic-career students. This was adopted by consensus during a 27 April 2012 faculty meeting of the Department of Forestry.
Results	<p>For each of the four elements of student learning outcome 7 that were assessed during 2013-14, the rubrics in the Outcome 7 section of the Appendix below provide:</p> <ol style="list-style-type: none"> a summary of early-academic-career assessment results. a summary of late-academic-career assessment results. a comparison of early-academic-career student performance with late-academic-career student performance. <p>For 7b-ii (social consequences), late academic career students statistically outperformed early-academic-career students and our benchmark was achieved. However, for the other three assessed elements of learning outcome 7, our benchmark was not achieved. Results for individual students are available upon request from dwagner@uky.edu.</p>
Interpretation of Results	<p><u>Summary Analysis</u></p> <p>The data (in Outcome 7 section of the Appendix) represent a complete census in 2013-14 of all BS FORE students enrolled in the</p>

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	<p>courses used for assessment. The median rubric score of seniors was 4 (“Exemplary”) for 7b-ii. However, for the other three elements assessed, despite the encouraging fact that our late-academic-career students outperformed early-academic-career students (and statistically so for two of these three), the median score was only 2 (“Developing”).</p> <p><u>Process</u></p> <p>D. Wagner summarized the results and conducted statistical analyses to compare the performance of early-academic-career students with that of late-academic-career students. The summaries, statistical results and original rubrics were made available to the Department prior to a 16 May 2014 faculty meeting. That meeting produced a consensus decision regarding how to proceed. The decision and current implementation progress are reported in the "Improvement Action" cell, immediately below. Relevant excerpts from the faculty meeting are in the Appendix.</p>
Improvement Action	<p><u>Consensus Recommendation of Faculty (16 May 2014)</u></p> <p>Given that our benchmark was achieved for 7b-ii, we plan to maintain/monitor student success for this learning outcome (it will be assessed again in several years). But at this time no intervention is required, particularly considering that benchmarks were <u>not</u> achieved for other learning outcomes of the undergraduate program. Instead, it is appropriate for the Department of Forestry to focus on outcomes for which the benchmark was not achieved. D. Wagner (Director of Degree Programs Assessment) was asked to convene a group of faculty members who teach courses that introduce, reinforce, or expect proficiency in the “Management of Forest Resources” learning elements (7b-i, 7d, and 7e) for which our benchmark was not achieved, to brainstorm ways to improve student competency. The Forestry Undergraduate Program Committee should use the small group’s recommendations to develop implementation plans for consideration by the faculty as a whole.</p> <p><u>Current Status</u></p> <p>D. Wagner met on 6 August 2014 with J. Lhotka, J. Ringe, and J. Stringer (three faculty members who have experience working with practicing professionals and assessing competencies of graduating seniors), to identify individuals for small-group discussion. The resulting group, M. Contreras, J. Lhotka, J. Ringe, G.A. Stainback, and D. Wagner, met 11 September 2014. The group’s report (see Outcome 7 section of Appendix) was submitted to the Forestry Undergraduate Program Committee, which recommended approval. The report was approved by the Department faculty at its meeting on 1 October 2014. D. Wagner is to work with the UPC and relevant faculty to facilitate implementation of the report recommendations.</p>

Appendix – Supporting Documents for Assessment Report of B.S. (Forestry) Program

Minutes of 16 May 2014 Meeting of Department of Forestry Faculty

Faculty and Staff Meeting Minutes / 16 May 2014 / 2pm

Meeting called to order: 2:00 p.m.

ATTENDANCE: T. Baker, C. Barton, A. Stainback, B. Thomas, S. Price, D. Cremeans, J. Ringe, M. Contreras, J. Cox, C. Reeves, D. Wagner, R. Williams, J. Stringer

(The portions of the minutes that preceded discussion of assessment have been deleted.)

III. New Business

- 3) Assessment of Degree Programs (David Wagner, Assessment Coordinator) – **specific action items highlighted in green**
 - a. Wagner distributed 2013 – 2014 assessment data summaries and analyses by email to all faculty members / instructors prior to this faculty meeting.
 - b. General overview of status of degree program assessment:
 - M.S. (Forestry): All four M.S. student learning outcomes have been assessed several times. We use a 2-year cycle, assessing two outcomes each academic year.
 - B.S. (Forestry): Assessment of two categories of B.S. learning outcomes has not yet been completed (#2 – Science & Mathematics; #3 – Social Sciences & Humanities). We plan to complete our first assessment of these two groups of learning outcomes during 2014-15, after which we will consider formalizing a 6-year cycle, with 1 or 2 categories of learning outcomes (of the 8 total outcome categories) assessed each year.
 - c. 2013 – 2014 M.S. assessment results (summary attached):
 - Using rubrics developed previously (see previous years' improvement action plans), the following student learning outcomes were assessed:
 - #1 (Defining Science).
 - #4 (Generation of New Knowledge).
 - Following substantial discussion, the faculty present agreed by consensus:
 - Performance assessment of late-academic-career students deliberately includes only students who schedule a final examination. Students who don't get to that point are not assessed as late-career students, which may skew late-career results. However, it's our graduating students for whom performance proficiency is most relevant, and our benchmark does not rely on comparison of early- and late-career students. **Concerns about students who do not finish the degree program should be addressed as a separate issue, by the Forestry Graduate Program Committee.**
 - Given that (a) our benchmark was achieved for both learning outcomes assessed during 2013 – 2014, (b) this is consistent with results from previous years, and (c) improvement actions are needed for the B.S. degree program (see below), **D. Wagner will prepare an annual assessment report to the University**, which will indicate that no curriculum improvement actions are planned for the two M.S. learning outcomes assessed during 2013-14.

Appendix – Minutes of 16 May 2014 Meeting of Department of Forestry Faculty (continued)

- During 2014 – 2015, we will use our existing rubrics to assess student learning outcomes 2 (Conclusions and Evidence from Literature) and 3 (Communication).
- d. 2013 – 2014 B.S. assessment results (summary attached):
- Using assessment pre-tests/post-tests and rubrics developed by *ad hoc* committees during summer and fall 2013, the following student learning outcomes were assessed for the first time during 2013 – 2014:
 - #1 (Communications).
 - #7b, 7d, 7e (Management of Forest Resources).
 - Also, per a 26 April 2013 faculty meeting decision, learning outcomes #5a-i (taxonomy, identification, and distribution of tree species and associated vegetation) and #5a-ii (taxonomy, identification, and distribution of forest wildlife) were re-assessed during 2013 – 2014, because spring 2013 seniors had not achieved our benchmark for these two outcomes. The spring 2013 results had been based on a very brief assessment. The intention of the re-assessment was to explore the competencies of our graduating students more thoroughly, to learn whether or not the rather superficial spring 2013 results represent real deficiencies. During summer and fall 2013, an *ad hoc* faculty committee developed an assessment test consisting of 20 questions for outcome 5a-i and 14 questions for outcome 5a-ii. The test was administered to our FOR 480 seniors on 25 March 2014.
 - Following lengthy discussion of 2013-14 assessment results, the faculty present decided by consensus:
 - Given that the benchmark was not achieved for several learning outcomes, it's appropriate to develop improvement plans for those outcomes, but to take no action on outcomes for which the benchmark was achieved.
 - For the outcomes in need of improvement:
 - D. Wagner will convene small groups of faculty who teach courses that introduce or reinforce (or expect proficiency in) skills and knowledge related to learning outcomes for which the benchmark was not achieved. These groups should meet during summer 2014 to attempt to identify ways in which topical threads may be strengthened throughout the curriculum, as well as to brainstorm other ways that student competencies might be improved.
 - The Undergraduate Program Committee should, at its first fall 2014 semester meeting, use the results of the summer assessment meetings (see preceding bullet) to develop an improvement action plan for consideration by the faculty.
 - D. Wagner will prepare an annual assessment report to the University (due 31 October 2014), which will describe the status of plans/actions to improve student proficiency for the relevant B.S. learning outcomes.
 - For 2014 – 2015, as in previous years, D. Wagner will (a) assemble *ad hoc* committees to develop new assessment rubrics and/or assessment pre-tests/post-tests for the B.S. learning outcomes that have not previously been assessed, and (b) work with relevant course instructors to implement the assessments for those outcomes.

(The portions of the minutes that followed discussion of assessment have been deleted.)

VI. ADJOURN

Meeting Ended: 3:12pm

NEXT MEETING: To Be Announced

Appendix – Student Learning Sub-outcome 1a

(. . . find, read and interpret professional documents, and critically evaluate opposing viewpoints)

Rubric 1a including summary of results:

Forestry Department Assessment – BS FORE Degree Program

Assessment Scoring Rubric for **Learning Outcome 1: Communications (Rubric current on 1 September 2013)**

Sub-outcome 1a (Find, Read, Interpret Docs / Critically Evaluate)

Semester/Year: **Fall 2013 (Early-Academic-Career Assessment) / Fall 2013 (Late-Academic-Career Assessment)**

Student: **Summary of Results (compiled from individual student rubrics)**

Student Learning Outcome or Objective	Project or Activity Assessed	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Learning Outcome 1: Communications Graduates will meet the “Communications” General Education Accreditation Requirements of the Society of American Foresters, i.e. they will demonstrate ability to:						
a. find, read and interpret professional documents, and critically evaluate opposing viewpoints. p ≈ 0.01 (result of Yates-corrected chi-square test of null hypothesis that early- and late-academic-career students perform equally, after pooling “Beginning” data with “Developing” data, and “Accomplished” data with “Exemplary” data)		Can find and extract pertinent information from professional sources.	Can synthesize and evaluate information from professional sources.	Can draw conclusions based on available information and opposing viewpoints from professional sources.	Can use skills from lower performance levels to develop practical applications and novel lines of inquiry for problem solving.	
	Early-Academic Career Assessment: FOR 110 (Student Presentation Drafts)	10 students	2 students	0 students	0 students	Median = 1 Mean = 1.17
Benchmark (median score of late-academic-career students will be at least “Accomplished”): Not achieved	Late-Academic Career Assessment: FOR 400 (Term Paper)	2 students	7 students	7 students	2 students	Median = 2.5 Mean = 2.50

Committee that developed this rubric: Dr. Michael J. Lacki, Dr. James M. Ringe, Dr. David B. Wagner (Fall Semester 2013)

Comments: DBW deleted Bennington (FOR 400) before summarizing/analyzing data, because he’s not a forestry major

Evaluator(s): David Wagner (FOR 100 Instructor, 11/2/2013), Andrew Stainback (FOR 400 Instructor, 12/27/2013)

Data Summary & Analysis: David Wagner (10 May 2014)

Appendix – Student Learning Sub-outcome 1a (*continued*)

(. . . find, read and interpret professional documents, and critically evaluate opposing viewpoints)

FOR 110 – PowerPoint Assignment (The instructions below were part of a large document that provided instructions for student presentations):

Draft for Review **due by the end of October:**

A draft of your individual presentation file is due to me (attached to an e-mail) no later than the end of October. You are not obligated to agree with all suggestions in my review, but it should be evident in your presentation that you used my review thoughtfully and thoroughly. It may be advantageous to submit your draft early, especially if your team is scheduled to present in November. The presentation file you submit for my review must be complete, well-organized, and professional in appearance, with due attention to its opening, closing, format, source acknowledgment, *etc.* It must reveal details of the information you plan to present (*i.e.* if you wish to receive **useful** feedback, you must include **substantive** content). Use all FOR 110 general instructions, tips, checklists, and score sheets for help, in addition to the specific instructions contained in this document.

FOR 400 – Pointers for 12-Page Term Paper (The grading criteria below were given to the students):

1. *Can you find and extract pertinent information from professional sources (e.g. peer-review)*
2. *Can you synthesize and evaluate information from professional sources*
3. *Can you draw conclusions and propose practical solutions using professional sources*
4. *Writing quality*
 - Grammar*
 - Spelling*
 - Correctly cited*
 - Followed parameters of the assignment*

Report of small faculty group's recommendations for improvement actions:

B.S. (Forestry) Student Learning Outcome 1a

Communications: Find, Read and Interpret Documents

Recommendations of Working Group (J. Ringe, G.A. Stainback, D. Wagner) – 23 September 2014

The group met on 10 September 2014 and addressed the following questions:

1. Specifically for the B.S. (Forestry) degree program at the University of Kentucky, what should be the learning goals and outcomes for this subject matter?
2. How should we assess student performance for these goals and outcomes?
3. Given 1 & 2, how should we proceed with respect to our 2013 – 14 assessment methods and results?

Appendix – Student Learning Sub-outcome 1a (*continued*)

(. . . find, read and interpret professional documents, and critically evaluate opposing viewpoints)

Report of small faculty group’s recommendations for improvement actions (*continued*):

With regard to each of the above points, the group agreed by consensus:

1. B.S. (Forestry) graduating seniors should be able to:
 - i. Find documents, both peer-reviewed and otherwise, and be able to distinguish among types and authoritativeness of documents.
 - ii. Articulate the main points of a professional document.
 - iii. Explain the relevance for forestry of the information in professional documents.
2. The text of the assessment rubric for learning outcome 1a should be changed as indicated in the partial rubric below (text to be deleted has been lined through and text to be added has been highlighted blue), to (a) eliminate the “opposing viewpoints” component of the outcome (which is addressed indirectly by other student learning outcomes), and (b) clarify expectations for performance levels 2 & 3.

Student Learning Outcome or Objective	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
<p><u>Learning Outcome 1: Communications</u></p> <p>Graduates will meet the “Communications” General Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate ability to:</p>					
<p>b. find, read and interpret professional documents, and critically evaluate opposing viewpoints.</p>	<p>Can find and extract pertinent information from professional sources.</p>	<p>Can synthesize and evaluate information from professional sources. Can do #1 and articulate the main points of a professional document.</p>	<p>Can draw conclusions based on available information and opposing viewpoints from professional sources. Can do #1 and #2, and explain the relevance for forestry of the information in professional documents.</p>	<p>Can use skills from lower performance levels to develop practical applications and novel lines of inquiry for problem solving.</p>	

Appendix – Student Learning Sub-outcome 1a (*continued*)

(. . . find, read and interpret professional documents, and critically evaluate opposing viewpoints)

Report of small faculty group's recommendations for improvement actions (*continued*):

3. Actions to try to improve student performance should include:
 - i. Continuation of Dr. Stainback's new format for FOR 400's "topic-proposal" assignment, which precedes the course's term paper that is used for "late-academic-career" assessment of this learning outcome. This new format requires students to submit with the topic proposal at least five references, some of which must be peer-reviewed and some of which must not be peer-reviewed. During his meeting with each student to discuss the student's term paper topic, attention is drawn to the relevance of the topic in forestry and to the quality and interpretation of references.
 - ii. The new curriculum's professional development course(s) should:
 - Teach students how to paraphrase information from professional documents.
 - Teach students the journals and other professional/trade publications where foresters get their information.

Appendix – Student Learning Sub-outcome 1b (. . . communicate information effectively in oral/visual presentations and in writing, on technical/business levels and non-professional levels)

Rubric 1b-i including summary of results:

Forestry Department Assessment – BS FORE Degree Program
Assessment Scoring Rubric for **Learning Outcome 1: Communications (Rubric current on 1 September 2013)**
Sub-outcome 1b-i (Oral/Visual Presentation Communication)

Semester/Year: **Fall 2013 (Early-Academic-Career Assessment) / Spring 2014 (Late-Academic-Career Assessment)**

Student: **Summary of Results (compiled from individual student rubrics)**

Student Learning Outcome or Objective	Project or Activity Assessed	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Learning Outcome 1: Communications Graduates will meet the “Communications” General Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate ability to:						
b-i. communicate information effectively in oral/visual presentations. p < 0.001 (result of Yates-corrected chi-square test of null hypothesis that early- and late-academic-career students perform equally, after pooling “Beginning” data with “Developing” data, and “Accomplished” data with “Exemplary” data)		Some competency in: <ul style="list-style-type: none"> • grammar / spelling / punctuation • information content 	Proficiency in: <ul style="list-style-type: none"> • grammar / spelling / punctuation • information content 	Proficiency in all lower-level skills plus adequate logical structure and organization	Proficiency in all lower-level skills plus adequate orderly synthesis of ideas appropriate for audience	
	Early-Academic Career Assessment: FOR 110 (Student Project Presentations, 11/19/13 – 12/10/13)	7 students	2 students	3 students	0 students	Median = 1 Mean = 1.67
Benchmark (median score of late-academic-career students will be at least “Accomplished”): Achieved	Late-Academic Career Assessment: FOR 470 (Final Presentation (4/23/14)	0 students	0 students	13 students	6 students	Median = 3 Mean = 3.32

Committee that developed this rubric: Dr. Michael J. Lacki, Dr. James M. Ringe, Dr. David B. Wagner (Fall Semester 2013)

Evaluators: David Wagner (FOR 110 Instructor); Michael Lacki (FOR 470 Instructor)

Data Summary: David Wagner (12 May 2014)

Appendix – Student Learning Sub-outcome 1b (*continued*)
(. . . communicate information effectively in oral/visual presentations and in writing, on technical/business levels and non-professional levels)

Rubric 1b-ii including summary of results:

Forestry Department Assessment – BS FORE Degree Program
Assessment Scoring Rubric for Learning Outcome 1: Communications (Rubric current on 1 September 2013)
Sub-outcome 1b-ii (Technical/Business Writing)

Semester/Year: Fall 2013 (Early-Academic-Career Assessment) / Spring 2014 (Late-Academic-Career Assessment)

Student: Summary of Results (compiled from individual student rubrics)

Student Learning Outcome or Objective	Project or Activity Assessed	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Learning Outcome 1: Communications Graduates will meet the “Communications” General Education Accreditation Requirements of the Society of American Foresters, i.e. they will demonstrate ability to:						
b-ii. communicate information effectively in writing, on technical / business levels. p < 0.001 (result of Yates-corrected chi-square test of null hypothesis that early- and late-academic-career students perform equally, after pooling “Beginning” data with “Developing” data, and “Accomplished” data with “Exemplary” data)		Some competency in: <ul style="list-style-type: none"> • grammar / spelling / punctuation • information content 	Proficiency in: <ul style="list-style-type: none"> • grammar / spelling / punctuation • information content 	Proficiency in all lower-level skills plus adequate logical structure and organization	Proficiency in all lower-level skills plus adequate orderly synthesis of ideas appropriate for audience	
	Early-Academic Career Assessment: FOR 110 (Forestry in the U.S. and Kentucky Assignment, 9/10/13)	11 students	0 students	0 students	0 students	Median = 1 Mean = 1.000
Benchmark (median score of late-academic-career students will be at least “Accomplished”): Achieved	Late-Academic Career Assessment: FOR 470 (Stakeholder Description Assignment, 3/5/14)	0 students	0 students	9 students	10 students	Median = 4 Mean = 3.53

Committee that developed this rubric: Dr. Michael J. Lacki, Dr. James M. Ringe, Dr. David B. Wagner (Fall Semester 2013)

Evaluators: David Wagner (FOR 110 Instructor); Michael Lacki (FOR 470 Instructor)

Data Summary & Analysis: David Wagner (11 September 2013, 8 May 2014)

Appendix – Student Learning Sub-outcome 1b (continued)
(. . . communicate information effectively in oral/visual presentations and in writing, on technical/business levels and non-professional levels)

Rubric 1b-iii including summary of results:

Forestry Department Assessment – BS FORE Degree Program

Assessment Scoring Rubric for **Learning Outcome 1: Communications (Rubric current on 1 September 2013)**

Sub-outcome 1b-iii (Written Non-Professional Communication)

Semester/Year: **Fall 2013 (Early-Academic-Career Assessment) / Spring 2014 (Late-Academic-Career Assessment)**

Student: **Summary of Results (compiled from individual student rubrics)**

Student Learning Outcome or Objective	Project or Activity Assessed	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Learning Outcome 1: Communications Graduates will meet the “Communications” General Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate ability to:						
b-iii. communicate information effectively, in writing, on non-professional levels. p < 0.001 (result of Yates-corrected chi-square test of null hypothesis that early- and late-academic-career students perform equally, after pooling “Beginning” data with “Developing” data, and “Accomplished” data with “Exemplary” data)		Some competency in: <ul style="list-style-type: none"> grammar / spelling / punctuation information content 	Proficiency in: <ul style="list-style-type: none"> grammar / spelling / punctuation information content 	Proficiency in all lower-level skills plus adequate logical structure and organization	Proficiency in all lower-level skills plus adequate orderly synthesis of ideas appropriate for audience	
	Early-Academic Career Assessment: FOR 110 (Planning for Student Projects Assignment, 9/23/13)	9 students	3 students	0 students	0 students	Median = 1 Mean = 1.25
Benchmark (median score of late-academic-career students will be at least “Accomplished”): Achieved	Late-Academic Career Assessment: FOR 470 (Self-Evaluation Assignment, 1/22/2014)	0 students	1 student	10 students	8 students	Median = 3 Mean = 3.37

Committee that developed this rubric: Dr. Michael J. Lacki, Dr. James M. Ringe, Dr. David B. Wagner (Fall Semester 2013)

Evaluators: David Wagner (FOR 110 Instructor); Michael Lacki (FOR 470 Instructor)

Data Summary: David Wagner (11 May 2014)

Appendix – Student Learning Sub-outcome 5a
(. . . taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)

Assessment test, revised for spring 2014 re-assessment of student learning sub-outcome components 5a-i and 5a-ii:

Student's Name: _____

B.S. (Forestry) Student Learning Outcome 5 (Ecology and Biology)
Sub-outcomes 5a-i (Dendrology) and 5a-ii (Wildlife)
Assessment Post-Test (FOR 480, Spring 2014)

For the multiple-choice questions, choose the best response for each.

Sub-outcome 5a-i (Dendrology)

Taxonomy

1. Which genus of the following is not a member of the family Rosaceae?
 - a. *Amelanchier*
 - b. *Carpinus*
 - c. *Crataegus*
 - d. *Malus*
 - e. *Prunus*

2. *Fagus* and *Quercus* are genera in the family Fagaceae. *Betula* is a genus in the family Betulaceae. Which of the following statements directly follows from these taxonomic statements?
 - a. *Fagus* and *Quercus* are more closely related to each other than either is to *Betula*
 - b. *Fagus* and *Quercus* share a more recent common ancestor than either shares with *Betula*
 - c. *Fagus* and *Quercus* have more characters in common with each other than either has with *Betula*.
 - d. All three statements are equally true and all directly follow from the taxonomy.

3. The large genus *Pinus* is divided into two sections. Which of the following is in a different section of the genus *Pinus* from the others?
 - a. *Pinus echinata*
 - b. *Pinus rigida*
 - c. *Pinus strobus*
 - d. *Pinus taeda*
 - e. *Pinus virginiana*

4. Likewise, the large genus *Quercus* is also subdivided. Which of the following is in a different section of the genus *Quercus* from the others?
 - a. *Quercus falcata*
 - b. *Quercus imbricaria*
 - c. *Quercus montana*
 - d. *Quercus palustris*
 - e. *Quercus phellos*

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Appendix – Student Learning Sub-outcome 5a (continued)
(... taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)

Assessment test, revised for spring 2014 re-assessment of student learning sub-outcome components 5a-i and 5a-ii (continued):

Silvics, range, sites, natural history

5. Which of the following trees have **not** been severely impacted by invasive diseases or insect pests?
 - a. American chestnut
 - b. basswood
 - c. flowering dogwood
 - d. shortleaf pine
 - e. white ash

6. Which of the following trees is often abundant in early successional upland forest stands, especially in pastures recently abandoned?
 - a. American beech
 - b. eastern redcedar
 - c. sugar maple
 - d. sweet birch
 - e. white oak

7. Which of the following associations of trees is found on the most productive sites, with the tallest trees and the highest value timber?
 - a. black cherry, boxelder, bigtooth aspen, slippery elm, black locust
 - b. eastern hemlock, American holly, American beech
 - c. yellow-poplar, northern red oak, white ash, sugar maple, basswood
 - d. scarlet oak, red maple, Virginia pine, pitch pine
 - e. white oak, black oak, pignut hickory, blackgum

8. Which of the following trees is the most tolerant of inundation (saturated soils)?
 - a. bald-cypress
 - b. black walnut
 - c. boxelder
 - d. eastern white pine
 - e. Shumard oak

9. Which of the following pairs of species is a good indicator of alkaline soils, rarely found on lower pH soils?
 - a. boxelder and American elm
 - b. Kentucky coffeetree and blue ash
 - c. mountain laurel and sourwood
 - d. scarlet oak and black oak
 - e. sweet birch and eastern white pine

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Appendix – Student Learning Sub-outcome 5a (*continued*)
(. . . taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)

Assessment test, revised for spring 2014 re-assessment of student learning sub-outcome components 5a-i and 5a-ii (*continued*):

10. Which of the following conifers is deciduous?
 - a. arbor-vitae
 - b. false-cypress
 - c. fir
 - d. juniper
 - e. larch

11. Which of the following hickories can be found on the driest sites and thinnest, rockiest soils?
 - a. pecan
 - b. pignut hickory
 - c. shagbark hickory
 - d. shellbark hickory

12. All of the following oaks can be found in alluvial bottomlands except:
 - a. blackjack oak
 - b. cherrybark oak
 - c. overcup oak
 - d. Shumard oak
 - e. willow oak

13. Which of the following has the most southern range, ranging just as far north as Kentucky?
 - a. black oak
 - b. bur oak
 - c. scarlet oak
 - d. shingle oak
 - e. water oak

Tree identification

For each of questions 14 through 20, a list of three tree species is followed by two or more field characters. For each of these questions, circle the correct tree based on the characters.

14. red mulberry white mulberry basswood
leaves are smooth textured
tree often sprouts prolifically from the root-collar

15. sourwood sassafras blackgum
leave margins have minute serrations
leaves and bark lack obvious scent
fruit is a long cluster of small capsules

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Appendix – Student Learning Sub-outcome 5a (continued)
(. . . taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)

Assessment test, revised for spring 2014 re-assessment of student learning sub-outcome components 5a-i and 5a-ii (continued):

16. mockernut hickory pignut hickory bitternut hickory
leaves typically have seven leaflets
leaflets and rachis are covered with clusters of small hairs
nut is nearly round with a moderately thick husk

17. black cherry sweet birch persimmon
leaves are often in pairs on short shoots
twigs are aromatic

18. chinkapin oak chestnut oak swamp white oak
bark on limbs peels (exfoliates)
acorns are on long stalks (2+ inches)

19. umbrella magnolia cucumber magnolia bigleaf magnolia
base of the leaf is wedge-shaped
large end bud is purple
leaf is often 18 or more inches long

20. American elm slippery elm common hackberry
leaves have pinnate venation with parallel secondary veins
leaves are extremely rough-textured on both surfaces
fruit is a nearly round samara about 1" across

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Appendix – Student Learning Sub-outcome 5a (*continued*)
(. . . taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)

Assessment test, revised for spring 2014 re-assessment of student learning sub-outcome components 5a-i and 5a-ii (*continued*):

Sub-outcome 5a-ii (Wildlife)

General concepts

21. Which of the following is **not** associated with late-seral (K-selected) wildlife species?
 - a. high parental care
 - b. larger litters
 - c. delayed reproduction
 - d. large body size
 - e. Type I survivorship curves

22. The stage class of snags which is optimal for cavity-dependent wildlife is:
 - a. stage 2
 - b. stage 4
 - c. stage 6
 - d. stage 8
 - e. stage 5

23. The habitat block that will likely support the fewest animal species is:
 - a. large and far from source populations
 - b. small and near source populations
 - c. large and near source populations
 - d. small and far from source populations
 - e. immediately adjacent to source populations

24. Locations where 3 or more cover types come together are called:
 - a. juxtapositions
 - b. cantilevered edges
 - c. contrasts
 - d. coverts
 - e. matrices

25. Kentucky is located in which waterfowl migration flyway?
 - a. Atlantic
 - b. Central
 - c. Canadian
 - d. Pacific
 - e. Mississippi

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Appendix – Student Learning Sub-outcome 5a (continued)
(. . . taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)

Assessment test, revised for spring 2014 re-assessment of student learning sub-outcome components 5a-i and 5a-ii (continued):

26. The thermal neutral zone of an animal species:
- a. lies below the lower-critical temperature
 - b. requires chemical adjustments on the part of animals
 - c. lies above the upper-critical temperature
 - d. requires physical adjustments on the part of animals
 - e. is associated with substantial amounts of energy loss
27. Optimal grouse habitat can be achieved:
- a. in oak-hickory forest
 - b. with 10 acre clearcuts
 - c. to support 1 breeding pair per 12-16 acres
 - d. by promoting old growth forest
 - e. by juxtaposing recently cut, sapling, pole, and mature forests

Animal identification

28. Which of the following amphibians belongs in the Family Salamandridae?
- a. Ravine salamander
 - b. Red salamander
 - c. Red-spotted newt
 - d. Gray tree frog
 - e. Northern dusky salamander
29. A skull lacking in upper incisors likely belongs to which small mammal?
- a. Big brown bat
 - b. Cottontail rabbit
 - c. Gray squirrel
 - d. Southern flying squirrel
 - e. Deer mouse
30. Which family of mammals includes species with ruminant digestion?
- a. Sciuridae
 - b. Leporidae
 - c. Muridae
 - d. Vespertilionidae
 - e. Cervidae
31. The upper shell of a turtle is referred to as a:
- a. Dorsum
 - b. Plastron
 - c. Carapace
 - d. Venter
 - e. Typanum

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Appendix – Student Learning Sub-outcome 5a (*continued*)
(. . . taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)

Assessment test, revised for spring 2014 re-assessment of student learning sub-outcome components 5a-i and 5a-ii (*continued*):

32. Which taxonomic family of animals does not possess lungs?
- a. Scolopacidae
 - b. Ranidae
 - c. Picidae
 - d. Plethodontidae
 - e. Colubridae
33. Which species possesses >120 pre-cloacal vertebrae?
- a. Ground skink
 - b. Garter snake
 - c. Red-eared slider
 - d. Spotted salamander
 - e. Hairy woodpecker
34. The Strigiformes includes which bird?
- a. Ruffed grouse
 - b. Red-tailed hawk
 - c. Great horned owl
 - d. Carolina wren
 - e. Tufted titmouse

The End.

Appendix – Student Learning Sub-outcome 5a (continued)
(. . . taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)

Rubric 5a-i including summary of results:

Forestry Department Assessment – BS FORE Degree Program
 Assessment Scoring Rubric for **Learning Outcome 5: Ecology & Biology (Document current on 19 March 2014)**
Sub-outcome 5a-i (Dendrology)

Check one of the following:

_____ Early-Academic-Career Assessment: FOR 110 Pre-test
X Late-Academic-Career Assessment: FOR 480 Post-test

Semester/Year: **Spring 2014 (Repeat Assessment)**
 Student: **Summary of Results for All Students Assessed**

Student Learning Outcome or Objective	Project or Activity Assessed, Date, and Evaluator	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Learning Outcome 5: Ecology and Biology Graduates will meet the “Ecology & Biology” Professional Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate knowledge of:						
5a-i. taxonomy, identification, and distribution of tree species and associated vegetation.		Accomplishes none of the following on assessment test: <ul style="list-style-type: none"> Taxonomy: at least 3 correct of questions 1 – 4 (can identify taxonomic concepts and classifications). Tree Identification: at least 6 correct of questions 10 and 14 – 20 (can identify trees from field character descriptions). Distribution of Tree Species: at least 6 correct of questions 5 – 9 and 11 – 13 (can identify geographic and environmental distributional ranges of forest tree species). 	Accomplishes exactly 1 of the following on assessment test: <ul style="list-style-type: none"> Taxonomy: at least 3 correct of questions 1 – 4 (can identify taxonomic concepts and classifications). Tree Identification: at least 6 correct of questions 10 and 14 – 20 (can identify trees from field character descriptions). Distribution of Tree Species: at least 6 correct of questions 5 – 9 and 11 – 13 (can identify geographic and environmental distributional ranges of forest tree species). 	Accomplishes exactly 2 of the following on assessment test: <ul style="list-style-type: none"> Taxonomy: at least 3 correct of questions 1 – 4 (can identify taxonomic concepts and classifications). Tree Identification: at least 6 correct of questions 10 and 14 – 20 (can identify trees from field character descriptions). Distribution of Tree Species: at least 6 correct of questions 5 – 9 and 11 – 13 (can identify geographic and environmental distributional ranges of forest tree species). 	Accomplishes all 3 of the following on assessment test: <ul style="list-style-type: none"> Taxonomy: at least 3 correct of questions 1 – 4 (can identify taxonomic concepts and classifications). Tree Identification: at least 6 correct of questions 10 and 14 – 20 (can identify trees from field character descriptions). Distribution of Tree Species: at least 6 correct of questions 5 – 9 and 11 – 13 (can identify geographic and environmental distributional ranges of forest tree species). 	
Benchmark (median score of late-academic-career students will be at least “Accomplished”): Not achieved	Late-Academic-Career: FOR 480 Post-test (3/25/2014)	7 students	10 students	0 students	2 students	Median = 2 Mean = 1.842

Evaluator: D. Wagner

Date: 20 April 2014

Committee that developed post-test and rubric for repeated assessment of learning sub-outcome 5a-i: Mike Lacki, John Lhotka, Rob Paratley, Steve Price, Dave Wagner (Fall Semester 2013)

Appendix – Student Learning Sub-outcome 5a (continued)
(. . . taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)

Rubric 5a-ii including summary of results:

Forestry Department Assessment – BS FORE Degree Program
 Assessment Scoring Rubric for **Learning Outcome 5: Ecology & Biology (Document current on 19 March 2014)**
Sub-outcome 5a-ii (Wildlife Taxonomy, Identification and Distribution)

Check one of the following:

_____ Early-Academic-Career Assessment: FOR 110 Pre-test

Semester/Year: **Spring 2014 (Repeat Assessment)**

X Late-Academic-Career Assessment: FOR 480 Post-test

Student: **Summary of Results for All Students Assessed**

Student Learning Outcome or Objective	Project or Activity Assessed, Date, and Evaluator	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Learning Outcome 5: Ecology and Biology Graduates will meet the “Ecology & Biology” Professional Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate knowledge of:						
5a-ii. taxonomy, identification, and distribution of forest wildlife.		Accomplishes none of the following on assessment test: <ul style="list-style-type: none"> Taxonomy: at least 3 correct of questions 28, 30, 32, 34 (can identify taxonomic classifications). Animal Identification: all correct of questions 29, 31, and 33 (can identify animals from descriptive clues). Distribution of Animal Species: at least 5 correct of questions 21 – 27 (can identify geographic and environmental distributional ranges of animal species). 	Accomplishes exactly 1 of the following on assessment test: <ul style="list-style-type: none"> Taxonomy: at least 3 correct of questions 28, 30, 32, 34 (can identify taxonomic classifications). Animal Identification: all correct of questions 29, 31, and 33 (can identify animals from descriptive clues). Distribution of Animal Species: at least 5 correct of questions 21 – 27 (can identify geographic and environmental distributional ranges of animal species). 	Accomplishes exactly 2 of the following on assessment test: <ul style="list-style-type: none"> Taxonomy: at least 3 correct of questions 28, 30, 32, 34 (can identify taxonomic classifications). Animal Identification: all correct of questions 29, 31, and 33 (can identify animals from descriptive clues). Distribution of Animal Species: at least 5 correct of questions 21 – 27 (can identify geographic and environmental distributional ranges of animal species). 	Accomplishes exactly 3 of the following on assessment test: <ul style="list-style-type: none"> Taxonomy: at least 3 correct of questions 28, 30, 32, 34 (can identify taxonomic classifications). Animal Identification: all correct of questions 29, 31, and 33 (can identify animals from descriptive clues). Distribution of Animal Species: at least 5 correct of questions 21 – 27 (can identify geographic and environmental distributional ranges of animal species). 	
Benchmark (median score of late-academic-career students will be at least “Accomplished”): Not achieved	Late-Academic-Career: FOR 480 Post-test (3/25/2014)	8 students	7 students	4 students	0 students	Median = 2 Mean = 1.789

Evaluator: D. Wagner

Date: 20 April 2014

Committee that developed post-test and rubric for repeated assessment of learning sub-outcome 5a-ii: Mike Lacki, John Lhotka, Rob Paratley, Steve Price, Dave Wagner (Fall Semester 2013)

Appendix – Student Learning Sub-outcome 5a (continued)
(. . . taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)

Report (for component 5a-i) of small faculty group’s recommendations for improvement actions:

B.S. (Forestry) Student Learning Outcome 5a-i
Taxonomy, Identification and Distribution of Tree Species and Associated Vegetation
Recommendations of Working Group (R. Paratley, J. Stringer, D. Wagner – 29 September 2014)

The group addressed the following questions at two meetings (on 22 and 29 September 2014):

1. Specifically for the B.S. (Forestry) degree program at the University of Kentucky, what should be the learning goals and outcomes for this subject matter?
2. How should we assess student performance for these goals and outcomes?
3. Given 1 & 2, how should we proceed with respect to our 2013 – 14 assessment methods and results?

With regard to each of the above points, the group agreed by consensus:

1. The text of the final portion of this learning outcome should be changed from, “taxonomy, identification and distribution of tree species and associated vegetation,” to, “identification, habitat relationships and distribution of forest tree species.” B.S. (Forestry) graduating seniors should, for forest tree species of Kentucky:
 - i. Be able to identify them in the field.
 - ii. Know their ecology / site characteristics, and common species assemblages.
2. Beginning in spring 2015, the “late academic career” assessment of this learning outcome should take place during the final days of the field semester, as much as possible in the field and not in a classroom. This, together with refocusing the learning outcome on tree ID and ecology / site characteristics, as mentioned above, should align our expectations of students with the assessment more closely than has been the case in our previous attempts to assess this outcome. Also, we should try to motivate students to want to perform well on assessments of student learning outcomes of the B.S. (Forestry) degree program. Potential incentives include:
 - i. Making the late academic career assessment of this learning outcome count toward the grade of the field semester dendrology course.
 - ii. Helping students internalize the fact that material from early courses is needed for later courses, for example by requiring all forestry majors, or at least the spring field semester students, to attend the annual management plan presentations of the senior capstone course (FOR 480).
 - iii. Finding ways to push students to participate actively in the student SAF Chapter and other professional SAF functions.
 - iv. Arranging forestry field days and other ways for students to interact with practicing foresters, for example by including one such day as part of the required activities in the new version of FOR 100.
3. Actions to try to improve student learning should include:
 - i. FOR 219 (Dendrology) should include additional contact time, as follows:
 - a) One hour per week of “recitation” time should be added. The recitation would be spent in mandatory study halls, proctored by the FOR 219 TA.
 - b) Although this would have to be checked, the proposed additional contact time may not require a course change, because the new total contact time for the course would still fall within the guidelines for a 4-credit lecture/lab course.
 - ii. Going forward, assessments of the impact of implementation of some or all of the above suggestions should be considered with an eye toward additional potential opportunities to enhance dendrology learning. Examples might include:
 - a) Strengthening the biology course requirement in the curriculum.
 - b) Creating and requiring in the curriculum a 1-credit tree physiology course.
 - c) Scheduling the field semester for the fall semester, when conditions are more conducive to field and Robinson Forest courses.

Appendix – Student Learning Sub-outcome 5a (*continued*)
(. . . taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)

Report (for component 5a-ii) of small faculty group’s recommendations for improvement actions:

B.S. (Forestry) Student Learning Outcome 5a-ii
Forest Wildlife Taxonomy, Identification and Distribution
Recommendations of Working Group (J. Cox, M. Lacki, J. Lhotka, D. Wagner) – 24 September 2014

The group met on 10 September and 24 September, and addressed the following questions:

4. Specifically for the B.S. (Forestry) degree program at the University of Kentucky, what should be the learning goals and outcomes for this subject matter?
5. How should we assess student performance for these goals and outcomes?
6. Given 1 & 2, how should we proceed with respect to our 2013 – 14 assessment methods and results?

With regard to each of the above points, the group agreed by consensus:

1. B.S. (Forestry) graduating seniors should know, for forest wildlife species in Kentucky:
 - i. The effects of silvicultural prescriptions on wildlife.
 - ii. Basic concepts of wildlife population ecology and dynamics.
 - iii. Identification and habitat relationships of species.
2. The wording of the learning outcome should be changed from, “forest wildlife taxonomy, identification and distribution,” to, “. . . identification, habitat relationships, and geographic distribution of forest wildlife.” Also, students should be motivated to perform well on assessments of student learning outcomes of the B.S. (Forestry) degree program. Potential incentives include:
 - i. Helping students internalize the fact that material from early courses is needed for later courses.
 - ii. Using representative portions of the comprehensive final lecture exam and final lab exam, which Dr. Lacki plans to implement in FOR 370 (Wildlife Biology & Management) in spring 2015, as the “late-academic career” assessment instrument in a senior FOR course.
 - iii. Development of an awards program for recognition of outstanding performance of individual students. Awards would be based on overall academic, professional, and assessment performance.
 - iv. Broadly incorporating “late-academic-career” assessments, as graded activities, into required FOR courses. This could include existing courses, and/or a new required one-credit (possibly pass/fail) course that would be dedicated to comprehensive examination/assessment of spring-semester seniors.
3. Actions to try to improve student performance should include:
 - i. Silvicultural systems and basic concepts regarding the relationships between forestry and wildlife should be introduced in the soon-to-be-revised 1st-semester course, FOR 100 (Forests and Forestry).
 - ii. Dr. Lacki should implement his plans (a) to focus the FOR 370 lecture on biology, (b) to focus the course’s lab on identification, distribution, and taxonomy, and (c) to add a comprehensive final exam to both lecture and lab.
 - iii. Drs. Lacki and J. Lhotka should implement their ideas to strengthen linkages among FOR 370, FOR 350 (Silviculture) and FOR 480 (Integrated Forest Resource Management). For example: (a) FOR 480 students should include wildlife habitat evaluations in their work leading to management plans, with the evaluations based on bullet points that Dr. Lacki will provide for the FOR 480 syllabus. (b) When relevant material is encountered in FOR 370, connections with FOR 480 should be emphasized, and vice versa. (c) Dr. Lacki should deliver a guest lecture in FOR 480, and make 480 students aware that he is available for consultation.

Appendix – Student Learning Sub-outcome 5a (continued)
(... taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)

Report (for component 5a-ii) of small faculty group's recommendations for improvement actions (continued):

- iv. Dr. Cox's ideas to strengthen linkages between FOR 360 (Wildlife Assessment) and other courses should be implemented. This could include drawing students' attention to FOR 360 content that relates to FOR 370, and using for student work in FOR 360 the same tract of land used in FOR 358 (Silvicultural Practices).
- v. The 3/28/2014 proposed B.S. (Forestry) curriculum revision (see next page of this Appendix) should be rearranged, moving:
 - FOR 370 from the sophomore spring to the junior fall.
 - FOR 230 (Conservation Biology) from the sophomore fall to the senior spring (and changing the course number to FOR 4XX).
 - FOR 330 (GIS & Spatial Analysis) from the junior fall to the sophomore spring.
 - Social Sciences from the senior spring to the sophomore fall.
 - The Professional Elective from the junior fall to the sophomore spring.
- vi. The new curriculum's professional development course(s) should focus students' attention on the importance of:
 - The need to dedicate sufficient **time** outside of classes to learn course content thoroughly.
 - The need to **retain** information from early courses for application in later courses.

Appendix – Student Learning Sub-outcome 5a (continued)
(... taxonomy, identification, and distribution of tree species and associated vegetation and wildlife)



Undergraduate Forestry Program
DRAFT Curriculum Revision
 Last Revised 03/28/2014

	FORESTRY FALL	SPRING
YEAR 1	FOR 100 FORESTS AND FORESTRY (Natural, Physical and Mathematical Sciences) 3 FOR 200 BASICS OF GEOSPATIAL TECHNOLOGY (Quantitative Foundations) 3 FOR 255 FOREST FIRE 1 Citizenship - U.S. (required GEN 100 Issues in Ag.) 3 CIS/WRD 110 (Composition & Comm.) 3 <i>Forestry Credit Hours 7 Total Credit Hours 13</i>	FOR 240 FORESTRY AND NAT. RES. ETHICS 2 FOR 285 COM. & PROF. DEV. IN FORESTRY 1 BIO 103 Basic Ideas of Biology 3 MA 109 College Algebra 3 CIS/WRD 111 (Composition & Communication) 3 Arts and Creativity 3 <i>Forestry Credit Hours 3 Total Credit Hours 15</i>
YEAR 2	FOR 230 CONSERVATION BIO. (Global Dynamics) 3 FOR 250 STATISTICS AND MEASUREMENTS I (Statistical Inferential Reasoning) 4 FOR 219 DENDROLOGY 4 CHE 104 Introductory General Chemistry 3 Humanities 3 <i>Forestry Credit Hours 11 Total Credit Hours 17</i>	FOR 260 FOREST PRODUCTS & WOOD SCIENCE 4 PLS 366 FUNDAMENTALS OF SOIL SCIENCE 4 FOR 370 WILDLIFE BIOLOGY & MANAGEMENT 4 FOR/NRE 381 NAT. RES., FORESTRY & ENV. POLICY ANALYSIS** 3 <i>Forestry Credit Hours 15 Total Credit Hours 15</i>
YEAR 3	FOR 340 FOREST ECOLOGY 4 FOR 350 SILVICULTURE 4 FOR 320 FOREST VAL. & ECONOMICS (Yr 3 or 4) 3 FOR 330 GIS & SPATIAL ANALYSIS (Yr 3 or 4) 3 PROFESSIONAL ELECTIVE 3 <i>Forestry Credit Hours 14 Total Credit Hours 17</i>	FOR 221 WINTER DENDROLOGY 1 FOR 310 INTRO TO FOREST HEALTH & PRO. 1 FOR 356 LANDSCAPE ASSESSMENT 2 FOR 360 WILDLIFE ASSESSMENT 2 FOR 357 INVENTORY AND MEASUREMENTS II 2 FOR 358 SILVICULTURAL PRACTICES 3 FOR 359 FOREST OP. & UTILIZATION 3 <i>Forestry Credit Hours 14 Total Credit Hours 14</i>
YEAR 4	FOR 425 FOREST MANAGEMENT 4 FOR 400 HUMAN DIMENSIONS OF FORESTRY & NAT. RES.* (Yr 3 or 4) 3 FOR 460 FOREST HYDROLOGY AND WATERSHED MANAGEMENT 3 FOR 402 FOREST ENTOMOLOGY (Yr 3 or 4) 3 PROFESSIONAL ELECTIVE 3 <i>Forestry Credit Hours 13 Total Credit Hours 16</i>	FOR 480 INTEGRATED FOREST RESOURCE MANAGEMENT* 5 PROFESSIONAL ELECTIVE 3 Free Elective 3 Social Sciences 3 <i>Forestry Credit Hours 5 Total Credit Hours 14</i>

*Graduation Composition and Communications Requirement
 ** FOR/NRE 381 offered in both spring and fall

**Appendix – Student Learning Outcome 7
(Management of Forest Resources)**

Assessment pre-/post-test (for sub-outcomes 7b-i, 7d, 7e):

Student's Name: _____

**B.S. (Forestry) Student Learning Outcomes 7b-i, 7d and 7e
(Management of Forest Resources – Economics, Valuation, Administration, Etc.)
Assessment Pre-Test (FOR 110, Fall 2013)**

For the multiple-choice questions, choose the **best** response for each.
You may need the following equation: $PV = FV / (1 + i)^n$, where:

PV= present value
FV= future value
i = interest rate
n = years

Sub-outcome 7b-i (Economics)

1. If the interest rate of a project equals its IRR, then:
 - a. NPV = 0 and B/C = 1
 - b. NPV = 0 and B/C < 1
 - c. NPV = 0 and B/C > 1
 - d. NPV > 0 and B/C = 1
 - e. NPV < 0 and B/C = 1

2. The financially optimal rotation age is the one that maximizes the:
 - a. Periodic annual increment
 - b. Land expectation value
 - c. Mean annual increment
 - d. Average annual volume production
 - e. None of the above

3. Name the two basic approaches for regulating a forest.

4. Consider an area-regulated forest of 800 acres with an optimal rotation of 50 years, how many acres would you cut each decade to maintain the forest regulated?

Continued on next page →→→

Appendix – Student Learning Outcome 7 (continued)
(Management of Forest Resources)

Assessment pre-/post-test (for sub-outcomes 7b-i, 7d, 7e), continued:

Sub-outcome 7d (Valuation, Etc.)

1. LEV is the:

- a) Value of bare land
- b) Value of bare land plus timber
- c) Value of bare land used in a particular way
- d) Value of bare land plus timber used in a particular way

2. The time frame of LEV is:

- a) One year
- b) One rotation
- c) Infinity
- d) Two rotations

3. If a stand of trees is worth \$50,000 today and they increase in value at 4% per year, what will they be worth (approximately) in 50 years?

- a) 555,000
- b) 450,000
- c) 125,000
- d) 355,000

4. We anticipate that a pine plantation will have a value of \$15,000/acre at the end of its 25 year rotation. If 3% accurately represents our time value of money, what is it worth today (*i.e.* year 0)?

- a) 7152
- b) 7164
- c) 7173
- d) 7156

5. A stand of trees has a current value of \$3,500/acre. In 30 years, we predict that it will have a value of \$7,500/acre. At what annual rate do we expect the timber to increase in value?

- a) 2.6%
- b) 2.8%
- c) 3.1 %
- d) 3.2%

Continued on next page →→→

Appendix – Student Learning Outcome 7 (continued)
(Management of Forest Resources)

Assessment pre-/post-test (for sub-outcomes 7b-i, 7d, 7e), continued:

6. Since lumber is generally indistinguishable as to its origin and must sell at the market price, it is considered to be a:
- a) Product
 - b) Compatible good
 - c) Substitute good
 - d) Commodity
7. We often refer to stumpage as a residual. This means:
- a) Stumpage values are set by the landowner
 - b) Stumpage values are determined on a cost plus basis
 - c) Stumpage values are determined by the market price of lumber
 - d) Stumpage values are determined by the logger
8. Feller-bunchers are most practical for use in:
- a) Old growth timber
 - b) Uneven aged timber on steep ground
 - c) Large even age timber on steep ground
 - d) Smaller, even age timber on level ground
9. Which of the following is not a variable cost faced by the logger?
- a) The price of fuel
 - b) Skidding distance
 - c) Property tax
 - d) Hauling distance
10. Which of the following is not a consumable forest product?
- a) Game species
 - b) Biodiversity
 - c) Wood
 - d) Water

Continued on next page →→→

Appendix – Student Learning Outcome 7 (continued)
(Management of Forest Resources)

Assessment pre-/post-test (for sub-outcomes 7b-i, 7d, 7e), continued:

Sub-outcome 7e (Administration, Etc.)

1. Logging BMPs in Kentucky are required by the:
 - a. National Forest Management Act
 - b. Multiple Use and Sustained Yield Act
 - c. Kentucky Forest Conservation Act
 - d. National Environmental Policy Act

2. What percentage of forestland in Kentucky is publically owned
 - a. Approximately 9%
 - b. Approximately 53%
 - c. Approximately 31%
 - d. Approximately 80%

3. Which federal statute governs how the U.S. Forest Service administers U.S. National Forest land?
 - a. Federal Land Policy and Management Act (FLPMA)
 - b. National Forest Management Act (NFMA)
 - c. Resource Conservation and Recovery Act (RCRA)
 - d. Federal Ecosystem Management Act (FEMA)

4. Which of the following is true of private family forest landowners in Kentucky (and the U.S. as a whole)?
 - a. Most manage their land *primarily* for timber production
 - b. Almost 50% have a written forest management plan
 - c. Many engage in passive or “hands-off” management
 - d. Both A and B

5. Which of the following forest owners can afford (generally) to have the longest planning horizon?
 - a. NIPF landowners
 - b. TIMO’s
 - c. Large integrated forest products corporations
 - d. The U.S. government

The End.

Appendix – Student Learning Outcome 7 (continued)
(Management of Forest Resources)

Rubric 7b-i including summary of results:

Forestry Department Assessment – BS FORE Degree Program

Assessment Scoring Rubric for Learning Outcome 7b-i: Management of Forest Resources – Economics

Semester/Year: Fall 2013 (Early-Academic-Career Assessment) / Spring 2014 (Late-Academic-Career Assessment)

Student: Summary of Results (see pre-test and post-test files for individual student results)

Student Learning Outcome or Objective	Project or Activity Assessed	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Learning Outcome 7: Management of Forest Resources Graduates will meet the “Management of Forest Resources” Professional Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate:						
7b-i. ability to analyze economic consequences of forest resource management strategies and decisions. p ≈ 0.05 (result of Yates-corrected chi-square test of null hypothesis that early- and late-academic-career students perform equally, after pooling “Beginning” data with “Developing” data, and “Accomplished” data with “Exemplary” data)		Can do less than 2 of the following (<i>i.e.</i> 0 or 1 of 4 questions correct in “Economics” section of assessment-test): <ul style="list-style-type: none"> • identify relationships among interest rate, NPV, B/C and IRR • identify goal of financially optimal rotation age • name two basic approaches for forest regulation • determine harvest area per time interval for area-regulated forests 	Can do exactly 2 of the following (<i>i.e.</i> 2 of 4 questions correct in “Economics” section of assessment-test): <ul style="list-style-type: none"> • identify relationships among interest rate, NPV, B/C and IRR • identify goal of financially optimal rotation age • name two basic approaches for forest regulation • determine harvest area per time interval for area-regulated forests 	Can do exactly 3 of the following (<i>i.e.</i> 3 of 4 questions correct in “Economics” section of assessment-test): <ul style="list-style-type: none"> • identify relationships among interest rate, NPV, B/C and IRR • identify goal of financially optimal rotation age • name two basic approaches for forest regulation • determine harvest area per time interval for area-regulated forests 	Can do all of the following (<i>i.e.</i> all 4 questions correct in “Economics” section of assessment-test): <ul style="list-style-type: none"> • identify relationships among interest rate, NPV, B/C and IRR • identify goal of financially optimal rotation age • name two basic approaches for forest regulation • determine harvest area per time interval for area-regulated forests 	

Rubric 7b-i including summary of results (continued):						
	Early-Academic-Career Assessment: FOR 110 Pre-test (14 November 2013)	10 students	2 students	0 students	0 students	Median = 1 Mean = 1.17
Benchmark (median score of late-academic-career students will be at least "Accomplished"): Not achieved	Late-Academic-Career Assessment: FOR 480 Post-test (25 March 2014)	5 students	7 students	4 students	3 students	Median = 2 Mean = 2.26

Evaluator(s): David B. Wagner

Date: 19 April 2014

Committee that developed pre/post test and rubric: Dr. Marco Contreras, Dr. John M. Lhotka, Dr. James M. Ringe, Dr. G. Andrew Stainback, Dr. David B. Wagner (Fall Semester 2013)

**Appendix – Student Learning Outcome 7 (continued)
(Management of Forest Resources)**

Rubric 7d including summary of results:

Forestry Department Assessment – BS FORE Degree Program

Assessment Scoring Rubric for Learning Outcome 7d: Management of Forest Resources – Valuation, Etc.

Semester/Year: Fall 2013 (Early-Academic-Career Assessment) / Spring 2014 (Late-Academic-Career Assessment)

Student: Summary of Results (see pre-test and post-test files for individual student results)

Student Learning Outcome or Objective	Project or Activity Assessed	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Learning Outcome 7: Management of Forest Resources Graduates will meet the “Management of Forest Resources” Professional Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate:						
7d. knowledge of valuation procedures, market forces, operational systems & activities, and non-market forces that affect production of consumable and non-consumptive forest products and services. $p \approx 0.004$ (result of Yates-corrected chi-square test of null hypothesis that early- and late-academic-career students perform equally, after pooling “Developing,” “Accomplished,” and “Exemplary” data)		Does less than 2 of the following in, “Valuation, Etc.,” section of assessment test: <ul style="list-style-type: none"> Valuation: Questions 1 – 5 all correct (can identify LEV concepts and can perform computations involving present value, future value and interest rate). Market Forces: Questions 6 – 7 both correct (can identify lumber market and stumpage concepts). Operational Systems and Activities: Questions 8 – 9 both correct (can identify harvesting concepts). Non-consumptive Market Forces: Question 10 correct (can identify non-consumable forest products). 	Does exactly 2 of the following in, “Valuation, Etc.,” section of assessment test: <ul style="list-style-type: none"> Valuation: Questions 1 – 5 all correct (can identify LEV concepts and can perform computations involving present value, future value and interest rate). Market Forces: Questions 6 – 7 both correct (can identify lumber market and stumpage concepts). Operational Systems and Activities: Questions 8 – 9 both correct (can identify harvesting concepts). Non-consumptive Market Forces: Question 10 correct (can identify non-consumable forest products). 	Does exactly 3 of the following in, “Valuation, Etc.,” section of assessment test: <ul style="list-style-type: none"> Valuation: Questions 1 – 5 all correct (can identify LEV concepts and can perform computations involving present value, future value and interest rate). Market Forces: Questions 6 – 7 both correct (can identify lumber market and stumpage concepts). Operational Systems and Activities: Questions 8 – 9 both correct (can identify harvesting concepts). Non-consumptive Market Forces: Question 10 correct (can identify non-consumable forest products). 	Does all 4 of the following in, “Valuation, Etc.,” section of assessment test: <ul style="list-style-type: none"> Valuation: Questions 1 – 5 all correct (can identify LEV concepts and can perform computations involving present value, future value and interest rate). Market Forces: Questions 6 – 7 both correct (can identify lumber market and stumpage concepts). Operational Systems and Activities: Questions 8 – 9 both correct (can identify harvesting concepts). Non-consumptive Market Forces: Question 10 correct (can identify non-consumable forest products). 	

Rubric 7d including summary of results (continued):						
	Early-Academic-Career Assessment: FOR 110 Pre-test (14 November 2013)	7 students	5 students	0 students	0 students	Median = 1 Mean = 1.42
Benchmark (median score of late-academic-career students will be at least "Accomplished"): Not achieved	Late-Academic-Career Assessment: FOR 480 Post-test (25 March 2014)	1 student	15 students	1 student	2 students	Median = 2 Mean = 2.21

Comments: **p = 0.410 if pool Beginning/Developing data vs. Accomplished/Exemplary data**

Evaluator(s): David B. Wagner

Date: 19 April 2014

Committee that developed pre/post test and rubric: Dr. Marco Contreras, Dr. John M. Lhotka, Dr. James M. Ringe, Dr. G. Andrew Stainback, Dr. David B. Wagner (Fall Semester 2013)

Appendix – Student Learning Outcome 7 (continued)
(Management of Forest Resources)

Rubric 7e including summary of results:

Forestry Department Assessment – BS FORE Degree Program

Assessment Scoring Rubric for Learning Outcome 7e: Management of Forest Resources – Administration, Etc.

Semester/Year: **Fall 2013 (Early-Academic-Career Assessment) / Spring 2014 (Late-Academic-Career Assessment)**

Student: **Summary of Results (see pre-test and post-test files for individual student results)**

Student Learning Outcome or Objective	Project or Activity Assessed	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Learning Outcome 7: Management of Forest Resources Graduates will meet the “Management of Forest Resources” Professional Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate:						
7e. knowledge of administration, ownership, and organization of forest management enterprises. p ≈ 0.29 (result of Yates-corrected chi-square test of null hypothesis that early- and late-academic-career students perform equally, after pooling “Beginning” data with “Developing” data, and “Accomplished” data with “Exemplary” data)		In “Administration, Etc.,” section of assessment test, can answer correctly less than 3 of 5 questions regarding state and federal statutes, forest landowners, and landowner characteristics.	In “Administration, Etc.,” section of assessment test, can answer exactly 3 of 5 questions regarding state and federal statutes, forest landowners, and landowner characteristics.	In “Administration, Etc.,” section of assessment test, can answer correctly exactly 4 of 5 questions regarding state and federal statutes, forest landowners, and landowner characteristics.	In “Administration, Etc.,” section of assessment test, can answer correctly all 5 questions regarding state and federal statutes, forest landowners, and landowner characteristics.	
	Early-Academic-Career Assessment: FOR 110 Pre-test (14 November 2013)	6 students	5 students	1 student	0 students	Median = 1.5 Mean = 1.58
Benchmark (median score of late-academic-career students will be at least “Accomplished”): Not achieved	Late-Academic-Career Assessment: FOR 480 Post-test (25 March 2014)	8 students	5 students	5 students	1 student	Median = 2 Mean = 1.95

Evaluator(s): David B. Wagner

Date: 19 April 2014

Committee that developed pre/post test and rubric: Dr. Marco Contreras, Dr. John M. Lhotka, Dr. James M. Ringe, Dr. G. Andrew Stainback, Dr. David B. Wagner (Fall Semester 2013)

Appendix – Student Learning Outcome 7 (continued)
(Management of Forest Resources)

Report of small faculty group’s recommendations for improvement actions (for Sub-outcomes 7b-l, 7d, 7e):

B.S. (Forestry) Student Learning Outcomes 7b-i, 7d, 7e
Management of Forest Resources: Economics, Valuation (Etc.), Administration (Etc.)
Recommendations of Working Group (M. Contreras, J. Lhotka, J. Ringe, G.A. Stainback, D. Wagner) – 25 September 2014

The group met on 11 September 2014 and addressed the following questions:

7. Specifically for the B.S. (Forestry) degree program at the University of Kentucky, what should be the learning goals and outcomes for this subject matter?
8. How should we assess student performance for these goals and outcomes?
9. Given 1 & 2, how should we proceed with respect to our 2013 – 14 assessment methods and results?

With regard to each of the above points, the group agreed by consensus:

1. The desired competencies for student learning outcomes 7bi, 7d, and 7e are adequately expressed by our existing assessment rubrics that were used in 2013-14.
2. The assessment test should probably be more thorough. For example, for outcome 7d, assessment of “Market Forces” and “Operational Systems and Activities” was each based on only two test questions, and assessment of “Non-consumptive Market Forces” was based on a single test question. If additional questions are added to the assessment test, minor revision of wording may be needed in the relevant rubric(s).
3. Actions to try to improve student performance should include:
 - i. Late-academic-career assessments should have consequences, so that students will be motivated to try to do well. Thus, graded assignments and/or tests that count toward course grades should be used as assessment instruments.
 - ii. When FOR 480 is to be the venue for “late-academic-career” assessment of competencies learned earlier in the curriculum, the assessment instrument would be a graded assignment or exam that would count toward the FOR 480 final course grade.
 - iii. The new curriculum’s professional development course(s) should teach students:
 - The need to dedicate sufficient **time** outside of classes to learn course content thoroughly.
 - The need to **retain** information from early courses for application in later courses.

**Appendix – Student Learning Outcome 7 (continued)
(Management of Forest Resources)**

Rubric 7b-ii including summary of results:

Forestry Department Assessment – BS FORE Degree Program

Assessment Scoring Rubric for Learning Outcome 7b-ii: Management of Forest Resources – Social

Semester/Year: Spring 2014 (Early-Academic-Career Assessment) / Fall 2013 (Late-Academic-Career Assessment)

Student: Summary of Results (see individual student rubrics for individual student results)

Student Learning Outcome or Objective	Project or Activity Assessed	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Graduates will meet the “Management of Forest Resources” Professional Education Accreditation Requirements of the Society of American Foresters, <i>i.e.</i> they will demonstrate:						
<p>b-ii. ability to analyze social consequences of forest resource management strategies and decisions.</p> <p>p < 0.001 (result of Yates-corrected chi-square test of null hypothesis that early- and late-academic-career students perform equally, after pooling “Beginning” data with “Developing” data, and “Accomplished” data with “Exemplary” data)</p>		Cannot do any of the following: <ul style="list-style-type: none"> identify various stakeholders and their interests in forest and natural resource management issues identify societal trends that will influence forest and natural resource management identify historic conservation eras 	Can do one of the following: <ul style="list-style-type: none"> identify various stakeholders and their interests in forest and natural resource management issues identify societal trends that will influence forest and natural resource management identify historic conservation eras 	Can do two of the following: <ul style="list-style-type: none"> identify various stakeholders and their interests in forest and natural resource management issues identify societal trends that will influence forest and natural resource management identify historic conservation eras 	Can do all of the following: <ul style="list-style-type: none"> identify various stakeholders and their interests in forest and natural resource management issues identify societal trends that will influence forest and natural resource management management identify historic conservation eras 	
	Early-Academic-Career Assessment: NRE 381 (Questions from 3 Exams)	3 students	7 students	2 students	1 student	Median = 2 Mean = 2.1
Benchmark (median score of late-academic-career students will be at least “Accomplished”): Achieved	Late-Academic-Career Assessment: FOR 400 (Midterm and Final Exam Questions)	1 student	0 students	6 students	11 students	Median = 4 Mean = 3.5

Committee that developed this rubric: Dr. Marco Contreras, Dr. John M. Lhotka, Dr. James M. Ringe, Dr. G. Andrew Stainback, Dr. David B. Wagner (Fall Semester 2013)

Comment: DBW deleted Bennington (FOR 400) before summarizing/analyzing data, because he’s not a forestry major

Evaluator(s): Andrew Stainback (FOR 400 Instructor)

Data Summary & Analysis: David Wagner (5/12/2014)

Appendix – Student Learning Outcome 7 (continued)
(Management of Forest Resources)

NRE 381 exam questions (for early-academic-career assessment of sub-outcome 7b-ii):

1. Explain each of the stages of the demographic transition model. Why do demographers project that population will level off sometime in the 21st century?
2. Describe the factors and events that made passage of the CWA and CAA politically possible in the early 1970's.
3. Many environmental policy observers say that while public concern about the environment is broad (or widespread) this concern has not significantly influenced voting behavior (esp. in recent years). Give some of the reasons for this phenomenon.
4. What is the environmental Kuznets curve?
5. In terms of the historical development of international environmental law briefly distinguish between the early nature conservation movement, the emergence of pollution issues, and sustainable development?

In addition, students were required to write a policy analysis paper on a policy they create. In this paper they had to assess their policy based upon effectiveness, cost, and fairness (*e.g.*, to different stakeholders).

FOR 400 exam questions (for late-academic-career assessment of sub-outcome 7b-ii):

1. According to the *New Population Bomb* reading, what are the population megatrends that will impact the world in the 21st century?
2. Describe four impacts urbanization has on forest management.
3. Explain the following concepts in terms of globalization and the environment:
 - a. Impact of economic growth on environment (IPAT)
 - b. "Race to the Bottom"
 - c. Pollution havens
 - d. Cross-border pollution
 - e. Use of environmental regulation to restrict trade
1. Describe the three modes of public participation. What basic democratic principle does each reflect?
2. List and describe the requirements for successful collaboration.
3. List and describe the common criticisms of collaboration.
6. Describe the four major antagonisms in the history of the U.S. environmental movement.

2013 – 2014 Academic Year MS FORE Assessment Results

Student Learning Outcome	Early-Academic-Career Point of Assessment	Late-Academic-Career Point of Assessment	Median Score of Late-Career Students (Benchmark = 3)	Late-Career Students Outperformed Early-Career Students?	Comments
<p>1: With regard to the breadth of issues that exist in forestry and other renewable natural resource professions, graduates will be able to define science and distinguish it from non-science.</p>	<p>FOR 601 (Fall 2013) Mean=1.63</p>	<p>Thesis & Final Examination (Summer 2013 through Spring 2014) Mean=3.25</p>	<p>3 (Benchmark achieved)</p>	<p>Yes $p < 0.01$</p>	<p>The p-values in this table are from chi-square tests. H₀: There is no difference in performance between early- and late-academic-career students.</p>
<p>4: With regard to the breadth of issues that exist in forestry and other renewable natural resource professions, graduates will be able to employ appropriate methods to generate new knowledge.</p>	<p>FOR 601 (Fall 2013) Mean=2.00</p>	<p>Thesis, Final Examination, and, if applicable, Manuscripts (Summer 2013 through Spring 2014) Mean=3.75</p>	<p>4 (Benchmark achieved)</p>	<p>Yes $p < 0.01$</p>	

MS FORE: Plan for Assessment of Student Learning Outcomes*
Revised 31 March 2015

M.S. (Forestry) 2015-2018 SLO Reporting Cycle				
Student Learning Outcome Number	Student Learning Outcome	Cycle	Academic Year	Reporting Year
Outcome 1	With regard to the breadth of issues that exist in forestry and other renewable natural resource professions, graduates will be able to define science and distinguish it from non-science.	Year 1	2015-2016	31 October 2016
Outcome 4	With regard to the breadth of issues that exist in forestry and other renewable natural resource professions, graduates will be able to employ appropriate methods to generate new knowledge.	Year 1	2015-2016	31 October 2016
Outcome 2	With regard to the breadth of issues that exist in forestry and other renewable natural resource professions, graduates will be able to find, synthesize, and evaluate conclusions and evidence reported in a variety of sources.	Year 2	2016-2017	31 October 2017
Outcome 3	With regard to the breadth of issues that exist in forestry and other renewable natural resource professions, graduates will be able to demonstrate the ability to communicate information effectively in oral/visual presentations and in writing, on technical and non-technical levels.	Year 2	2016-2017	31 October 2017
Outcome 1	With regard to the breadth of issues that exist in forestry and other renewable natural resource professions, graduates will be able to define science and distinguish it from non-science.	Year 3	2017-2018	31 October 2018
Outcome 4	With regard to the breadth of issues that exist in forestry and other renewable natural resource professions, graduates will be able to employ appropriate methods to generate new knowledge.	Year 3	2017-2018	31 October 2018

*Plan A (Thesis Option) includes all four student learning outcomes. Plan B (Non-Thesis Option) includes Outcomes 1, 2, and 3. Students rarely enroll in Plan B, so in most years only Plan A students are assessed.

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Please complete this form for the program’s 2013-2014 academic year student learning outcomes assessment. If you conducted multiple assessments, please fill in as needed by starting a new section. If you have documents relevant to the assessment conducted, please add them as an appendix. Add hyperlinks to websites as necessary. For our records, please save the file as Program Name and Level (e.g. English_Master).

College: Agriculture

Department: Forestry

Program Name: Forestry

Level (Bachelor, Master, Doctorate, Certificate, or Other): Master – Plan A (Thesis Option)

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Assessment #1	
Outcome(s) Assessed	Forestry MS: 1. Defining Science. With regard to the breadth of issues that exist in forestry and other renewable natural resource professions, graduates will be able to define science and distinguish it from non-science.
Assessment Method/Tools	<p>1. <u>Activities where data were collected:</u></p> <ul style="list-style-type: none"> • Early-academic-career assessment: FOR 601 (Research Methods in Forestry) - Science & Science Communication Assignment (data from Fall 2013) - This course was used to assess the performance of <u>early</u>-academic-career students for this learning outcome, because the course is introductory and represents one of the first occasions when students encounter significant topics related to the outcome. The assignment was written by the course instructor, and it provides students an opportunity to demonstrate their level of competence relative to the outcome (see Outcome 1 section of the Appendix, below). • Late-academic-career assessment: Theses and Final Examinations (<i>i.e.</i> Defenses of Theses) - data from summer 2013 through spring 2014 - Theses and final examinations were used to assess the performance of <u>late</u>-academic-career students for this learning outcome, because they are the final activities of our graduating MS FORE students. The activities provide students an opportunity to demonstrate their level of performance relative to the outcome, at the time when they are completing the M.S. (Forestry) degree program. <p>2. <u>Brief description:</u> For each of the FOR 601 students in fall 2013, the course instructor (D. Wagner) completed our existing 4-point rubric (which had been developed during spring 2010 by an <i>ad hoc</i> faculty committee), on the basis of evidence provided by the student's performance on the assignment indicated above. For each of our MS FORE students who had her/his final examination during summer 2013, fall 2013, or spring 2014, the same 4-point rubric was completed by the student's major professor, sometimes including input from other faculty members of the student's examining committee. The rubric is included in the Outcome 1 section of the Appendix, below, where it is used to present summary data. The faculty members of the Department of Forestry consider that the FOR 601 instructor, who is also the Department's Director of Degree Programs Assessment, and the major professors are appropriate individuals to evaluate student performance, for the same reason they are entrusted with course instruction and mentoring of graduate students, <i>i.e.</i> they are experts in the topical areas related to the learning outcome.</p>
Benchmark/Target	For this student learning outcome, the benchmark is that the median rubric score would be at least 3 ("Accomplished") for late-academic-career students. This was adopted by consensus during a 27 April 2012 faculty meeting of the Department of Forestry.

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Results	<p>The rubric in the Outcome 1 section of the Appendix below provides:</p> <ol style="list-style-type: none"> 1. a summary of early-academic-career assessment results. 2. a summary of late-academic-career assessment results. 3. a comparison of early-academic-career student competence with late-academic-career student competence. <p>The benchmark was achieved. Moreover, late academic career students statistically outperformed early-academic-career students. Results for individual students are available upon request from dwagner@uky.edu.</p>
Interpretation of Results	<p><u>Summary Analysis</u></p> <p>The data in the rubric (see Outcome 1 section of the Appendix, below) represent a complete census during fall 2013 of all MS FORE students enrolled in FOR 601, as well as of all MS FORE students who defended theses between summer 2013 and spring 2014, inclusive. For this student learning outcome, the median rubric score of late-academic-career students was 3. The results, <i>i.e.</i> that the benchmark was achieved and that late-academic-career students statistically outperformed early-academic-career students, were entirely consistent with all previous assessments of this learning outcome (documented in assessment reports submitted in 2010, 2011 and 2012).</p> <p><u>Process</u></p> <p>D. Wagner (Director of Forestry Degree Programs Assessment) summarized the results and conducted statistical analyses to compare the performance of early-academic-career students with that of late-academic-career students. The summaries and statistical results, as well as the original rubrics for all students included in the assessment, were made available to the Department of Forestry faculty prior to a 16 May 2014 faculty meeting. Discussion during that meeting produced a consensus decision regarding how to proceed for this learning outcome. The faculty's decision is reported in the "Improvement Action" cell, immediately below. Relevant excerpts from the faculty meeting are in the Appendix below.</p>
Improvement Action	<p><u>Consensus Recommendation of Faculty (16 May 2014)</u></p> <p>Given that our benchmark was achieved, as in previous years, we plan to maintain and monitor student success for this learning outcome (it is scheduled to be assessed again during the 2015-2016 academic year). However, at this time no specific intervention is required for this outcome, particularly in light of the fact that our benchmarks were <u>not</u> achieved for several student learning outcomes of the <u>undergraduate</u> forestry degree program. Instead, it is more urgent that the Department of Forestry develop and implement improvement action plans for outcomes for which benchmarks were not achieved.</p>

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	Assessment #2
Outcome(s) Assessed	Forestry MS: 4. Generation of New Knowledge. With regard to the breadth of issues that exist in forestry and other renewable natural resource professions, graduates will be able to employ appropriate methods to generate new knowledge.
Assessment Method/Tools	<p>1. <u>Activities where data were collected:</u></p> <ul style="list-style-type: none"> • Early-academic-career assessment: FOR 601 (Research Methods in Forestry) - Semester-Long Project Proposal Assignment (data from Fall 2013) - This course was used to assess the performance of <u>early</u>-academic-career students for this learning outcome, because the course is introductory and represents one of the first occasions when students encounter significant topics related to the outcome. The exercises were written by the course instructor, and they provide students an opportunity to demonstrate their level of performance relative to the outcome. The project proposal instructions that were given to students are available upon request from dwagner@uky.edu. • Late-academic-career assessment: Theses and Final Examinations (<i>i.e.</i> Defenses of Theses) - data from summer 2013 through spring 2014 - Theses and final examinations were used to assess the performance of <u>late</u>-academic-career students for this learning outcome, because they are the final activities of our graduating MS FORE students. The activities provide students an opportunity to demonstrate their level of performance relative to the outcome, at the time when they are completing the M.S. (Forestry) degree program. <p>2. <u>Brief description:</u> For each of the FOR 601 students in fall 2013, the course instructor (D. Wagner) completed our existing 4-point rubric (which had been developed during spring 2010 by an <i>ad hoc</i> faculty committee), on the basis of evidence provided by the student's performance on the assignment indicated above. For each of our MS FORE students who had her/his final examination during summer 2013, fall 2013, or spring 2014, the same 4-point rubric was completed by the student's major professor, sometimes including input from other faculty members of the student's examining committee. The rubric is included in the Outcome 4 section of the Appendix, below, where it is used to present summary data. The faculty members of the Department of Forestry consider that the FOR 601 instructor, who is also the Department's Director of Degree Programs Assessment, and the major professors are appropriate individuals to evaluate student performance, for the same reason they are entrusted with course instruction and mentoring of graduate students, <i>i.e.</i> they are experts in the topical areas related to the learning outcome.</p>
Benchmark/Target	For this student learning outcome, the benchmark is that the median rubric score would be at least 3 ("Accomplished") for late-academic-career students. This was adopted by consensus during a 27 April 2012 faculty meeting of the Department of Forestry.

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Results	<p>The rubric in the Outcome 4 section of the Appendix below provides:</p> <ol style="list-style-type: none"> 1. a summary of early-academic-career assessment results. 2. a summary of late-academic-career assessment results. 3. a comparison of early-academic-career student competence with late-academic-career student competence. <p>The benchmark was achieved. Moreover, late academic career students statistically outperformed early-academic-career students. Results for individual students are available upon request from dwagner@uky.edu.</p>
Interpretation of Results	<p><u>Summary Analysis</u></p> <p>The data in the rubric (see Outcome 4 section of the Appendix, below) represent a complete census during fall 2013 of all MS FORE students enrolled in FOR 601, as well as of all MS FORE students who defended theses between summer 2013 and spring 2014, inclusive. For this student learning outcome, the median rubric score of late-academic-career students was 4. The results, <i>i.e.</i> that the benchmark was achieved and that late-academic-career students statistically outperformed early-academic-career students, were entirely consistent with all previous assessments of this learning outcome (documented in assessment reports submitted in 2011 and 2012).</p> <p><u>Process</u></p> <p>D. Wagner (Director of Forestry Degree Programs Assessment) summarized the results and conducted statistical analyses to compare the performance of early-academic-career students with that of late-academic-career students. The summaries and statistical results, as well as the original rubrics for all students included in the assessment, were made available to the Department of Forestry faculty prior to a 16 May 2014 faculty meeting. Discussion during that meeting produced a consensus decision regarding how to proceed for this learning outcome. The faculty's decision is reported in the "Improvement Action" cell, immediately below. Relevant excerpts from the faculty meeting are in the Appendix below.</p>
Improvement Action	<p><u>Consensus Recommendation of Faculty (16 May 2014)</u></p> <p>Given that our benchmark was achieved, as in previous years, we plan to maintain and monitor student success for this learning outcome (it is scheduled to be assessed again during the 2015-2016 academic year). However, at this time no specific intervention is required for this outcome, particularly in light of the fact that our benchmarks were <u>not</u> achieved for several student learning outcomes of the <u>undergraduate</u> forestry degree program. Instead, it is more urgent that the Department of Forestry develop and implement improvement action plans for outcomes for which benchmarks were not achieved.</p>

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Appendix – Supporting Documents for Assessment Report of M.S. (Forestry) Program

Minutes of 16 May 2014 Meeting of Department of Forestry Faculty

Faculty and Staff Meeting Minutes / 16 May 2014 / 2pm

Meeting called to order: 2:00 p.m.

ATTENDANCE: T. Baker, C. Barton, A. Stainback, B. Thomas, S. Price, D. Cremeans, J. Ringe, M. Contreras, J. Cox, C. Reeves, D. Wagner, R. Williams, J. Stringer

(The portions of the minutes that preceded discussion of assessment have been deleted.)

III. New Business

3) Assessment of Degree Programs (David Wagner, Assessment Coordinator) – specific action items highlighted in green

- a. Wagner distributed 2013 – 2014 assessment data summaries and analyses by email to all faculty members / instructors prior to this faculty meeting.
- b. General overview of status of degree program assessment:
 - M.S. (Forestry): All four M.S. student learning outcomes have been assessed several times. We use a 2-year cycle, assessing two outcomes each academic year.
 - B.S. (Forestry): Assessment of two categories of B.S. learning outcomes has not yet been completed (#2 – Science & Mathematics; #3 – Social Sciences & Humanities). We plan to complete our first assessment of these two groups of learning outcomes during 2014-15, after which we will consider formalizing a 6-year cycle, with 1 or 2 categories of learning outcomes (of the 8 total outcome categories) assessed each year.
- c. 2013 – 2014 M.S. assessment results (summary attached):
 - Using rubrics developed previously (see previous years' improvement action plans), the following student learning outcomes were assessed:
 - #1 (Defining Science).
 - #4 (Generation of New Knowledge).

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Appendix – Minutes of 16 May 2014 Meeting of Department of Forestry Faculty (continued)

- Following substantial discussion, the faculty present agreed by consensus:
 - Performance assessment of late-academic-career students deliberately includes only students who schedule a final examination. Students who don't get to that point are not assessed as late-career students, which may skew late-career results. However, it's our graduating students for whom performance proficiency is most relevant, and our benchmark does not rely on comparison of early- and late-career students. **Concerns about students who do not finish the degree program should be addressed as a separate issue, by the Forestry Graduate Program Committee.**
 - Given that (a) our benchmark was achieved for both learning outcomes assessed during 2013 – 2014, (b) this is consistent with results from previous years, and (c) improvement actions are needed for the B.S. degree program (see below), **D. Wagner will prepare an annual assessment report to the University**, which will indicate that no curriculum improvement actions are planned for the two M.S. learning outcomes assessed during 2013-14.
 - **During 2014 – 2015, we will use our existing rubrics to assess student learning outcomes 2 (Conclusions and Evidence from Literature) and 3 (Communication).**
- d. 2013 – 2014 B.S. assessment results (summary attached):
- Using assessment pre-tests/post-tests and rubrics developed by *ad hoc* committees during summer and fall 2013, the following student learning outcomes were assessed for the first time during 2013 – 2014:
 - #1 (Communications).
 - #7b, 7d, 7e (Management of Forest Resources).
 - Also, per a 26 April 2013 faculty meeting decision, learning outcomes #5a-i (taxonomy, identification, and distribution of tree species and associated vegetation) and #5a-ii (taxonomy, identification, and distribution of forest wildlife) were re-assessed during 2013 – 2014, because spring 2013 seniors had not achieved our benchmark for these two outcomes. The spring 2013 results had been based on a very brief assessment. The intention of the re-assessment was to explore the competencies of our graduating students more thoroughly, to learn whether or not the rather superficial spring 2013 results represent real deficiencies. During summer and fall 2013, an *ad hoc* faculty committee developed an assessment test consisting of 20 questions for outcome 5a-i and 14 questions for outcome 5a-ii. The test was administered to our FOR 480 seniors on 25 March 2014.

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Appendix – Minutes of 16 May 2014 Meeting of Department of Forestry Faculty (continued)

- Following lengthy discussion of 2013-14 assessment results, the faculty present decided by consensus:
 - Given that the benchmark was not achieved for several learning outcomes, it's appropriate to develop improvement plans for those outcomes, but to take no action on outcomes for which the benchmark was achieved.
 - For the outcomes in need of improvement:
 - D. Wagner will convene small groups of faculty who teach courses that introduce or reinforce (or expect proficiency in) skills and knowledge related to learning outcomes for which the benchmark was not achieved. These groups should meet during summer 2014 to attempt to identify ways in which topical threads may be strengthened throughout the curriculum, as well as to brainstorm other ways that student competencies might be improved.
 - The Undergraduate Program Committee should, at its first fall 2014 semester meeting, use the results of the summer assessment meetings (see preceding bullet) to develop an improvement action plan for consideration by the faculty.
 - D. Wagner will prepare an annual assessment report to the University (due 31 October 2014), which will describe the status of plans/actions to improve student proficiency for the relevant B.S. learning outcomes.
- For 2014 – 2015, as in previous years, D. Wagner will (a) assemble *ad hoc* committees to develop new assessment rubrics and/or assessment pre-tests/post-tests for the B.S. learning outcomes that have not previously been assessed, and (b) work with relevant course instructors to implement the assessments for those outcomes.

(The portions of the minutes that followed discussion of assessment have been deleted.)

VI. ADJOURN

Meeting Ended: 3:12pm

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Appendix – Student Learning Outcome 1 (Defining Science)

FOR 601 Science and Science Communication Assignment (used for early-academic-career assessment)

**FOR 601 – Fall 2013 – Assignment #3: Science and Science Communication
Due Monday, 16 September**

I. Read the following:

1. Chapter 1 (pp. 27-48) *in* Popper, K.R. 1959. The logic of scientific discovery. Hutchinson & Co., Ltd., London, UK.

(On reserve in the Agricultural Information Center; if you read the 2002 edition that may also be on reserve, be careful about the page numbers you read – the important thing is to read Chapter 1)

2. Chapter IX (pp. 92-110) *in* Kuhn, T.S. 1970. The structure of scientific revolutions, 2nd ed. University of Chicago Press, Chicago.

(On reserve in the Agricultural Information Center; if you read the 1996 3rd edition that may also be on reserve, be careful about the page numbers you read – the important thing is to read Chapter IX)

II. Write:

1. One question that you have about the chapter by Sir Karl Popper.
2. One question that you have about scientific revolutions.
3. One sentence that identifies a distinction between science and ways of knowing that are not science.

(double-spaced hard copy with professional appearance, e.g., don't forget to include a title page!)

Grading: Your writing and discussion participation on 16 September will be given one overall grade, as “successful” or “not successful.” This grade will be weighted as one regular assignment toward your final course grade.

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Appendix – Student Learning Outcome 1 (Defining Science), *continued*

Forestry Department Assessment – MS FORE (Plan A) Degree Program
Assessment Scoring Rubric for **Learning Outcome 1: Defining Science**

Semester/Year:

Summer 2013 through Spring 2014

Student:

Summary of Results (compiled from individual student rubrics)

Student Learning Outcome or Objective	Project or Activity Assessed	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Learning Outcome 1: With regard to the breadth of issues that exist in forestry and other renewable natural resource professions, graduates will be able to define science and distinguish it from non-science.						
p < 0.01 (result of Yates-corrected chi-square test of null hypothesis that early- and late-academic-career students perform equally, after pooling “Beginning” data with “Developing” data, and “Accomplished” data with “Exemplary” data)		Understands science as a tool of inquiry.	Understands the steps in the scientific method.	Can determine whether research findings have been generated by the scientific method. Can formulate testable hypotheses.	Can evaluate the scientific rigor of a specific project or article. For example, demonstrates an ability to critique and integrate peer-reviewed literature, in the thesis or in other student writing or speaking.	
	Early-Academic Career Assessment: (FOR 601 – Science and Science Communication Assignment, 9/16/13)	3 students	5 students	0 students	0 students	Median = 2 Mean = 1.625
Benchmark (median score of late-academic-career students will be at least “Accomplished”): Achieved	Late-Academic Career Assessment: (Thesis and Final Examination)	0 students	0 students	3 students	1 student	Median = 3 Mean = 3.25

Comments: This rubric was developed early in the spring 2010 semester by an *ad hoc* faculty committee consisting of D. Wagner and all faculty members who anticipated having a student defend a thesis during that semester.

Evaluator(s) and Assessment Dates: G. Andrew Stainback, John Lhotka and James Ringe (6/24/2013); David Wagner (9/18/2013); Marco Contreras (4/21/2014); Chris Barton (4/23/2014); Steve Price (4/23/2014)

Data Summary & Analysis: David B. Wagner (5/12/2014)

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Appendix – Student Learning Outcome 4 (Generation of New Knowledge)

Forestry Department Assessment – MS FORE (Plan A) Degree Program
Assessment Scoring Rubric for **Learning Outcome 4: Generation of New Knowledge**

Semester/Year: **Summer 2013 through Spring 2014**
Student: **Summary of Results (compiled from individual student rubrics)**

Student Learning Outcome or Objective	Project or Activity Assessed	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Learning Outcome 4: With regard to the breadth of issues that exist in forestry and other renewable natural resource professions, graduates will be able to employ appropriate methods to generate new knowledge.						
p < 0.01 (result of Yates-corrected chi-square test of null hypothesis that early- and late-academic-career students perform equally, after pooling “Beginning” data with “Developing” data, and “Accomplished” data with “Exemplary” data)		Identifies a strategy for addressing a natural resource / forestry topic with a science-based approach.	Submits acceptable thesis research proposal.	Submits final draft of an acceptable thesis.	Has published an article or submitted a manuscript for publication, based on original research findings.	
	Early-Academic Career Assessment: (FOR 601 – Project Proposal, 12/9/13)	0 students	8 students	0 students	0 students	Median = 2 Mean = 2.00
Benchmark (median score of late-academic-career students will be at least “Accomplished”): Achieved	Late-Academic Career Assessment: (Thesis, Final Examination, and, if applicable, Manuscript(s))	0 students	0 students	1 student	3 students	Median = 4 Mean = 3.75

Comments: This rubric was developed early in the spring 2010 semester by an *ad hoc* faculty committee consisting of D. Wagner and all faculty members who anticipated having a student defend a thesis during that semester.
Evaluator(s) and Assessment Dates: G. Andrew Stainback, John Lhotka and James Ringe (6/24/2013); David Wagner (12/10/2013); Marco Contreras (4/21/2014); Chris Barton (4/23/2014); Steve Price (4/23/2014)
Data Summary & Analysis: David B. Wagner (5/12/2014)

Appendix 1-G

Professional Guidelines and Expectations
for Students in the
Undergraduate Forestry Program



College of Agriculture,
Food and Environment
Department of Forestry

FORESTRY 

Professional Guidelines and Expectations for Students in the Undergraduate Forestry Program

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Our Mission

“To enhance the ecological, economic, and social benefits of forests and related natural resources to elevate the quality of life for Kentuckians and beyond.”






Introduction

The management of forests, wildlife, and all related natural resources is a serious responsibility. The faculty and staff of the Department of Forestry are entrusted with the job of educating students to be effective, innovative, and ethical stewards of our world’s natural resources. In the execution of that trust, both educators and students must adhere to principles of honor, integrity, and fairness. We strongly encourage students to begin establishing their professional identity, integrity, and conduct during their undergraduate academic career. The decisions a student makes now will be the decisions that he/she lives with for the rest of their life.

The University of Kentucky’s Department of Forestry’s undergraduate degree is a professional program designed to develop foresters, wildlife, and natural resource professionals. Students are prepared to ultimately excel in the profession; the Department provides an academically rigorous program and many opportunities for professional exposure that will greatly enhance a student’s ability to flourish. Students are expected to become fully engaged with academic studies and take full advantage of student organizations, professional development opportunities, and access to faculty and staff as mentors. The Department’s undergraduate Forestry program is accredited by the Society of American Foresters (SAF) – the association representing professional forestry in the United States. In 1948, SAF first published the *SAF Code of Ethics*, which inspires and guides the conduct of its members’ professional lives. It is the contract that forestry professionals use to ensure responsible, ethical, and rational behavior in their activities. As students study and prepare to become professional foresters, wildlife, and natural resources managers, they should also prepare to live by the *SAF Code of Ethics* that will guide their professional lives.

This document describes the standards of professionalism for students in the Department of Forestry at the University of Kentucky. Students in this department are expected to meet standards of academic and professional integrity described below. Graduates of this program will have conducted themselves in an academically professional manner and one that is consistent with the *SAF Code of Ethics*. In so doing, students will fulfill the ethical obligation they have to their profession, to those who came before them, and to those who will follow them. In addition, employers hiring our graduates will know they are investing resources in a person who has agreed to and set for themselves, the highest professional standard. Remember also, your instructors, as well as your colleagues, are the references these employers will use to help decide who they want to hire.

OUR CORE VALUES

-  We treat people the way we want to be treated.
-  We conduct ourselves with honor, integrity, and take responsibility for our actions.
-  We emphasize professionalism and reward excellence and innovation.
-  We encourage critical thinking and lifelong learning.
-  We focus on serving the people and resources entrusted to our care.

Academic Integrity

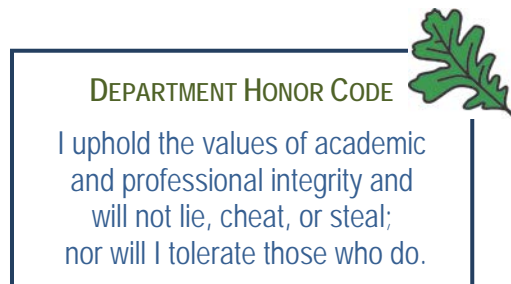
Attendance Policy

Experience teaches us that the majority of a student's academic success can be explained by their attendance and attention in class. Show up, participate, treat it like a job, and you will succeed. Professionals make it their business to be prepared and they show up *on time, every time*. Your personal and professional reputations depend on your showing up prepared and on time for every class. Your attendance in every class is expected of you by the Department of Forestry. **It is a policy of the Department of Forestry that unexcused absences will result in a grade reduction in every forestry course. Consult each course syllabus carefully.**

If you must miss a class, communicate with your instructor immediately, honestly, and seek ways to make up the material you missed. Missing a class on a day an assignment is due, or when information for an assignment is collected, may result in no grade for that assignment. Missing class for an unexcused absence is unprofessional. The instructor will determine what qualifies as an excused absence. Most faculty understand that scheduling conflicts inevitably arise; again, communicate with your instructor. Be aware that instructors also have discretion to recognize students with exceptional attendance records.

Department Honor Code

As noted in the *SAF Code of Ethics*, ours is a profession built and based on trust and integrity. Accordingly, the Department of Forestry has determined that the behavior of its students will be governed by an honor code. Violations of this code should be brought to the instructor's attention and disciplinary action will be taken on a case-by-case basis with the Department of Forestry Chairperson.



Cheating and Plagiarism

As per the UK Bulletin (page 78): *“Cheating is defined by its general usage. It includes, but is not limited to, the wrongfully giving, taking, or presenting any information or material by a student with the intent of aiding himself/herself or another on any academic work which is considered in any way in the determination of the final grade”.*

As per the UK Bulletin (page 78): *“All academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about a question of plagiarism involving their work, they are obligated to consult their instructors on the matter before submission”.*

Cheating is dishonest because someone is claiming credit and knowledge they don't possess. It is stealing because you are taking intellectual material from someone else. Cheating is unfair to

those students who work hard and put the time in to be prepared. A cheater does not learn the material and leave college prepared to be a professional. **Your personal reputation, the department's reputation, and the forestry profession's reputation depend on all of your efforts and work being honestly performed and on giving appropriate credit to others where it is due.** No material, assignment, or exam is so difficult or so important to justify cheating and damaging your academic and professional integrity. If in doubt, don't do it.

Group and Field Work

Professional foresters, natural resource, and wildlife managers frequently hire, contract, and work with one another; they depend on each other to pull their weight and contribute their share. You are expected to conduct group work collegially, on time, thoroughly, and not risk your colleague's reputation by making bad decisions. **Your personal reputation, the department's reputation, and the forestry profession's reputation depend on group work being performed in a collegial and professional manner.**

You will often be sent into the field to gather information according to a specific protocol, often with no one looking over your shoulder. **Your personal reputation, the department's reputation, and the forestry profession's reputation depend on all field work being honestly and accurately completed.** Violations of this standard as a professional in the real world can result in serious legal consequences. Violations of this standard will result in disciplinary action.

Professional Integrity

In the *SAF Code of Ethics*, Principles and Pledges address professional integrity and behavior. While some of these are specific to the work environment, those that are pertinent in the university environment are listed below:

Respect for Others

A professional treats others the way he or she would like to be treated – with respect. If you are talking to or treating a fellow student in a manner you would not like, you should not be engaged in the behavior. How a student treats their colleagues and fellow human beings is a standard question faculty are asked by employers when they call for references. **Your personal and professional reputations depend on you treating others with respect.**

Non-Hostile Work/Education Environment

As per the University Bulletin (page 78): *“The University is committed to maintaining an environment free of prohibited discrimination, which includes sexual and other forms of harassment”*. You will find that most employers you are likely to work for have similar policies. **A professional does not engage in behavior that is offensive or that makes a person feel uncomfortable or unwelcome.** Be aware that your conversations, remarks, attitudes, and behaviors have consequences for others.

Appropriate Conduct

As students, you represent the Department of Forestry as a professional in training. Remember, while you are a student, you are on the job whether you are participating in an on-campus or off-campus activity. If a specific activity would not be tolerated in a professional workplace, it will not be tolerated in the Department of Forestry. **A professional is aware of their surroundings and engages in activities that enhance, rather than diminish, their reputation and the reputation of their employer.**

Society of American Foresters Code of Ethics

Preamble

Service to society is the cornerstone of any profession. The profession of forestry serves society by fostering stewardship of the world's forests. Because forests provide valuable resources and perform critical ecological functions, they are vital to the wellbeing of both society and the biosphere.

Members of the Society of American Foresters have a deep and enduring love for the land, and are inspired by the profession's historic traditions, such as Gifford Pinchot's utilitarianism and Aldo Leopold's ecological conscience. In their various roles as practitioners, teachers, researchers, advisers, and administrators, foresters seek to sustain and protect a variety of forest uses and attributes, such as aesthetic values, air and water quality, biodiversity, recreation, timber production, and wildlife habitat.

The purpose of this Code of Ethics is to protect and serve society by inspiring, guiding, and governing members in the conduct of their professional lives. Compliance with the code demonstrates members' respect for the land and their commitment to the long-term management of ecosystems, and ensures just and honorable professional and human relationships, mutual confidence and respect, and competent service to society.

On joining the Society of American Foresters, members assume a special responsibility to the profession and to society by promising to uphold and abide by the following:

Principles and Pledges

1. Foresters have a responsibility to manage land for both current and future generations. We pledge to practice and advocate management that will maintain the long-term capacity of the land to provide the variety of materials, uses, and values desired by landowners and society.
2. Society must respect forest landowners' rights and correspondingly, landowners have a land stewardship responsibility to society. We pledge to practice and advocate forest management in accordance with landowner objectives and professional standards, and to advise landowners of the consequences of deviating from such standards.
3. Sound science is the foundation of the forestry profession. We pledge to strive for continuous improvement of our methods and our personal knowledge and skills; to perform only those services for which we are qualified; and in the biological, physical, and social sciences to use the most appropriate data, methods, and technology.
4. Public policy related to forests must be based on both scientific principles and societal values. We pledge to use our knowledge and skills to help formulate sound forest policies and laws; to challenge and correct untrue statements about forestry; and to foster dialogue among foresters, other professionals, landowners, and the public regarding forest policies.
5. Honest and open communication, coupled with respect for information given in confidence, is essential to good service. We pledge to always present, to the best of our ability, accurate and complete information; to indicate on whose behalf any public statements are made; to fully disclose and resolve any existing or potential conflicts of interest; and to keep proprietary information confidential unless the appropriate person authorizes its disclosure.
6. Professional and civic behavior must be based on honesty, fairness, good will, and respect for the law. We pledge to conduct ourselves in a civil and dignified manner; to respect the needs, contributions, and viewpoints of others; and to give due credit to others for their methods, ideas, or assistance.

The Society of American Foresters' Bylaws specify processes through which a member's violation of the code may lead to reprimand, censure, expulsion from the Society, or other disciplinary action. Any two persons, whether or not SAF members, may charge a member with violation of the code. Such a charge must be made in writing to the SAF President and must refer to the specific Pledges alleged to have been violated.

Adopted by the Society of American Foresters by Member Referendum, November 3, 2000, replacing the code adopted June 23, 1976, as amended November 4, 1986, and November 2, 1992. The 1976 code replaced the code adopted November 12, 1948, as amended December 4, 1971. (Source: www.safnet.org/about/codeofethics.cfm)

Faculty Commitment

The faculty in the Department of Forestry at the University of Kentucky commit to the policies and principles of professionalism presented in this document to help students succeed academically and professionally.

FORESTRY 



Terrell T. "Red" Baker, Professor
Chairman




John Lhotka, Assistant Professor
Silviculture



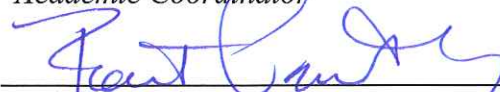
Mary Arthur, Professor
Forest Ecology



Laura Lhotka, Adjunct Instructor
Academic Coordinator



Thomas Barnes, Professor
Wildlife Management



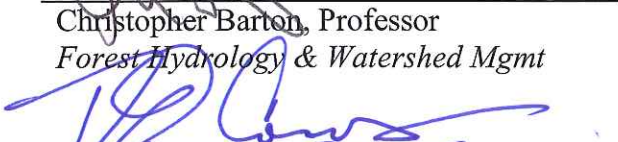
Robert Paratley, Adjunct Instructor
Curator University Herbarium



Christopher Barton, Professor
Forest Hydrology & Watershed Mgmt



Steven Price, Assistant Professor
Wildlife Ecology



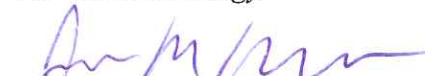
Terry Conners, Associate Professor
Forest Products



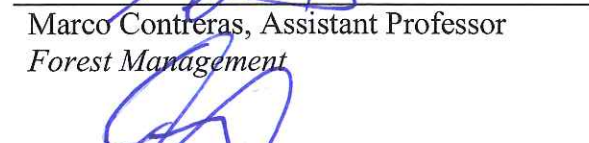
Lynne Rieske-Kinney, Professor
Forest Entomology



Marco Contreras, Assistant Professor
Forest Management



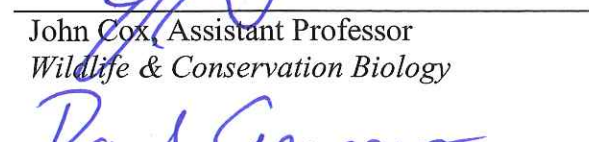
James Ringe, Professor
Marketing/Economics/Wood



John Cox, Assistant Professor
Wildlife & Conservation Biology



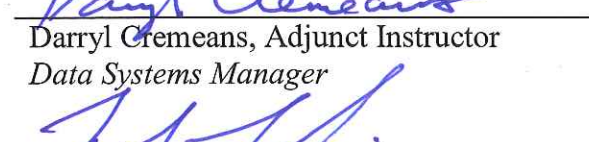
Andrew Stainback, Assistant Professor
Forest Policy



Darryl Cremeans, Adjunct Instructor
Data Systems Manager



Jeffrey Stringer, Professor
Hardwood Silviculture & Forest Operations



Michael Lacki, Professor
Wildlife Ecology & Management



David Wagner, Associate Professor
Forest & Population Genetics/Instruction



DEPARTMENT HONOR CODE

I uphold the values of academic
and professional integrity and
will not lie, cheat, or steal;
nor will I tolerate those who do.

PRINTED NAME: _____

SIGNATURE: _____

DATE: _____

Appendix 1-H

Department of Forestry Grants

UK UNIVERSITY OF KENTUCKY
Research
Sponsored Projects Awards Reports

Fiscal Year 2009

Provost Units Area

Agriculture

Forestry

Primary Total: \$814,098.

Collaborative Total: \$1,298,456.

Barton, Christopher

Enhancement of Disturbed Upper Coastal Plain Stream Systems: Establishing Restoration Criteria and Strategies for a Stream Mitigation Bank , (3046929100), Forest Service, \$61,237.00

Barton, Christopher

American Chestnut Restoration on Surface Mined Sites in Appalachia, (3048105156), American Chestnut Foundation, \$25,000.00

Bullard, Steve/Lhotka, Laura

Collaborative Efforts in Southern Forestry Recruiting, (3048105502), Forest Service, \$10,000.00

Conners, Terrance/Stringer, Jeffrey

Forest Biomass Training for Kentucky, (3048104944), University of Georgia, \$17,000.00

Cox, John

The Common Raven in Cliff Habitat: Detection and Occupancy, (3048105338), KY Department of Fish and Wildlife, \$30,000.00

Cox, John

Dispersal & Population Expansion of the Black Bear in Eastern Kentucky, (3048105390), KY Department of Fish and Wildlife, \$98,000.00

Cox, John

Calf Survival, Meningeal Worm Impacts, Dispersal, and Population Expansion in an Eastern Kentucky Elk Herd, (3048105307), KY Department of Fish and Wildlife, \$70,000.00

Cox, John

Terrestrial Nuisance Species Management Plan, (3048105007), KY Department of Fish and Wildlife, \$17,000.00

Cushing, Tamara

Development of a Property Tax Assessment Guidelines for Woodland Owners in Kentucky, (3048104929), KY Environmental and Public Protection Cabinet, \$24,100.00

Fei, Songlin

Crosswalk and Develop GIS Mapping Applications and Accomplishment Monitoring Geospatial Database, (3048104996), KY Environmental and Public Protection Cabinet, \$15,000.00

Lacki, Michael

Status, Distribution, and Reproductive Characteristics of River Otters in Kentucky, (3048105309), KY Department of Fish and Wildlife, \$48,703.00

Lhotka, John/Stringer, Jeffrey

Evaluating Seedling Development, Stand Structure, and Understory Microenvironment Six Growing Seasons Following Midstory Removal, (3048104887), Forest Service, \$5,188.00

Lhotka, John/Stringer, Jeffrey

Silvicultural Approaches for Regenerating Upland Stands in the Northern Cumberland Plateau, (3048105695), Department of Agriculture, \$14,435.00

Shearer, Scott/Cox, John/Dillon, Carl/Dzialak, Matthew/Fei, Songlin/Green, Jonathan/Grove, J/Lee, Brian/Luck, Joe/Paratley, Robert/Sama, Michael/Stombaugh, Timothy/Zandonadi, Rodrigo

* Precision Agriculture: Precision Resource Management Phase IV, (3048105185), Cooperative State Research Education and Extension, \$468,551.00

Stringer, Jeffrey

Forest Stewardship Public Awareness, Publicity, and Training, (3048104998), KY Environmental and Public Protection Cabinet, \$20,000.00

Stringer, Jeffrey

Kentucky Woodland Magazine Special Pine Management Issue, (3048105015), KY Environmental and Public Protection Cabinet, \$20,000.00

Stringer, Jeffrey

Kentucky Woodland Magazine Special Forest Health Issue, (3048105014), KY Environmental and Public Protection Cabinet, \$20,000.00

Stringer, Jeffrey

Technical Support for Paul VanBooven Wildlife Management Area, (3048105339), KY Department of Fish and Wildlife, \$24,435.00

Stringer, Jeffrey

Economic Impact of Fire on Forest Product Values in the Appalachian Regions of Kentucky and Tennessee, (3048105648), KY Energy and Environment Cabinet, \$294,000.00

Westneat, David/Maehr, David

* Ecological and Behavioral Interactions between Golden-Winged (*Vermivora chrysoptera*) and Blue-Winged Warblers (*V. pinus*) in Eastern Kentucky., (3048007700), KY Department of Fish and Wildlife, \$15,807.00

* Cross-referenced accounts where the project director/s are affiliated with more than one department, college or center

Questions:

[Kim Carter](#), [Office of Sponsored Projects Administration](#), 112 Kinkead Hall, 0057, 257-8311

UK UNIVERSITY OF KENTUCKY
Research
Sponsored Projects Awards Reports

Fiscal Year 2010
Provost Units Area
Agriculture
Forestry

Primary Total: \$714,857.

Collaborative Total: \$1,989,557.

Agouridis, Carmen/Barton, Christopher/Gumbert, Amanda/Higgins, Stephen/Warner, Richard

* Development and Implementation of Stream Restoration and Riparian Corridor Techniques for Enhancing Water Quality in the Cane Run Watershed, (3048107130), Natural Resources Conservation Service, \$360,000.00

Arthur, Mary

Challenge Cost Share: Prescribed Fire Research in the Daniel Boone National Forest, (3048105924), Forest Service, \$10,000.00

Barton, Christopher

Characterization of Headwater Seeps in the Frances Palk State Nature Preserve, (3048106581), KY Nature Preserves Commission, \$8,000.00

Barton, Christopher

ARRA: Stream System Field Condition Assessment - Phase II, (3048106931), University of Georgia, \$56,024.00

Barton, Christopher

Long-Term Effects of Forestry Best Management Practices on Hydrology, Water Chemistry and Woody Debris in Three Appalachian Headwater Catchments, (3048105939), Forest Service, \$14,000.00

Cox, John

The Common Raven in Cliff Habitat: Detection and Occupancy, (3048106303), KY Department of Fish and Wildlife, \$30,000.00

Cox, John

Dispersal & Population Expansion of the Black Bear in Eastern Kentucky, (3048106722), KY Department of Fish and Wildlife, \$107,000.00

Hanley, Carol/Rudder, Nathaniel

* Kentucky Green and Healthy Schools, (3048106060), KY Department of Education, \$21,250.00

Higgins, Stephen/Agouridis, Carmen/Gumbert, Amanda/Stringer, Jeffrey

* Cane Run and Royal Spring Watershed Based Plan Implementation Project, (3048106827), KY Energy and Environment Cabinet, \$454,343.00

Lacki, Michael

Roosting and Foraging Behavior of Rafinesque's Big-Eared Bat near the Northern Limits of the Species Range,

(3048105719), KY Department of Fish and Wildlife, \$51,305.00

Lacki, Michael

Status, Distribution, and Reproductive Characteristics of River Otters in Kentucky, (3048106726), KY Department of Fish and Wildlife, \$13,897.00

Lhotka, Laura

Fostering Environmental Stewardship of the Gulf of Mexico: A Trans-Boundary Network of Water Education and Monitoring for Animal Producers, Classrooms and Community Volunteers, (3048105963), Auburn University, \$10,500.00

Stombaugh, Timothy/Agouridis, Carmen/Arthur, Mary/Barton, Christopher/Fei, Songlin/Grove, J/Lee, Brad/Lee, Brian/Luck, Joe/Mueller, Thomas/Murdock, Lloyd/Pitla, Santosh/Sama, Michael/Schwab, Gregory/Shearer, Scott/Zandonadi, Rodrigo

* Precision Agriculture: Precision Resource Management - Phase V, (3048106530), Cooperative State Research Education and Extension, \$439,107.00

Stringer, Jeffrey

Silvicultural Prescriptions for Degraded Hardwood Stands, (3048105908), Forest Service, \$7,500.00

Stringer, Jeffrey

Economic Impact of Fire on Forest Product Values in the Appalachian Regions of Kentucky and Tennessee, (3048105909), KY Energy and Environment Cabinet, \$294,000.00

Stringer, Jeffrey

Forest Management Assistance on State Wildlife Management Areas and Private Lands Technical Assistance, (3048106740), KY Department of Fish and Wildlife, \$15,000.00

Stringer, Jeffrey/Ammerman, Bobby/Conners, Terrance/Fackler, Francis

Long-Lived Wood Products: Carbon and Competitive Advantages for Hardwood Mills, (3048106996), Forest Service, \$67,631.00

Stringer, Jeffrey/Thomas, William

Kentucky Woodland Magazine - Degraded Stand Revitalization and Small Woodland Management Issue, (3048106576), KY Energy and Environment Cabinet, \$30,000.00

* Cross-referenced accounts where the project director/s are affiliated with more than one department, college or center

Questions:

[Kim Carter](#), [Office of Sponsored Projects Administration](#), 112 Kinkead Hall, 0057, 257-8311

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UK UNIVERSITY OF KENTUCKY
Research
Sponsored Projects Awards Reports

Fiscal Year 2011
Provost Units Area
Agriculture
Forestry

Primary Total: \$829,383.

Collaborative Total: \$1,464,803.

Agouridis, Carmen/Barton, Christopher/Warner, Richard

* Stream Restoration in Guy Cove II, (3048107491), KY Department of Fish and Wildlife, \$41,915.00

Barton, Christopher

Assessment of Structure, Function and Stability in a Gradient of disturbed SRS Streams-Phase III, (3048107879), Forest Service, \$200,658.00

Barton, Christopher

Long-Term Effects of Forestry Best Management Practices on Hydrology, Water Chemistry and Woody Debris in Three Appalachian Headwater Catchments, (3048105939), Forest Service, \$6,711.00

Barton, Christopher

Continued Monitoring of American Chestnut Restoration Sites on Surface Mined Land in Kentucky, (3048107307), American Chestnut Foundation, \$2,500.00

Cox, John

The Common Raven in Cliff Habitat: Detectability and Occupancy-2011, (3048107432), KY Department of Fish and Wildlife, \$31,145.00

Cox, John

Resource Selection, Movement Patterns, Survival, and Cause-Specific Mortality of Adult Bulk Elk in Kentucky, (3048108038), KY Department of Fish and Wildlife, \$50,000.00

Cox, John

UK Population Dynamics of Black Bear in Eastern Kentucky, (3048107565), KY Department of Fish and Wildlife, \$90,000.00

Fei, Songlin

Second Invasives Conference, (3048107571), KY Energy and Environment Cabinet, \$5,000.00

Lacki, Michael

Roosting and Foraging Behavior of Rafinesque's Big-Eared Bat near the Northern Limits of the Species Range--Year 2 and 3, (3048107486), KY Department of Fish and Wildlife, \$52,610.00

Lacki, Michael/Rieske-Kinney, Lynne

Fire Management and Habitat Quality for Endangered Bats in Mammoth Cave National Park, JFSP, (3048107619),

Forest Service, \$262,759.00

Lhotka, John

Cross-walk and Develop GIS Mapping Applications and Accomplishment Monitoring Geospatial Database, (3048107566), KY Energy and Environment Cabinet, \$6,000.00

Stombaugh, Timothy/Agouridis, Carmen/Arthur, Mary/Barton, Christopher/Bewley, Jeffrey/Coolong, Timothy/Dillon, Carl/Dowdy, Thereseann/Grove, J/Kadambanattu Illom N, Surendran/Lee, Brian/Luck, Joe/McCulley, Rebecca/Mueller, Thomas/Pitla, Santosh/Sama, Mich

* Precision Agriculture: Precision Resource Management - Phase VI, (3048107687), National Institute of Food and Agriculture, \$624,478.00

Stringer, Jeffrey

Forest Management Assistance on State Wildlife Management Areas and Private Lands Technical Assistance, (3048107903), KY Department of Fish and Wildlife, \$15,000.00

Stringer, Jeffrey

Forest Stewardship Public Awareness, Publicity, Training, (3048107485), KY Energy and Environment Cabinet, \$10,000.00

Stringer, Jeffrey

Regional Non-Native Invasive Plant Species Workshops, (3048107540), KY Energy and Environment Cabinet, \$12,000.00

Stringer, Jeffrey/Thomas, William

Kentucky Woodlands Magazine - Forest Certification and Forest Health Issues, (3048107573), KY Energy and Environment Cabinet, \$30,000.00

Stringer, Jeffrey/Thomas, William

Kentucky Woodlands Magazine - Wood Borer Issues, (3048108200), KY Energy and Environment Cabinet, \$20,000.00

Thomas, William/Stringer, Jeffrey

Emerald Ash Borer Public Conference, (3048107469), KY Energy and Environment Cabinet, \$35,000.00

* Cross-referenced accounts where the project director/s are affiliated with more than one department, college or center

Questions:

[Kim Carter](#), [Office of Sponsored Projects Administration](#), 112 Kinkead Hall, 0057, 257-8311

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UK UNIVERSITY OF KENTUCKY
Research
Sponsored Projects Awards Reports

Fiscal Year 2012
Provost Units Area
Agriculture
Forestry

Primary Total: \$663,910.

Collaborative Total: \$1,072,443.

Barton, Christopher

Continued Monitoring of American Chestnut Restoration Sites on Surface Mined Land in Kentucky, (3048108507), American Chestnut Foundation, \$1,908.00

Barton, Christopher

Green Forests Work for Appalachia: Phase I Development and Deployment, (3048108666), Appalachian Regional Commission, \$300,000.00

Barton, Christopher/Karathanasis, Anastasios

Evaluation of acidic atmospheric deposition and its influence on soil solution composition in the Daniel Boone National Forest, (3048108882), Forest Service, \$50,267.00

Contreras, Marco

OptFuels: Optimizing Fuel Treatment Location at the Landscape Level, (3048108577), University of Montana, \$30,000.00

Cox, John

Kentucky Bull Elk Study: Movement and Mortality, (3048108883), Rocky Mountain Elk Foundation, \$63,000.00

Cox, John

Black Bear 2012, (3048108502), KY Department of Fish and Wildlife, \$90,000.00

Cox, John

Resource Selection, Movement Patterns, Survival, and Cause-Specific Mortality of Adult Bulk Elk in Kentucky, (3048108038), KY Department of Fish and Wildlife, \$50,000.00

Lacki, Michael

Roosting and Foraging Behavior of Rafinesque's Big-Eared Bat Near the Northern Limits of the Species Range, (3048108508), KY Department of Fish and Wildlife, \$16,500.00

Stringer, Jeffrey

Forest Stewardship Public Awareness, Publicity, Training, (3048107485), KY Energy and Environment Cabinet, \$10,000.00

Stringer, Jeffrey

Economic Impact of Fire on Forest Product Values in the Appalachian Regions of Kentucky and Tennessee,

(3048105909), KY Energy and Environment Cabinet, (\$20,000.00)

Stringer, Jeffrey

UK Forest Management Assistance on State WMAs, (3048108725), KY Department of Fish and Wildlife, \$10,000.00

Stringer, Jeffrey

Kentucky Woodland Magazine # Urban vs. Rural Forests Issue, (3048108841), KY Energy and Environment Cabinet, \$18,300.00

Stringer, Jeffrey/Ammerman, Bobby/Conners, Terrance/Fackler, Francis

Long-Lived Wood Products: Carbon and Competitive Advantages for Hardwood Mills, (3048106996), Forest Service, \$11,935.00

Stringer, Jeffrey/Thomas, William

Kentucky Woodlands Magazine - Firewise Issue, (3048108959), KY Energy and Environment Cabinet, \$16,000.00

Stringer, Jeffrey/Thomas, William

Kentucky Woodlands Magazine - Whats up with our oaks? - Issue, (3048109308), KY Energy and Environment Cabinet, \$16,000.00

Warner, Richard/Agouridis, Carmen/Barton, Christopher/Unrine, Jason

* Appalachian Research Initiative for Environmental Science (ARIES), (3048108632), Virginia Polytechnic Institute and State University, \$408,533.00

* Cross-referenced accounts where the project director/s are affiliated with more than one department, college or center

Questions:

[Kim Carter](#), [Office of Sponsored Projects Administration](#), 112 Kinkead Hall, 0057, 257-8311

[UK Awards Home](#) [Research](#) [University of Kentucky](#)

UK UNIVERSITY OF KENTUCKY
Research
Sponsored Projects Awards Reports

Fiscal Year 2013
Provost Units Area
Agriculture
Forestry

Primary Total: \$483,509.

Collaborative Total: \$775,808.

Agouridis, Carmen/Barton, Christopher/Warner, Richard

* Stream Restoration in Guy Cove II, Laurel Fork Fees in Lieu of Stream Restoration Project, (3048110063), KY Department of Fish and Wildlife, \$4,949.00

Barton, Christopher

Mower Tract Ecological Restoration, (3048110229), American Rivers, \$150,000.00

Barton, Christopher/Karathanasis, Anastasios

Evaluation of acidic atmospheric deposition and its influence on soil solution composition in the Daniel Boone National Forest, (3048108882), Forest Service, \$33,490.00

Cox, John

Resource Selection, Movement Patterns, Survival, and Cause-Specific Mortality of Adult Bull Elk in Kentucky, (3048109593), KY Department of Fish and Wildlife, \$60,500.00

Cox, John

Population Growth and Expansion of the Black Bear in Eastern Kentucky, (3048109643), KY Department of Fish and Wildlife, \$90,000.00

Cox, John

Cow Elk Survival and Mortality Study, (3048110097), Rocky Mountain Elk Foundation, \$17,879.00

Fackler, Francis

Regional Secondary Wood Using Industry Online and Hardcopy Directory, (3048110078), KY Energy and Environment Cabinet, \$45,140.00

Lacki, Michael/Rieske-Kinney, Lynne

Fire Management and Habitat Quality for Endangered Bats in Mammoth Cave National Park, JFSP, (3048107619), Forest Service, \$20,000.00

Stringer, Jeffrey

UK Forest Stewardship Public Awareness, Publicity & Training, (3048109591), KY Energy and Environment Cabinet, \$10,000.00

Stringer, Jeffrey

Forest and Wood Product Certification Educational Outreach, (3048109592), KY Energy and Environment Cabinet,

\$22,500.00

Stringer, Jeffrey/Thomas, William

Kentucky Woodlands Magazine - Woodland Health Update & Educational Opportunity Issues, (3048109830), KY Energy and Environment Cabinet, \$32,000.00

Thomas, William

Restoring Bottomland Hardwood Forests to Improve Watershed Health Outreach, (3048109589), KY Energy and Environment Cabinet, \$2,000.00

Warner, Richard/Agouridis, Carmen/Barton, Christopher/Unrine, Jason

* Appalachian Research Initiative for Environmental Science (ARIES), (3048108632), Virginia Polytechnic Institute and State University, \$287,350.00

* Cross-referenced accounts where the project director/s are affiliated with more than one department, college or center

Questions:

[Kim Carter](#), [Office of Sponsored Projects Administration](#), 112 Kinkead Hall, 0057, 257-8311

[UK Awards Home](#) [Research](#) [University of Kentucky](#)

UK UNIVERSITY OF KENTUCKY
Research
Sponsored Projects Awards Reports

Fiscal Year 2014

Provost Units Area

Agriculture, Food and Environment

Forestry

Primary Total: \$1,214,532.

Collaborative Total: \$1,279,532.

Baker, Terrell

Forest Health & Research Education Center, (3048111600), Forest Service, \$225,000.00

Barnes, Thomas

Heritage Land Conservation Fund Book, (3048111109), KY Heritage Land Conservation Fund, \$30,000.00

Barton, Christopher

Monitoring Hydrologic Response to Thinning in a Headwater Wetland at the Frances Palk State Nature Preserve, (3048110963), KY Energy and Environment Cabinet, \$2,000.00

Barton, Christopher

Green Forests Work for Appalachia: Continued Deployment and Marketing, (3048110844), Appalachian Regional Commission, \$300,000.00

Barton, Christopher

Mower Tract Ecological Restoration, (3048110229), American Rivers, \$74,172.00

Barton, Christopher/Stringer, Jeffrey

Restoring Native Forests and Wildlife Habitat on Mined Land at Robinson Forest, Kentucky, (3048111469), National Fish and Wildlife Foundation, \$140,000.00

Cox, John

Population Growth and Expansion of the Black Bear in Eastern Kentucky, (3048110700), KY Department of Fish and Wildlife, \$93,000.00

Cox, John

Resource Selection, Movement Patterns, Survival, and Cause-Specific Mortality of Adult Bull Elk in Kentucky, (3048110629), KY Department of Fish and Wildlife, \$55,000.00

Cox, John

Cow Elk Survival, Cause-specific Mortality, Natality, and Neonate Recruitment, (3048110669), Rocky Mountain Elk Foundation, \$54,000.00

Cox, John

Survival, Cause-specific Mortality, and Natality of White-tailed Deer in Southeast Kentucky, (3048110698), KY Department of Fish and Wildlife, \$140,200.00

Lacki, Michael

Response of bat populations at Mammoth Cave National Park to white-nose syndrome, (3048111625), National Park Foundation, \$21,660.00

Stringer, Jeffrey

KY Master Logger Classes, (3048111235), KY Division of Forestry, \$15,000.00

Stringer, Jeffrey

UK Forest Stewardship Public Awareness, Publicity & Training, (3048110429), KY Energy and Environment Cabinet, \$10,000.00

Stringer, Jeffrey

Forest and Wood Product Certification Educational Outreach, (3048110431), KY Energy and Environment Cabinet, \$22,500.00

Stringer, Jeffrey/Thomas, William

Kentucky Woodlands Magazine - Not All Green is Good, (3048110852), KY Energy and Environment Cabinet, \$32,000.00

Warner, Richard/Agouridis, Carmen/Barton, Christopher/Unrine, Jason

* Appalachian Research Initiative for Environmental Science (ARIES), (3048108632), Virginia Polytechnic Institute and State University, \$35,000.00

Weisrock, David/Price, Steven

* KSEF RDE: Leveraging novel genetic and genomic technologies to understand and conserve a Kentucky state endangered giant salamander, (3048110627), KY Science and Technology Co Inc, \$30,000.00

* Cross-referenced accounts where the project director/s are affiliated with more than one department, college or center

Questions:

[Kim Carter](#), [Office of Sponsored Projects Administration](#), 112 Kinkead Hall, 0057, 257-8311

[UK Awards Home](#) [Research](#) [University of Kentucky](#)

Appendix 1-I

Department of Forestry Publications

UK Department of Forestry

Publication List

2010-2015

Book & Book Chapters

2015

Michael French, **Chris Barton**, Brian McCarthy, Carolyn Keiffer, Jeff Skousen, Carl Zipper, and Patrick Angel. 2015. Re-establishing American chestnut on mined lands in the Appalachian coalfields. U.S. Office of Surface Mining. Forest Reclamation Advisory Number 12. 6 p. <http://arri.osmre.gov/fra.htm>.

Hansen, E., **C. Barton** and A. Drayer. 2015. Challenges for Native Forest Establishment on Surface Mines in a Time of Climate Change. Reclamation Matters. Spring 2015:36-39.

2014

Groninger, J., J. Skousen, P. Angel, **C. Barton**, R., J. Burger, and C. Zipper. 2014. Mine Reclamation Practices to Enhance Forest Development Through Natural Succession. Reclamation Matters. Spring 2014: 40-46.

Hall, N., M. French, R. Dyer, **C. Barton**, P. Angel, S. Eggerud. 2014. Green Forests Work: Planting Now for the Future of Appalachia. Reclamation Matters. Spring 2014: 36-39.

Price, S.J., J. L. Snodgrass, and M.E. Dorcas. 2014. Managing aquatic habitats for wildlife in urban areas. In R. McCleery, C. Moorman, and N. Peterson (eds), Urban Wildlife Science: Theory and Practice. Springer.

2013

J.A. Burger, C.E. Zipper, P.N. Angel, N. Hall, J.G. Skousen, **C.D. Barton**, S. Eggerud. 2013. Establishing native trees on legacy surface mines. U.S. Office of Surface Mining. Forest Reclamation Advisory Number 11. 10 p. <http://arri.osmre.gov/fra.htm>.

Barton, C., E. Witt and J. Stringer. 2013. Protecting Water Resources with Streamside Management Zones. Kentucky Woodlands Magazine. 8(1) 16-18.

2012

- D.E. Fletcher, G.K. Stillings and **C.D. Barton**. 2012. Stream System Field Condition Assessments- Level I Surveys. US Department of Energy. 219 pp.
- C.B. Mastin, J.D. Edwards, **C.D. Barton**, A.D. Karathanasis, C.T. Agouridis and R.C. Warner. 2012. Development and Deployment of a Bioreactor for the Removal of Sulfate and Manganese from 10 Circumneutral Coal Mine Drainage. Pp. 121-140. *In*: P.G. Antolli and Z. Liu (eds.); Bioreactors: Design, Properties and Applications. Nova Science Publishers: Hauppauge, NY.
- Maupin, T. P., C.T. Agouridis, **C.D. Barton**, and R.C. Warner. 2012. Conductivity Sensor Testing. R.I. Barnhisel (Ed.). Proceedings of the 2012 National Meeting of the American Society of Mining and Reclamation, Tupelo, MS, June 8-15. Published by ASMR, 3134 Montavesta Rd., Lexington, KY 40502. pp. 359-375.
- Cotton, Claudia; **Barton, Christopher**; Lhotka, John; Angel, Patrick; Graves, Don. 2012. Evaluating reforestation success on a surface mine in Eastern Kentucky. 2012. *In*: Riley, L. E; Haase, D. L.; Pinto, J. R. comps. National Proceedings: Forest and Conservation Nursery Associations - 2011. Proc. RMRS-P-65. Fort Collins, CO: USDA Forest Service, Rocky Mountain Research Station. pp 16-23.

2011

- Barnes, T. G.** 2011. Finding and Photographing Kentucky Wildflowers. Acclaim Press, Morley, MO.
- Jeff Skousen, Carl Zipper, Jim Burger, Patrick Angel, and **Christopher Barton**. 2011. Selecting topsoil substitutes for forestry mine soils. Proceedings of the 2011 National Meeting of the American Society of Mining and Reclamation, Bismarck, ND, Reclamation: Sciences Leading to Success, June 11-16, 2011. R.I. Barnhisel (Ed.) Published by ASMR, 3134 Montavesta Rd., Lexington, KY 40502. pp 591-609.
- Dean E. Fletcher, Garrett K. Stillings, Michael H. Paller, and **Christopher D. Barton**. 2011. Legacy disturbances and restoration potential of Coastal Plain streams. G. D. Carroll (Editor), Proceedings of the 2011 Georgia Water Resources Conference. Warnell School of Forestry and Natural Resources, The University of Georgia, Athens, Georgia. ISBN: 0-9794100-2-9. pp 1-8.
- Brinks, J., J.M. Lhotka and **C.D. Barton**. 2011. One year response of American sycamore (*Plantanus occidentalis*) and black locust (*Robinia pseudoacacia*) to granular fertilizer applications on a reclaimed surface mine in eastern Kentucky. Proceedings 17th Central Hardwood Forest Conference. Lexington, KY. April 5-7, 2010. S. Fei and others (Ed.). Published by USDA Forest Service General Technical Report-P-78. pp 306-314.
- Witt, E., **C.D. Barton**, J. Stringer, D. Bowker and R. Kolka. 2011. Evaluating best management practices for ephemeral channel protection following forest harvest in the Cumberland Plateau – Preliminary findings. Proceedings 17th Central Hardwood Forest Conference.

Lexington, KY. April 5-7, 2010. S. Fei and others (Ed.). Published by USDA Forest Service General Technical Report-P-78. pp 365-374.

J. Skousen, J. Burger, C. Zipper, **C. Barton** and P. Angel. 2011. Selecting Materials for Mine Soil Construction When Establishing Forests on Appalachian Mine Sites. U.S. Office of Surface Mining. Forest Reclamation Advisory Number 8. 6 p.

<http://arri.osmre.gov/fra.htm>. (Also published in *Reclamation Matters*, Spring 2012).

C. D. Barton. 2011. Coal Mining Versus Water Quality: An Electrifying Topic. American Water Resources Association: Water Resource Impact. 13(2): 23-24.

Garrison, Lynne, **Chris Barton**, Fred Hebard, Anne Meyers Bobigian and Scott Freidhof. 2011. American Chestnut: An Update for Kentucky Woodland Owners. Kentucky Woodlands Magazine. 6(1): 10-13.

Burger, Jim, Jeff Skousen, **Chris Barton** and Patrick Angel. 2011. The Forestry Reclamation Approach. The Journal of the American Chestnut Foundation. 25(2): 18-19.

Chung, W., **M. Contreras**. 2011. Forest Transportation Planning Under Multiple Goals Using Ant Colony Optimization, Ant Colony Optimization - Methods and Applications, Avi Ostfeld (Ed.), ISBN: 978-953-307-157-2, InTech, Available from:

<http://www.intechopen.com/articles/show/title/forest-transportation-planning-under-multiplegoals-using-ant-colony-optimization>.

Loeb, S.C., **M.J. Lacki**, and D.A. Miller, editors. 2011. Conservation and management of eastern big-eared bats: a symposium. Southern Research Station, USDA, GTR-SRS-145.

Lacki, M.J., and L.E. Dodd. 2011. Diet and foraging behavior of *Corynorhinus* in eastern North America. Pp. 39-52 in Conservation and management of eastern big-eared bats: a symposium. (Loeb, S.C., M.J. Lacki, and D.A. Miller, eds.), Southern Research Station, USDA, GTR-SRS-145.

Johnson, J.S, and **M.J. Lacki**. 2011. Foraging and roosting ecology of Rafinesque's big-eared bat at the northern edge of the range. Pp. 129-137 in Conservation and management of eastern big-eared bats: a symposium (Loeb, S.C., M.J. Lacki, and D.A. Miller, eds.), Southern Research Station, USDA, GTR-SRS-145.

Loeb, S.C., **M.J. Lacki**, and D.A. Miller. 2011. Conservation and management of eastern big-eared bats: an introduction. Pp. 1-11 in Conservation and management of eastern big-eared bats: a symposium. (Loeb, S.C., M.J. Lacki, and D.A. Miller, eds.), Southern Research Station, SDA, GTR-SRS-145.

Fei, S., **J.M. Lhotka**, J.W. Stringer, and C.W. Gottschalk (Co-editors). 2011. Proceedings of the 17th Central Hardwood Forest Conference, USDA Forest Service, Northern Research Station, General Technical Report, NRS-P-778. 678 p. This peer reviewed proceedings included 60 research papers and 17 extended abstracts.

2010

Barton, Christopher, J.A. Burger and P.N. Angel. 2010. The Green Forest Works Program – A Chance to Recover the Forests of the Appalachian Region in the Eastern United States. *In: Scientific Papers: Management , Economic Engineering in Agriculture and Rural Development*. RAWEX COMS & DO-MINOR Publishing House, Bucharest, Romania. 10(1) 7-10.

Technical Reports and Extension Publications:

C. T. Agouridis, S. J. Wightman, **C. D. Barton**, and A. A. Gumbert. 2010. Planting a Riparian Buffer. University of Kentucky, Agricultural Extension Report: ID-185.

Refereed Journal Articles

2014

Alexander, H.D. and **M.A. Arthur**. 2014. Influence of increasing red maple leaf litter on decomposition rates and nitrogen cycling in historically oak-dominated forests of the eastern US. *Forest Ecology and Management*. DOI: 10.1007/s10021-014-9802-4

Rodriguez, A., G.M. Lovett, K.C. Weathers, **M.A. Arthur**, P.H. Templer, C.L. Goodale, and L.M. Christenson. 2014. Lability of C in temperate forest soils: assessing the role of nitrogen addition and tree species composition. *Soil Biology and Biochemistry* 77:129-140.

Kim, D., and **M. A. Arthur**. 2014. Changes in community structure and species-landform relationship after repeated fire disturbance in an oak-dominated temperate forest. *Ecological Research* 29: 661-671.

Sena, K.L., **C.D. Barton**, P. Angel, S. Hall, C.T. Agouridis, and R. Warner. 2014. Influence of Spoil Type on Afforestation Success and Natural Vegetative Recolonization on a Surface Coal Mine in Eastern Kentucky, USA. *Restoration Ecology*. doi: 10.1111/rec.12164

Sena, K., **C. Barton**, P. Angel, C. Agouridis and R. Warner. 2014. Influence of Spoil Type on Chemistry and Hydrology of Interflow on a Surface Coal Mine in the Eastern US Coalfield. *Water, Air and Soil Pollution* 225: 2171. doi: 10.1007/s11270-014-2171-y (*jif*: 1.685).

Roger Burke, Ken M. Fritz, **Chris D. Barton**, Brent R. Johnson, Stephanie Fulton, R. Dean Hardy, David A. Word and Jeff D. Jack. 2014. Impacts of mountaintop removal and valley fill coal mining on C and N processing in terrestrial soils and headwater streams. *Water, Air and Soil Pollution*. 225:2081 DOI 10.1007/s11270-014-2081-z (*jif*: 1.685).

Muncy, Brenee' L., Steven J. Price, Simon J. Bonner, **Christopher D. Barton**. 2014. Mountaintop removal mining reduces stream salamander occupancy and richness in

southeastern Kentucky (USA). *Biological Conservation*. 180: 115-121.
<http://dx.doi.org/10.1016/j.biocon.2014.09.040> (*jif.* 4.036)

- Maigret, Thomas A., John J. Cox, Dylan R. Schneider, **Chris D. Barton**, Steven J. Price, Jeffery L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. *Forest Ecology and Management*. 324 (46-51) <http://dx.doi.org/10.1016/j.foreco.2014.03.043> (*jif.* 2.667)
- Nepal, S., **Contreras, M. A.**, Lhotka, J. M., & Stainback, G. A. 2014. A spatially explicit model to identify suitable sites to establish dedicated woody energy crops. *Biomass and Bioenergy*, 71(0), 245-255.
- Lin, P., Zhang, J., **Contreras, M.** 2014. Applying Pareto ant colony optimization to solve bi-objective forest transportation planning problems. *In Proceedings: The 15th Institute of Electrical and Electronics Engineers (IEEE) International Conference on Information Reuse and Integration (IRI)*. Sand Francisco, CA, USA.
- Vallejos-Barra, O., Daniluk-Mosquera, G., Moras, G., Ponce-Donoso, M., **Contreras, M.** 2014. Above-ground carbon absorption in young *Eucalyptus globulus* plantations in Uruguay. *Scientia Forestalis* v.42, n.101, p.9-19.
- Barding, E.E., and **M.J. Lacki**. 2014. Demographic and reproductive characteristics of reintroduced northern river otters in Kentucky: implications for population growth. *American Midland Naturalist* 172: 339-348.
- Akins, C. *, C.D. Ruder*, **S.J. Price**, L.A. Harden‡, J.W. Gibbons, and M.E. Dorcas. 2014. Factors affecting body temperature variation and habitat use in free-ranging diamondback terrapins. *Journal of Thermal Biology* 44:63-69.
- Guzy, J.C., **S.J. Price**, and M.E. Dorcas. 2014. Using multiple methods to assess detection probabilities of riparian-zone anurans: implications for monitoring. *Wildlife Research* 41:243-257.
- Witczak, L.R.* , J.C. Guzy‡, **S.J. Price**, J.W. Gibbons, and M.E. Dorcas. 2014. Temporal and spatial variation in survivorship of diamondback terrapins (*Malaclemys terrapin*). *Chelonian Conservation and Biology* 13:146-151.
- Hime, P.M.‡ and **S.J. Price**. 2014. *Aneides aeneus*. Death feigning/immobility. *Herpetological Review* 45:470. 4
- Hime, P.M.‡, A.N. Drayer, and **S.J. Price**. 2014. *Necturus maculosus*. Larval guarding. *Herpetological Review* 45:474.
- Maigret, T.A. ‡, J.J. Cox, D.R. Schneider, C.D. Barton, **S.J. Price** and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in

- ephemeral streams of southeastern Kentucky. *Forest Ecology and Management* 324:46-51.
- Barrett, K. and **S.J. Price**. 2014. Urbanization and stream salamanders: a review, conservation options, and research needs. *Freshwater Science* 33:927-940.
- Muncy, B.L.‡, **S.J. Price** and M.E. Dorcas. 2014. Capture probability and survivorship of the southern two-lined salamander (*Eurycea cirrigera*) in drought and non-drought conditions. *Copeia* 2014:366-371.
- KC*, B., **Stainback, G. A.** & Chhetri, B. B. K. 2014. Community users' and experts' perspective on community forestry in Nepal: a SWOT–AHP analysis. *Forests, Trees and Livelihoods*, 23(4), 1-15.
- Schweitzer, C., Clark, S.L., Gottschalk, K.W., **Stringer, J.**, and R. Sitzlar. 2014. Proactive Restoration: Planning, Implementation, and Early Results of Silvicultural Strategies for Increasing Resilience against Gypsy Moth Infestation in Upland Oak Forests on the Daniel Boone National Forest, Kentucky. *J. For.* 112(5):401–411.
- Liu, Z., **Yang, J.***. 2014. Quantifying ecological drivers of ecosystem productivity of the early-successional boreal *Larix gmelinii* forest. *Ecosphere*, 5(7), art84-art84.
- Fang, L., **Yang, J.*** 2014. Atmospheric effects on the performance and threshold extrapolation of multi-temporal Landsat derived dNBR for burn severity assessment. *International Journal of Applied Earth Observation and Geoinformation* 33:10-20.
- Zhao F., He H., Dai L., **Yang, J.*** 2014. Effects of human disturbances on Korean pine coverage and age structure at a landscape scale in Northeast China. *Ecological Engineering* 71: 375-379.
- Xiang, X., Shi, Y., **Yang, J.**, Kong, J.J., Lin, X., Zhang, H., Zeng, J., Chu, H., 2014 Rapid recovery of soil bacterial communities after wildfire in a Chinese boreal forest. *Scientific Reports* 4.
- Zhang, Y., Yu, G., **Yang, J.**, Wimberly, M. C., Zhang, X., Tao, J., Jiang, Y., Zhu, J. 2014. Climate-driven global changes in carbon use efficiency. *Global Ecology and Biogeography* 23(2):144-155.
- Wu, Z., He, H.S., **Yang, J.**, Liu, Z., Liang, Y. 2014 Relative effects of climatic and local factors on fire occurrence in boreal forest landscapes of northeastern China. *Science of the Total Environment* 493: 472-480.
- Liang, Y., He, H.S., Wu, Z., **Yang, J.** 2014 Effects of environmental heterogeneity on predictions of tree species' abundance in response to climate warming. *Environmental Modelling & Software* 59:222-231.

Loudermilk, E.L., Stanton, A., Scheller, R.M., Dilts, T.E., Weisberg, P.J., Skinner, C., **Yang, J.** 2014 Effectiveness of fuel treatments for mitigating wildfire risk and sequestering forest carbon: A case study in the Lake Tahoe Basin. *Forest Ecology and Management* 323:114-125.

2013

Lovett, G.M., **M.A. Arthur**, K.C. Weathers, R.D. Fitzhugh, P.H. Templer. 2013. Nitrogen addition increases carbon storage in soils, but not in trees, in an eastern deciduous forest. *Ecosystems* 16:980-1001.

Lovett, G.M., **M.A. Arthur**, K.C. Weathers, J.C. Griffin. 2013. Effects of introduced insects and diseases on forest ecosystem in the Catskill Mountains of New York. *Annals of the New York Academy of Sciences* 1298:66-77

Wilson*, H.N., **M.A. Arthur**, A. Schorgendorfer, R.D. Paratley, B.D. Lee, and R.W. McEwan. 2013. Site characteristics as predictors of *Lonicera maackii* and other invasive plants in second growth forests of central Kentucky, USA. *Natural Areas Journal* 33: 189-198.

Yanai, R.D., M.A. Vadeboncoeur, S.P. Hamburg, **M.A. Arthur**, C.B. Fuss, P.M. Groffman, T.G. Siccama, and C.T. Driscoll. 2013. *Environmental Science and Technology* 47: 11440-11448.

Barnes, T.G., S. J. DeMaso, and M.A. Bahm. 2013. The Impact of Three Exotic, Invasive Grasses in the Southeastern United States on Wildlife. *Wildlife Society Bulletin* 37:497-502.

Adkins, J. K. and **T. G. Barnes** 2013. Herbicide Treatment and Timing for Controlling Kentucky Bluegrass (*Poa pratensis*) and Tall Fescue (*Festuca arundinacea*) in Cool Season Grasslands of Central Kentucky. *Natural Areas J.* 33:500-507.

Zipper, Carl E., James A. Burger, **Christopher D. Barton** and Jeffery G. Skousen. 2013. Rebuilding Soils on Mined Land for Native Forests in Appalachia, USA. *Soil Science Society of America Journal*. 77: 2: 337-349. doi:10.2136/sssaj2012.0335

Littlefield, Tara, **Christopher Barton**, Mary Arthur and Mark Coyne. 2013. Factors controlling carbon distribution on reforested minelands and regenerating clearcuts in Appalachia, USA. *Science of the Total Environment*. 465:240-247.
<http://dx.doi.org/10.1016/j.scitotenv.2012.12.029>.

Maupin, T.P., Carmen T. Agouridis, **Christopher D. Barton**, Richard C. Warner, Xia Yu. 2013. Specific conductivity sensor performance: I. Laboratory evaluation. *International Journal of Mining, Reclamation and Environment*. 27: 329-344.
DOI:10.1080/17480930.2013.764701.

Maupin, T.P., Carmen T. Agouridis, Dwayne R. Edwards, **Christopher D. Barton**, Richard C. Warner, Michael Sama. 2013. Specific conductivity sensor performance: II. Field

- evaluation. *International Journal of Mining, Reclamation and Environment*. 27: 345-365. DOI:10.1080/17480930.2013.764702.
- Witt, E., **C.D. Barton**, J. Stringer, D. Bowker and R. Kolka. 2013. Evaluating best management practices for ephemeral channel protection following forest harvest in the Cumberland Plateau. *Southern Journal of Applied Forestry*. 37(1): 36-44. (*jif* 0.713)
- Vallejos-Barra, O., G. Daniluk-Mosquera, G. Moras, M. Ponce-Donoso, **M. Contreras**. 2013. Above-ground carbon absorption in young *Eucalyptus globulus* plantations in Uruguay. Accepted *Scientia Forestalis* v.42, n.101, March
- Chung, W., G. Jones, K. Krueger, J. Bramel, **M. Contreras**. 2013. Optimizing fuel treatments over time and space. *International Journal of Wildland Fire* 22(8):1118-1133.
- Contreras, M.**, W. Chung. 2013. Developing a computerized approach for optimizing tree removal to efficiently reduce crown fire potential. *Forest Ecology and Management* 289(1):219-233.
- Ehlman, S., **J.J. Cox**, and P.H. Crowley. 2013. Evaporative water loss model of white-nose syndrome in the hibernating little brown myotis (*Myotis lucifugus*). *Journal of Mammalogy*. 94:572-583.
- Unger, D.E., **J.J. Cox**, H. Harris, J.L. Larkin, B. Augustine, S. Dobey, J. Hast, R. Jensen, S. Murphy, J. Plaxico, and D.S. Maehr. 2013. A brief history and current status of the black bear in Kentucky. *Northeastern Naturalist* 20(2):289-308.
- Johnson*, J.S., and **M.J. Lacki**. 2013. Effects of reproductive condition, roost microclimate, and weather patterns on summer torpor use by a vespertilionid bat. *Ecology and Evolution* (doi: 10.1002/ece3.913).
- Lacki, M.J.**, J.S. Johnson, and M.D. Baker. 2013. Temperatures beneath bark of dead trees used as roosts by *Myotis volans* in forests of the Pacific Northwest, USA. *Acta Chiropterologica* 15:143-151.
- Johnson*, J.S., and **M.J. Lacki**. 2013. Habitat associations of Rafinesque's big-eared bats (*Corynorhinus rafinesquii*) and their lepidopteran prey in bottomland hardwood forests. *Canadian Journal of Zoology* 91: 94-101.
- Johnson, J.S., J.N. Kropczynski, and **M.J. Lacki**. 2013. Social network analysis and the study of sociality in bats. *Acta Chiropterologica* 15: 1-17.
- J.M. Lhotka**[†], and J.W. Stringer. 2013. Forest edge effects on *Quercus* reproduction within naturally regenerated mixed broadleaf stands. *Canadian Journal of Forest Research* 43(10):911-918. (*JIF*: 1.559)

- Catron, J.F., G.A. Stainback, **J.M. Lhotka**, J.W. Stringer, and L. Hu. 2013. Financial and management implications of producing energywood in upland oak stands in Kentucky. *Northern Journal of Applied Forestry* 30(4):164-169. (*JIF*: 0.435)
- Parrott, D.L., **J.M. Lhotka**[†], and J.W. Stringer. 2013. The effect of soil scarification on *Quercus* seedling establishment within upland stands of the Northern Cumberland Plateau. *Northern Journal of Applied Forestry* 30(3):125-130. (*JIF*: 0.435)
- Leitch, Z.J., **J.M. Lhotka**[†], G.A. Stainback, and J.W. Stringer. 2013. Private landowner intent to supply woody feedstock for bioenergy production. *Biomass and Bioenergy* 56:127-136. (*JIF*: 2.975)
- Lhotka, J.M.**[†], and E.F. Loewenstein. 2013. Development of three underplanted hardwood species seven years following midstory removal. *Southern Journal of Applied Forestry* 37(2):81-90. (*JIF*: 0.320)
- Lhotka, J.M.**[†] 2013. Effect of gap size on mid-rotation stand structure and species composition in a naturally regenerated mixed broadleaf forest. *New Forests* 44(3):311-325. (*JIF*: 1.636)
- Catron, J., G.A. Stainback[†], P. Dwivedi, and **J.M. Lhotka**. 2013. Bioenergy development in Kentucky: A SWOT-ANP analysis. *Forest Policy and Economics* 28:38-43. (*JIF*: 1.638)
- Richter, S.C., **S.J. Price**, C.S. Kross[‡], J.R. Alexander* and M.E. Dorcas. 2013. Upland habitat quality and historic landscape composition influence genetic variation of a pond-breeding salamander. *Diversity* 5: 724-733.
- Guzy, J.C., **S.J. Price** and M.E. Dorcas. 2013. An assessment of the spatial configuration of greenspace and aquatic habitats on semi-aquatic turtle occupancy and species richness in a suburban landscape 117:46-56.
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Other Research Publications

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- Barton, C.B.** 2014. Green Forests Work: A reforestation program for Appalachia. IUFRO- 2nd Restoring Forests Congress on 14-16 October 2014 in Lafayette, Indiana USA.
- Sena, K.L., **C.D. Barton**, P. Angel, C. Agouridis, S. Hall and R. Warner. Mine spoil type influences growth of planted hardwoods and naturally colonizing understory vegetation on experimental reforestation plots in Pike County, KY. IUFRO- 2nd Restoring Forests Congress on 14-16 October 2014 in Lafayette, Indiana USA.
- Adams, M.B., P. Angel, J. Burger, **C. Barton**, C. Zipper and J. Skousen. 2014. Appalachian Regional Reforestation Initiative: Defining successful reforestation of mined lands. IUFRO- 2nd Restoring Forests Congress on 14-16 October 2014 in Lafayette, Indiana USA.

- Rich A. Biemiller, DE Fletcher and **CD Barton**. 2014. Evaluating the influence of disturbance on macroinvertebrate colonization and decomposition of leaf packs in Upper Coastal Plain headwater streams. Society of Ecological Restoration, Conference on Ecological and Ecosystem Restoration (CEER), New Orleans, LA, July 28-August 1.
- Sarah L. Hall, **Christopher D. Barton** and Patrick N. Angel. 2014. Restoring Appalachian Surface Mines: A Black Walnut Pilot Study. Society of Ecological Restoration, Conference on Ecological and Ecosystem Restoration (CEER), New Orleans, LA, July 28-August 1.
- Blackburn-Lynch, W., C.T. Agouridis, **C.D. Barton**, R.C. Warner, and T. Maupin. 2014. A Hydrologic Assessment of a Stream Created on Mined Lands. 2014 ASABE and CSBE/SCGAB Annual International Meeting, Montreal, Quebec Canada, July 13-16.
- McMaine, J., C.T. Agouridis, R.C. Warner, C.D. Barton. 2014. Hydrologic Characterization of a Rain Garden Mitigating Stormwater Runoff from a Commercial Area. 2014 ASABE and CSBE/SCGAB Annual International Meeting, Montreal, Quebec Canada, July 13-16.
- Weatherford, M., C.T. Agouridis, **C.D. Barton**, R.C. Warner, K.L. Sena. 2014. Long-Term Hydrologic Characteristics of Loose-Dumped Mine Spoils. 2014 ASABE and CSBE/SCGAB Annual International Meeting, Montreal, Quebec Canada, July 13-16.
- Sena, K.L., **C.D. Barton**, C.T. Agouridis, and R. Warner. 2014. Influence of spoil type on discharged water quality and hydrologic function of experimental reforestation plots in Pike County, Kentucky. American Society of Mining and Reclamation Meeting, Oklahoma City, OK, June 14-19.
- Emma Witt, **Christopher Barton**, Jeffrey W. Stringer, Alex Cherry and Randall Kolka. 2014. Impact of forest harvest with variable streamside management zone configurations on hydrologic response in perennial headwater streams. SAF-Symposium of Best Management Practice Effectiveness in the Eastern US. Blacksburg, VA. May 12-15, 2014.
- Christopher Barton**, Emma Witt, Jeffrey W. Stringer, Alex Cherry and Randall Kolka. 2014. Influence of variable streamside management zones configurations on water quality following forest harvest. SAF-Symposium of Best Management Practice Effectiveness in the Eastern US. Blacksburg, VA. May 12-15, 2014.
- Kevin Devine, Songlin Fei, Jeffrey W. Stringer and **Christopher Barton**. 2014. The Effect of Microsite on Invasive Species Colonization Associated with the use of Timber Harvesting BMPs. SAF-Symposium of Best Management Practice Effectiveness in the Eastern US. Blacksburg, VA. May 12-15, 2014.
- Daniel Bowker, Jeffrey W. Stringer and **Christopher Barton**. 2014. Forest harvest equipment movement and sediment delivery to streams. SAF-Symposium of Best Management Practice Effectiveness in the Eastern US. Blacksburg, VA. May 12-15, 2014.

- Joshua K. Adkins, **Christopher D. Barton**, Jeffrey W. Stringer and Scott Grubbs. 2014. Assessment of streamside management zone efficacy for conserving benthic macroinvertebrate communities following timber harvest in Eastern Kentucky headwater catchments. SAF-Symposium of Best Management Practice Effectiveness in the Eastern US. Blacksburg, VA. May 12-15, 2014.
- Christopher Reeves, Jeffrey W. Stringer, Daniel Bowker, **Christopher Barton** and Carmen Agouridis. 2014. Effectiveness of Elevated Skid Trail Headwater Stream Crossings in the Cumberland Plateau. SAF-Symposium of Best Management Practice Effectiveness in the Eastern US. Blacksburg, VA. May 12-15, 2014.
- Thomas Maignet, John Cox, Dylan Schneider, **Chris Barton**, Steven Price and Jeffery Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. SAF-Symposium of Best Management Practice Effectiveness in the Eastern US. Blacksburg, VA. May 12-15, 2014.
- McMaine, J., C.T. Agouridis, R.C. Warner, **C.D. Barton**. 2014. Hydrologic Characterization of a Rain Garden Mitigating Stormwater Runoff from a Commercial Area. Oklahoma State University Student Water Conference. Stillwater, OK, April 10-11. Awarded Honorable Mention, Outstanding Graduate Student Oral Presentation
- Weatherford, M., C.T. Agouridis, **C.D. Barton**, R.C. Warner, K.L. Sena. 2014. Long-Term Hydrologic Characteristics of Loose-Dumped Mine Spoils. Oklahoma State University Student Water Conference. Stillwater, OK, April 10-11.
- Barton, C.D.** 2014. From Butcher Holler to Monkey Broke Creek: Restoring forests on surface coal mines. University of Kentucky-Entomology Seminar Series. Lexington, KY. March 13. (*invited presentation*)
- Barton, C.D.** 2014. From Butcher Holler to Monkey Broke Creek: Restoring forests on surface coal mines. SUNY-Environmental Science and Forestry Seminar Series. Syracuse, NY. February 27. (*invited presentation*)
- Connors, T.E.** 2014. Successful Small Hardwood Sawmill Marketing Strategies. Presentation to the Northeast Society of American Foresters (NESAF) chapter meeting, Nashua, NH. (3/21/14).
- Connors, T.E.** 2014. Identifying Wood: A Primer For Everyone. Part 1: Introduction to Wood Structure and Characteristics. 9 pages. University of Kentucky numbered Extension series, publication FOR-123.
- Connors, T.E.** 2014. Identifying Wood: A Primer For Everyone. Part 2: First Steps in Identifying Wood. 16 pages. University of Kentucky numbered Extension series, publication FOR-124.

- Conners, T.E.** 2014. Identifying Wood: A Primer For Everyone. Part 3: How to Tell if a Piece of Wood is a Hardwood or a Softwood. 8 pages. University of Kentucky numbered Extension series, publication FOR-125.
- Conners, T.E.** 2014. Identifying Wood: A Primer For Everyone. Part 4: Navigation. 7 pages. University of Kentucky numbered Extension series, publication FOR-126.
- Conners, T.E.** 2014. Identifying Wood: A Primer For Everyone. Part 5: The First Separation of Softwood Species. 13 pages. University of Kentucky numbered Extension series, publication FOR-127.
- Conners, T.E.** 2014. How to Select and Buck Logs for Railroad Ties. 21 pages. University of Kentucky numbered Extension series, publication FOR-122.
- Parrot, D.L., **Contreras, M.** 2014. Comparison of operator-designed and computer-generated skid-trail networks. In Proceedings: “Global Harvesting Technology” of the Council of Forest Engineering (COFE). 37th Annual Meeting. Moline, IL, USA.
- Staats, W., **Contreras, M.** 2014. LiDAR-derived forest canopy metrics and their influence on spatial distribution of plethodontid salamander populations. Presented at the 24th IUFRO World Congress and SAF national convention, October 5 – 11, 2014, Salt Lake City, USA.
- Contreras, M.,** Chung, W. 2014. Optimizing the selection of individual trees in thinning treatments to reduce crown fire potential. Presented at the 24th IUFRO World Congress and SAF national convention, October 5 – 11, 2014, Salt Lake City, USA.
- Contreras, M.,** Parrott, D., Stringer, J.W. 2014 Quantifying potential benefits of implementing computer generated skid trail networks. Presented at the 24th IUFRO World Congress and SAF national convention, October 5 – 11, 2014, Salt Lake City, USA.
- Lin, P., Zhang, J., **Contreras, M.** 2014. Applying Pareto ant colony optimization to solve bi-objective forest transportation planning problems. Presented at the 15th IEEE International Conference on Information Reuse and Integration (IRI). August 13-15, San Francisco, CA, USA.
- Contreras, M.** 2014. Announcement of the 2015 annual meeting of the Council on Forest Engineering in Lexington, Kentucky. Presented at the Council of Forest Engineering (COFE). 37th Annual Meeting. June 22-25, 2014, Moline, IL, USA.
- Parrot, D.L., **Contreras, M.** 2014. Comparison of operator-designed and computer-generated skid-trail networks. Presented at the Council of Forest Engineering (COFE). 37th Annual Meeting. June 22-25, 2014, Moline, IL, USA.
- Cox, J.J.** 2014. Ten-thousand or bust: elk research in Kentucky. Kentucky Woodlands Magazine. 9(1):10-11

- Hildreth, A., **J.J. Cox**, J.T. Hast, B. Slabach. 2014. Effects of capture metrics on blood serum profiles of elk in Kentucky. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.
- Shaffer, J.D., S.K. Gleeson, **J.J. Cox**, and J.M. Lhotka. 2014. Mammalian herbivory on fourteen experimentally planted native hardwood tree seedlings of the Kentucky Bluegrass savanna-woodland community. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.
- Felch, J., and **J.J. Cox**. 2014. The common raven in cliff habitat of the southern Appalachians: detectability and occupancy. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.
- Slabach, B., J.T. Hast, K. Brunjes, P.H. Crowley, and **J.J. Cox**. 2014. Selective take, group dynamics, and managed species: individual and group level patterns in a gregarious megaherbivore. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.
- Hast, J.T., **J.J. Cox**, K. Brunjes, R.D. Crank, W.E. Bowling, and G. Jenkins. 2014. Survival and cause-specific mortality of bull elk in southeastern Kentucky. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.
- Hamilton, S., **J.J. Cox**, A. Drayer, J.M. Richards, and J.J. Treanor. 2014. An investigation of chytrid fungus infection in plethodontid salamander communities of logged, surface mined and intact forests of eastern Kentucky. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.
- Betancourt, A., **J.J. Cox**, B. Tom, E. Lyons, and M. Nielsen. 2014. Efficacy of injectable ivermectin on gastrointestinal helminthes in captive wild elk. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.
- Slabach, B.S., J.T. Hast, P.H. Crowley, G. Jenkins, W. Bowling, D. Crank. K. Brunjes, and **J.J. Cox**. 2014. Cause-Specific Mortality, Group Dynamics, and VITs: Three Approaches to Cow Elk Management in Kentucky. 19th Annual Eastern Elk Management Workshop, April 27-30, Breaks Interstate Park, VA.
- Maigret, T., **J.J. Cox**, D. Schneider, C.D. Barton, S.J. Price, and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. The Annual Meeting of the Association of Southeastern Biologists, April 3-4, Spartanburg, SC.
- Cunningham, J., and **J.J. Cox**. 2014. Tick species and their potential effects within the elk population of eastern Kentucky. National Conference on Undergraduate Research. April 3-5, Lexington, KY.

- Schwager, R., A. Betancourt, **J.J. Cox**, E. Lyons, M. Nielsen. 2014. Parasite prevalence in Kentucky elk as determined by fecal egg counts. Feb. 27, Posters-at-the-Capitol, Frankfort, KY
- Maigret, T., **J.J. Cox**, D. Schneider, C.D. Barton, S.J. Price, and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. The Wildlife Society, Kentucky Chapter State Conference. Feb 20-21, Barren River State Park, KY.
- Maigret, T.A., **J.J. Cox**. 2014. A review of best management practices and the mitigation of stream-breeding salamanders in the eastern deciduous forest. 19th Annual Central Hardwoods Conference. March 11, Carbondale, IL, USA.
- Maigret, T.A., **J.J. Cox**, D.R. Schneider, C.D. Barton, S.J. Price, and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. Southeast Partners in Amphibian and Reptile Conservation Annual Meeting. Feb 13-14, Lake Cumberland, KY, USA.
- Shaffer, J.D., S.K. Gleeson, **J.J. Cox**, and J.L. Lhotka. 2014. The effects of mammalian herbivory on the growth of native hardwood tree seedlings of the Kentucky Bluegrass blue ash-oak savanna-woodland. The Wildlife Society, Kentucky Chapter State Conference. Feb 20-21. Barren River State Park, KY.
- Shaffer, J.D., S.K. Gleeson, **J.J. Cox**, and J.L. Lhotka. 2014. The effects of mammalian herbivory on the growth of native hardwood tree seedlings of the Kentucky Bluegrass blue ash-oak savanna-woodland. American Society of Plant Biologists Annual Meeting, March 29-30, Lexington, KY.
- Hast, J.T., **J.J. Cox**, K. Brunjes, W. Bowling, D. Crank, and G. Jenkins. 2014. Survival and cause-specific mortality of bull elk in southeastern Kentucky. The Wildlife Society, Kentucky Chapter State Conference. Feb 20-21, Barren River State Park, KY.
- Slabach, B., **J.J. Cox**, and P.H. Crowley. 2014. Partnering standard wildlife monitoring and traditional behavioral techniques: understanding group dynamics in managed species. The Wildlife Society, Kentucky Chapter State Conference. Feb 20-21, Barren River State Park, KY.
- Betancourt, A., **J.J. Cox**, B.M. Tom, E.T. Lyons, and M.K. Nielsen. 2014. Efficacy of injectable ivermectin on gastrointestinal helminths in captive wild elk (*Cervus canadensis*). The Wildlife Society, Kentucky Chapter State Conference. Feb 20-21, Barren River State Park, KY
- Lacki, M.J.**, L.E. Dodd, N.S. Skowronski, M.B. Dickinson, and L.K. Rieske. 2014. Fire management and habitat quality for endangered bats in Kentucky's Mammoth Cave National Park during the swarming and staging periods: predator-prey interactions and

habitat use of bats threatened by white-nose syndrome. Project #10-1-06-1. Final report to USFS Joint Fire Science Program. 104 pp. [http:// www.firescience.gov](http://www.firescience.gov).

- Lacki, M.J.** 2014. Threatened and endangered forest bats in eastern U.S.: implications for forest management. 2014 Annual Meeting of the Kentucky Farm Bureau Federation, Louisville, KY.
- Lacki, M.J.**, and M.L. Bayless. 2014. A conservation strategy for Rafinesque's big-eared bat and southeastern myotis. 19th Annual meeting of the Southeastern Bat Diversity Network and the 24th Colloquium on conservation of mammals in the southeastern United States, Nacogdoches, TX.
- Lacki, M.J.**, D.R. Cox, L.E. Dodd, and M.B. Dickinson. 2014. Response of northern bats to prescribed fires in eastern Kentucky forests. Workshop for scientists and managers: discussing the relationships between fire management and the quality of habitat for bats. Mammoth Cave, KY.
- Lacki, M.J.**, L.E. Dodd, R.S. Toomey, S.C. Thomas, Z.L. Couch, and B.S. Nichols. 2014. Body condition of cave-hibernating bats during staging and swarming in Mammoth Cave National Park. Workshop for scientists and managers: discussing the relationships between fire management and the quality of habitat for bats. Mammoth Cave, KY.
- Williams, J., **S.J. Price** and P. Wood. 2014. Salamanders and surface mining in the Appalachian mountains. Partners in Amphibian and Reptile Conservation Monthly Newsletter 12:17-18
- Price, S.J.**§, Muncy, B.L.‡, and C.D. Barton. 2014. Effects of mountaintop removal and valley fill on stream salamander populations. Biology Department, Davidson College, 18 November. Davidson NC. 18 November Davidson NC.
- Price, S.J.**§, Muncy, B.L.‡, and C.D. Barton. 2014. Effects of mountaintop removal and valley fill on stream salamander occupancy and abundance. USFWS, 21 July Frankfort KY.
- Price, S.J.**§, Muncy, B.L.‡, and C.D. Barton, and 2014. Effects of mountaintop removal and valley fill on stream salamanders. Water Quality Roundtable, Eastern Kentucky University, 11 April Richmond, KY
- Hime, P.M.‡§, **S.J. Price**, and D.W. Weisrock. 2014. Leveraging genomics to inform *Cryptobranchus* conservation: Sex-linked genes, range-wide phylogenetics and species delimitation, and field surveys across Kentucky. Southeast Partners in Amphibian and Reptile Conservation Annual Meeting (Poster). February 13-16, 2014. Lake Cumberland, KY.
- Maigret, T.A.‡§, J.J. Cox, D.R. Schneider, C.D. Barton, **S.J. Price** and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in

ephemeral streams of southeastern Kentucky. Southeast Partners in Amphibian and Reptile Conservation Annual Meeting, 13-15 February, Lake Cumberland, KY.

Agha, M. ‡§, M. O. Murphy‡, J. E. Lovich, J. R. Ennen, C. R. Oldham, K. Meyer, C. Bjurlin, M. Austin, S. Madrak, C. Loughran, L. Tennant, **S.J. Price**. 2014 Research activities and winter precipitation influence voiding behavior in Agassiz's desert tortoise (*G. agassizii*). Southeast Partners in Amphibian and Reptile Conservation Annual Meeting, 13-15 February, Lake Cumberland, KY.

Muncy, B.L.‡§, C.D. Barton, and **S.J. Price**. 2014. Effects of mountaintop removal and valley fill on stream salamander communities. Southeast Partners in Amphibian and Reptile Conservation Annual Meeting, 13-15 February, Lake Cumberland, KY.

Agha, M. ‡§, M.O. Murphy‡, J.E. Lovich, J.R. Ennen, C.R. Oldham‡ and **S.J. Price**. 2014. Research activities influence voiding behavior in desert tortoises (*Gopherus agassizii*). Southeast Partners in Amphibian and Reptile Conservation Annual Meeting, 13-15 February, Lake Cumberland, KY.

Oldham, C.R ‡§, L.J. Fleckenstein III*§ and **S.J. Price**. 2014. Novel application of passive integrated transponder (PIT) telemetry in natricine snakes. Southeast Partners in Amphibian and Reptile Conservation Annual Meeting, 13-15 February, Lake Cumberland, KY.

Hime, P.M. ‡§, **S.J. Price**, and D.W. Weisrock. 2014. Leveraging genomics to understand and conserve an imperiled North American giant salamander. University of Kentucky EcoLunch Seminar Series (Oral Presentation). February 28, 2014. Lexington, KY.

Agha, M. ‡, M.O. Murphy‡§, J.E. Lovich, J.R. Ennen, C.R. Oldham‡ and **S.J. Price**. 2014. Research activities influence voiding behavior in desert tortoises (*Gopherus agassizii*). Midwest Ecology and Evolution Conference, 1-2 March, Dayton, OH.

Muncy, B.L.‡§, C.D. Barton, and **S.J. Price**. 2014. Effects of mountaintop removal and valley fill on stream salamander communities. Association of Southeastern Biologists Annual Meeting 2-5 April, Spartanburg, SC.

Oldham, C.R.‡ §, L.J. Fleckenstein III* and **S.J. Price**. 2014. Novel application of passive integrated transponder (PIT) telemetry in natricine snakes. Association of Southeastern Biologists Annual Meeting 2-5 April, Spartanburg, SC.

Maigret, T.A. ‡§, J.J. Cox, D.R. Schneider, C.D. Barton, **S.J. Price** and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. Association of Southeastern Biologists Annual Meeting 2-5 April, Spartanburg, SC.

- Murphy, M.O. ‡§, **S.J. Price**, and D.W. Weisrock. 2014. Host before Habitat? Assessing congruency in patterns of gene flow in an imperiled freshwater mussel and its vertebrate host. Evolution. June 21-25, 2014. Raleigh, NC.
- Agha, M. ‡§, M. O. Murphy‡, J. E. Lovich, J. R. Ennen, C. R. Oldham‡, K. Meyer, C. Bjurlin, M. Austin, S. Madrak, C. Loughran, L. Tennant, and **S.J. Price**. 2014 Research activities and winter precipitation influence voiding behavior in Agassiz's desert tortoise (*G. agassizii*). 57th Annual Meeting of the Society for the Study of Amphibians and Reptiles hosted by Society of Ichthyologists and Herpetologists. July 30-August 3, 2014. Chattanooga, TN.
- Murphy, M.O.‡§, **S.J. Price**, and M.E. Dorcas. 2014. The effects of urbanization on salamander body size using a before-after control-impact design. 57th Annual Meeting of the Society for the Study of Amphibians and Reptiles hosted by Society of Ichthyologists and Herpetologists. July 30-August 3, 2014. Chattanooga, TN.
- Agha, M. ‡§, J. E. Lovich, J. R. Ennen, B. Augustine‡, T. R. Arundel, M. O. Murphy‡, D. Delaney, J. Briggs, K. Meyer, C. Bjurlin, M. Austin, S. Madrak, L. Tennant, and **S. J. Price**. 2014. Turbines and terrestrial vertebrates: Variation in tortoise survivorship between a wilderness and wind energy facility in the desert southwest, USA. 57th Annual Meeting of the Society for the Study of Amphibians and Reptiles hosted by Society of Ichthyologists and Herpetologists. July 30-August 3, 2014. Chattanooga, TN.
- Hime P.M. ‡§, S.O. Nunziata‡, J.T. Briggler, J.S. Reece, **S.J. Price**, and D.W. Weisrock. 2014. Genomic approaches to *Cryptobranchus* conservation. 57th Annual Meeting of the Society for the Study of Amphibians and Reptiles hosted by Society of Ichthyologists and Herpetologists. July 30-August 3, 2014. Chattanooga, TN.
- Oldham, C.R ‡§, L.J. Fleckenstein III* and **S.J. Price**. 2014. Novel application of passive integrated transponder (PIT) telemetry in natricine snakes. 57th Annual Meeting of the Society for the Study of Amphibians and Reptiles hosted by Society of Ichthyologists and Herpetologists. July 30-August 3, 2014. Chattanooga, TN.
- Agha, M. ‡§, B. Augustine‡, M. O. Murphy‡, J. E. Lovich, D. Delaney, J. R. Ennen, B. Sinervo, R. Cooper and **S.J. Price**. 2014. Inferring seasonal activity and thermal niche of Agassiz's desert tortoises (*Gopherus agassizii*) through the application of motion sensor camera technology. Symposium for the Conservation and Biology of Tortoises and Freshwater Turtles, co-hosted by TSA and IUCN. August, 2014. Orlando, FL.10
- Lewis, M.A*§, M. Agha‡, and **S.J.Price**. 2014. Preliminary analysis of the use of open canopy gaps by the eastern box turtle (*Terrapene. c. carolina*). Symposium for the Conservation and Biology of Tortoises and Freshwater Turtles, co-hosted by TSA and IUCN. August, 2014. Orlando, FL.

- Lewis, M.A.*§, M. Agha‡, and **S.J. Price**. 2014. Preliminary analysis of the use of open canopy gaps by the eastern box turtle (*Terrapene.c.carolina*). Natural Resource and Environmental Science Internship/Research Forum. October 9, 2014. Lexington, KY.
- Hime P.M.‡§, S.O. Nunziata‡, J.T. Briggler, J.S. Reece, **S.J. Price**, and D.W. Weisrock. 2014. Genomic approaches to *Cryptobranchus* conservation. AZA Amphibian Taxon Advisory Group Advanced Amphibian Course in Hellbender Management and Conservation (Invited Oral Presentation). November 9-12, 2014. St. Louis, MO
- Hime, P.M. ‡§, **S.J. Price**, and D.W. Weisrock. 2014. Genomic insights into amphibian evolution and conservation. SUNY Buffalo Biology Department Seminar Series (Invited Oral Presentation). November 1, 2014. Buffalo, NY.
- Hu*, L., **Stainback, G.A.** & Dillion, C. 2014. Economic analysis of carbon sequestration and bioenergy production under catastrophic risk and price uncertainty. P. 1-20 *in* 2014 Annual Meeting of the Southern Agricultural Economics Association. Dallas, TX.
- Stringer, J.**, B., Ammerman, and B. Thomas. 2014. "Forestry". Eds. K. Heidemann, W. Snell. 2014-2015 Agricultural Situation and Outlook. University of Kentucky, College of Agriculture. Lexington, KY. 13.
- ***Stringer, J.**, Thomas, B., Ammerman, B., and A. Davidson. 2014. Kentucky Forestry Economic Report 2013-2014. Cooperative Extension Service, University of Kentucky, Department of Forestry. FORFS 14-01.8pp.
- Stringer, J.** 2014. Long-Term Storm Damage. Kentucky Woodlands Magazine 9(1): 1-4.
- Stringer, J.** 2014. Understanding the Certified Supply Chain. Kentucky Woodlands Magazine 9(1): 20-21.
- Stringer, J.** Forestry Economic Outlook and Insect and Disease Update. Green River Logger Council Meeting, Hartford, KY, Nov. 1, 2014
- Stringer, J.** Forest Biomass – Logistics and Potentials. Second Annual National Bioenergy Day. Murray, KY, Oct. 22, 2014.
- Stringer, J.** Forest and Chain-of-Custody Certification at Forest Certification: From the Woods to the Mills and Beyond, Rogersville, AL, July 31, 2014.
- Stringer, J.** Forest Certification Systems and Chain-of-Custody at Forest Certification: From the Woods to the Mills and Beyond, Tifton GA, Apr. 10, 2014.
- Stringer, J.** Rehabilitation of Degraded Hardwood Stands. Society of American Foresters, Flatwoods WV, April 1, 2014.

Stringer, J. Forest Certification Systems and Chain-of-Custody at Forest Certification: From the Woods to the Mills and Beyond, Columbiana, AL, January 16, 2014.

Yang, J. 2014. Young Ecologist Summit of 2014 Annual Conference of Ecological Society of China. September 18, 2014. Shenyang, China (Invited).

Yang, J. 2014. Changbai Mountain International Eco-forum. Changbai Forest Reserve Bureau. September 12, 2014. Changbai Mountain, China (Invited).

Yang, J. 2014. Research Salon of Principals, Models, and Practices of Landscape Ecology. Nanjing University. August 5, 2014. Nanjing, China (Invited)

Yang, J. 2014. International workshop of spatial technology applications in environment management. Osaka University and Hokkaido University, March 24, 2014. Sapporo, Japan (Invited).

2013

Barnes, T. 2013. The Right Kind of Change, Ecotheo Review, <http://ecotheo.org/2013/09/the-right-kind-of-change/>

Barnes, T. 2013. Our Treasured Trees. KY Living Magazine, Jan. 27-34.

J.A. Burger, C.E. Zipper , P.N. Angel, N. Hall, J.G. Skousen, **C.D. Barton**, S. Eggerud. 2013. Establishing native trees on legacy surface mines. U.S. Office of Surface Mining. Forest Reclamation Advisory Number 11. 10 p. <http://arri.osmre.gov/fra.htm>.

Barton, C., E. Witt and J. Stringer. 2013. Protecting Water Resources with Streamside Management Zones. Kentucky Woodlands Magazine. 8(1) 16-18.

Connors, T.E. 2013. Railway Tie Grading. Presentation to Railcats, a University Kentucky club in the Civil Engineering Department, about Railway Tie Grading. 12 participants. (4/2/13). *Invited Presentation.*

Connors, T.E. 2013. Local Wood Products Networks. Presentation to Leadership Conference for Local Wood Products. Presentation to the NAASF, Baltimore, MD. 35 participants. (6/4/13). *Invited Presentation.*

Connors, T.E. 2013. Wood Anatomy and properties. Presentation at Woodcraft, Lexington, KY. (6/21/13). 15 participants.

Connors, T.E. 2013. Physical Properties of Wood: Density and Moisture-Induced Dimensional Changes. Presentation at Woodcraft, Lexington, KY. (7/19/13). 15 participants. *Invited Presentation.* **Connors, T.E.** 2013. Identifying American Wood Species. Presentation at Wood Expo, Lexington, Kentucky. (9/21/13). 30 participants. *Invited Presentation.*

- Conners, T.E.** 2013. Wood Products Producer Networks. Sponsored by WERC (Wood Education and Resource Center) in Princeton, WV and North Carolina State University. 30 participants. (10/24/13). *Invited Presentation*.
- Conners, T.E.** 2013. Measuring Wood Moisture Content to Improve Woodworking Skills. Presentation at Woodcraft, Lexington, KY. (11/15/13). 10 participants. *Invited Presentation*.
- Nepal, S., **M. Contreras**. 2013. A GIS-based approach to identify suitable locations for bioenergy plantations in northern Kentucky. In proceeding: "Forest Operations for a Changing Landscape" of the Council of Forest Engineering (COFE). 36th Annual Meeting. Missoula, MT, USA.
- Pengpeng, L., **M. Contreras**, J. Zhang, W. Chung. 2013. Applying ant colony optimization to solve constrained forest transportation planning problems. In proceeding: "Forest Operations for a Changing Landscape" of the Council of Forest Engineering (COFE). 36th Annual Meeting. Missoula, MT, USA.
- Aune, K., **J.J. Cox**, V. Ezenwa, A. Jolles, T. Kreeger, M. Miller, P. Nara, and S. Olsen. 2013. Brucellosis science review workshop panelist's report. Yellowstone National Park, Mammoth Hot Springs, WY.
- Maignet*, T., ‡§ **J.J. Cox**, S.J. Price and C.D. Barton. 2013. Habitat preferences and hibernacula selection of timber rattlesnakes in an increasingly fragmented landscape in southeastern Kentucky. Southeastern Partners in Amphibian and Reptile Conservation Annual Meeting. February 21-24, 2013. Hickory Knob State Park, McCormick, SC.
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- Barton C.D.** Restoring Ecosystem Services on Surface Mines in Appalachia. Midwest Ground Water Conference; Lexington, KY. September 20, 2011. (*invited presentation*)
- Barton C.D.** Green Forests Work for Appalachia. Presentation to Executive Staff of the Appalachian Regional Commission; Prestonsburg, KY. September 7, 2011. (*invited presentation*)
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RTA Education Committee (including **T.E. Connors**). 2010. Video: Test 1, a subset of the 300 ties used for a test (with answers this time).

RTA Education Committee (including **T.E. Connors**). 2010. Video: Test 2, a second subset of the 300 ties used for a test (without answers).

RTA Education Committee. 2010. Video: Test 2, a second subset of the 300 ties used for a test (with answers this time).

Davis III, S.E., K. Hines, W. Conner, **J.J. Cox**, D. Gawlik, J. Jackson, J. Jones, F.M. Wilhelm, and J. Richards. 2010. Oil and gas impacts in the Big Cypress Ecosystem: an analysis of impacts associated with proposed activities in the Nobles Grade area. The Everglades Foundation. 269 pp.

Dickinson, M.B., J.C. Norris, A.S. Bova, R.L. Kremens, V. Young, and M.J. Lacki. 2010. Effects of wildland fire smoke on a tree-roosting bat: integrating a plume model, field measurements, and mammalian dose-response relationships. *Canadian Journal of Forest Research* 40: 2187-2203.

Lacki, M.J., M.D. Baker, and J.S. Johnson. 2010. Geographic variation in roost-site selection of long-legged myotis in the Pacific Northwest. *Journal of Wildlife Management* 74: 1218-1228.

Stainback, A. 2010. Determining timber casualty loss: examples. *Kentucky Woodlands Magazine* 5(1): 5.

Stainback, A. 2010. Determining timber casualty loss. *Kentucky Woodlands Magazine*. 4(3): 14-15.

Stringer, J. 2010. How to Keep Your Woodlands Healthy. *Kentucky Woodlands Magazine* 5(2): 2-5.

Stringer, J. 2010. Producing Certified Wood. *Kentucky Woodlands Magazine* 5(2): 23.

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Stringer, J. 2010. Invasive Plant Hit List: Paulownia. *Kentucky Woodlands Magazine* 4(3): 10-11.

Appendix 2-A

Department of Forestry
Faculty Curricula Vitae

CURRICULUM VITAE

Mary A. Arthur

Department of Forestry
University of Kentucky
103 Thomas Poe Cooper Building
Lexington, KY 40546-0073
Phone: 859.257.2852; email: marthur@uky.edu

EDUCATION

Ph.D. 1990. Forest Ecology, minor in Soil Science, Cornell University
M.F.S. 1983. Forest Science, Yale School of Forestry & Environmental Studies
B.A. 1979. Environmental Studies, Colby College

PROFESSIONAL EXPERIENCE

Professor , Department of Forestry, University of Kentucky	2006 to present
Chair , Natural Resources and Environmental Science Curriculum Steering Committee	2009 to present
Co-Director , Greenhouse Residential College	2013 to present
Lead , Urban Tree Initiative Working Group, TFISE	2014 to present
Associate Professor , Department of Forestry, University of Kentucky	2000-2006
Visiting Scientist , Institute of Ecosystem Studies, Millbrook, NY	2000-present
Sabbatical Leave , Institute of Ecosystem Studies, Millbrook, NY	1/00-7/00
Member , UK Biology Program Graduate Faculty	2003-present
Member , UK Soil Science Graduate Faculty	1994-present
Assistant Professor , Department of Forestry, University of Kentucky	1993-2000
Post-doctoral Associate , Boyce Thompson Institute for Plant Research, Ithaca, NY	1990-1992
Graduate Research Assistant , Cornell University.	1989-1990
Teaching Assistant , Cornell University	1984-1989
Research Technician , Yale School of Forestry and Environmental Studies	1983-1984

RESEARCH PROGRAM

Research Funding

Extramural

2015-2017 **USDA Forest Service**, Daniel Boone National Forest, \$45,000. Principal Investigator. "Triplett Creek Landscape Restoration"

2009-2014 **USDA Forest Service**, Daniel Boone National Forest, \$10,000. Principal Investigator. "Fire ecology research in the Daniel Boone National Forest."

2007-2011 **National Science Foundation**, \$34, 813. "Long term ecological research at Hubbard Brook Research Forest." \$27,301, Subcontract from Cary Institute of Ecosystem Studies.

2007-2009 **USDA Forest Service**, Southern Research Station, \$16,000. Principal Investigator. "Fire and new oak seedlings."

2006-2008 **Kentucky Environmental and Public Protection Cabinet**. Principal Investigator, "Colonization by invasive plant species into urban and successional forest remnants in the Bluegrass Region of central Kentucky." \$7996. Co-PIs – Ryan McEwan and Rob Paratley.

2005-2009 **National Science Foundation**, Principal investigator, "Collaborative research: Influences of geology and tree species composition on the response of forest nutrient dynamics to an exotic pest." \$115,000.

- 2004-2006 **Northeastern States Research Cooperative**, Co-principal investigator; subcontract to UK \$30,000. (PI: G.M. Lovett, Institute of Ecosystem Studies).
- 2004-2008 **USDA-USDI Joint Fire Science Program**. Co-principal investigator; subcontract to UK, (PI: D.L. Loftis, U.S. Forest Service.) "Fire in the southern Appalachians: fuels, stand structure and oaks." \$342,000.
- 2003-2007 **National Science Foundation, DEB-Ecosystems**. Co-principal investigator, subcontract to UK, \$80,000. (PI: R.D. Yanai, SUNY-ESF). "Biotic control of calcium supply: Distinguishing sources to regrowing forests."
- 2003-2006 **National Park Service**. Principal investigator. "Establishing baselines for nitrogen cycling in Mammoth Cave National Park Forests." \$50,000.
- 2002-2005 **USDA-USDI Joint Fire Science Program**. Co-principal investigator; subcontract to UK, \$214,000. (PI: D.L. Loftis; U.S. Forest Service). "Fire and oak regeneration in the southern Appalachians."
- 2002 **Colorado State University**. Principal investigator. "Loch Vale Watershed Forest Re-survey." \$4,511.
- 2000-2005 **National Science Foundation, DEB, Ecosystems**. Co-principal investigator; subcontract to UK, \$199,999. (PI: Gary Lovett, Institute of Ecosystem Studies.) "Effects of an Introduced Pest on the C and N Dynamics of a Northern Hardwood Forest."
- 2000-2001 **USDA Forest Service**, Southern Research Station, \$10,000. Principal Investigator. "Fire ecology research in the Daniel Boone National Forest."
- 1996-1999 **USDA National Research Initiative Competitive Grants Program**, Co-principal investigator; subcontract to UK, \$92,708. (PI: G.M. Lovett, Institute of Ecosystem Studies; Co-PI: Kathleen Weathers, Institute of Ecosystem Studies) "Nitrate loss from Catskill watersheds: the role of forest change."
- 1995-2000 **U.S. Forest Service** Challenge Cost-share Agreement, Daniel Boone National Forest, \$14,000. Principal investigator. "The use of prescribed fire in maintaining fire prone communities."
- 1994-1997 **EPA 319 and Kentucky State Natural Resources Environmental Protection**, \$100,000. Principal investigator: M. Arthur, Co-principal investigator, J. Stringer. "Environmental education: Impacts of harvesting practices on water quality in forested ecosystems."
- 1994-1995 **Tennessee Valley Authority**, \$15,416. Principal investigator. "Modelling ozone exposure to northern red oak."
- 1993-1998 **USDA National Research Initiative Competitive Grants Program**, Co-principal investigator, subcontract to UK, \$67,000. (Principal investigator, R.D. Yanai, SUNY-ESF.) "Recent changes in nutrient concentrations in the northern hardwood forest: are they natural or anthropogenic?"
- 1993 **Boyce Thompson Institute for Plant Research**, \$2,200. Principal investigator. "Development of red oak parameters for Tregro." .
- 1991 **New York State Gas and Electric Corporation**, \$75,000. Co-principal investigators; (PI: L.H. Weinstein, Boyce Thompson Institute for Plant Research). "Effects of gypsum on plant uptake of selenium from coal fly ash."
- 1991-1992 **Niagara Mohawk Power Corporation**, \$150,000. Co-principal investigator; PI: L.H. Weinstein, Boyce Thompson Institute for Plant Research). "A survey of selenium concentration in select native plant species and small mammals."

Intramural

- 2015 **UK Sustainability Challenge Grant.** \$17,000. Co-Principal investigators with L. Rieske-Kinney and N. Williamson. "The Campus Tree Initiative: Enhancing sustainability through engagement with the urban tree canopy on UK campus and beyond."
- 2009-2011 **USDA-CSREES,** Precision Resource Management. \$49,093. Co-principal investigator with C. McMichael (Morehead State University). "Using remotely-sensed imagery to monitor post-fire forest dynamics."
- 2006 **University of Kentucky,** Precision Resource Management.
- 2006-2008 **USDA-CSREES,** Precision Resource Management – Phase III – Scope 6. \$72,500. Co-principal investigator with doctoral student, M. Poulette. "Spatial patterning of the effects of savanna trees and exotic species on soil nutrient and C cycling and soil biota."
- 2006-2007 **University of Kentucky Faculty Research Support Grant.** "Alteration of belowground processes during ecosystem invasion: *Lonicera maackii* in the forests of central Kentucky. \$14,000. Co-PIs: Mary Arthur, Lynne Rieske-Kinney and Ryan McEwan.
- 2005 **University of Kentucky, College of Agriculture,** \$14,590. Co-principal investigators, L.K. Rieske-Kinney and M.A. Arthur. "Exploring the effects of Amur (bush) honeysuckle on plant community and ecosystem dynamics."
- 1999-2000 **University of Kentucky Research Committee Grant,** \$4,820. Principal Investigator. "Species control of nutrient dynamics in the mixed mesophytic forest of eastern Kentucky."
- 1997-1999 **Robinson Forest Initiative,** \$72,121. Principal Investigator. "Forest fire in eastern Kentucky: How the role of fire in the ecosystem is perceived and controlled."
- 1996-1998 **Robinson Forest Initiative,** \$28,049. Principal Investigator. "The response of eastern Kentucky forest ecosystems to prescribed burns and wildfire."
- 1995-1996 **University of Kentucky Research Committee Grant,** \$4,500. Principal investigator. "Use of prescribed fire on ridgetops in the Daniel Boone National Forest."
- 1986-1988 **Edna Bailey Sussmann Fellowship** for graduate research in environmental studies.
- 1986-1987 **Andrew W. Mellon Competitive Grant for Student Research,** Cornell University.

Publications

Refereed journal articles (total: 76; h-index: 26; total citations: 2218)

*Authorship by graduate or post-doctoral student denoted by *; undergraduate student or technician author denoted by **.*

Lovett, G.M., M.A. Arthur, and K.F. Crowley. Effects of calcium on the rate and extent of litter decomposition in a northern hardwood forest. *Ecosystems. In press.*

Mattingly**, K.Z., R.W. McEwan, R.D. Paratley, S.R. Bray, J.R. Lempke, and M.A. Arthur. Recovery of forest floor diversity after removal of the non-native invasive plant *Euonymus fortunei*. *Journal of the Torrey Botanical Society. In press.*

Alexander, H.D. and M.A. Arthur. 2014. Influence of increasing red maple leaf litter on decomposition rates and nitrogen cycling in historically oak-dominated forests of the eastern US. *Forest Ecology and Management.* DOI: 10.1007/s10021-014-9802-4

- Arthur, M.A., B.A. Blankenship, A. Schorgendorfer, D.L. Loftis, and H.D. Alexander. 2015. Changes in stand structure and tree vigor with repeated prescribed fire in an Appalachian hardwood forest. *Forest Ecology and Management*.
- Rodriguez, A., G.M. Lovett, K.C. Weathers, M.A. Arthur, P.H. Templer, C.L. Goodale, and L.M. Christenson. 2014. Lability of C in temperate forest soils: assessing the role of nitrogen addition and tree species composition. *Soil Biology and Biochemistry* 77:129-140.
- Kim, D., and M. A. Arthur. 2014. Changes in community structure and species-landform relationship after repeated fire disturbance in an oak-dominated temperate forest. *Ecological Research* 29: 661-671.
- Littlefield*, T., C. Barton, M. Arthur, and M.Coyne. 2013. Factors controlling carbon distribution on reforested minelands and regenerating clearcuts in Appalachia, USA. *Science of the Total Environment* 465: 240-247.
- Lovett, G.M., M.A. Arthur, K.C. Weathers, R.D. Fitzhugh, P.H. Templer. 2013. Nitrogen addition increases carbon storage in soils, but not in trees, in an eastern deciduous forest. *Ecosystems* 16:980-1001.
- Lovett, G.M., M.A. Arthur, K.C. Weathers, J.C. Griffin. 2013. Effects of introduced insects and diseases on forest ecosystem in the Catskill Mountains of New York. *Annals of the New York Academy of Sciences* 1298:66-77
- Wilson*, H.N., M.A. Arthur, A. Schorgendorfer, R.D. Paratley, B.D. Lee, and R.W. McEwan. 2013. Site characteristics as predictors of *Lonicera maackii* and other invasive plants in second growth forests of central Kentucky, USA. *Natural Areas Journal* 33: 189-198.
- Yanai, R.D., M.A. Vadeboncoeur, S.P. Hamburg, M.A. Arthur, C.B. Fuss, P.M. Groffman, T.G. Siccamo, and C.T. Driscoll. 2013. *Environmental Science and Technology* 47: 11440-11448.
- Arthur, M.A., H.D. Alexander, D.C. Dey, C.J. Schweitzer, and D.L. Loftis. 2012. Refining the oak-fire hypothesis for management of oak-dominated forests of the eastern United States. *J. Forestry* 110: 257-266.
- Arthur, M.A., Bray, S.R., C. Kuchle**, and R.W. McEwan. 2012. The influence of the invasive shrub, *Lonicera maackii*, on leaf decomposition and microbial community dynamics. *Plant Ecology* 213: 1571-1582. doi: 10.1007/s11258-012-0112-7
- Blum, J.D., S.P. Hamburg, R.D. Yanai, and M.A. Arthur. 2012. Determination of foliar Ca/Sr discrimination factors for six tree species and implications for Ca sources in northern hardwood forests. *Plant and Soil* 356: 303-314.
- Crowley, K.F., B.E. McNeil, G.M. Lovett, C.D. Canham, C.T. Driscoll, L.E. Rustad, E. Denny, R.A. Hallett, M.A. Arthur, J.L. Boggs, C.L. Goodale, J.S. Kahl, S.G. McNulty, S.V. Ollinger, L.H. Pardo, P.G. Schaberg, J.L. Stoddard, M.P. Weand, and K.C. Weathers. 2012. Do nutrient limitation patterns shift from nitrogen toward phosphorus with increasing nitrogen deposition across the northeastern United States? *Ecosystems* 15:940-957. doi:10.1007/s10021-012-9550-2
- McEwan, R.W., M.A. Arthur, S.E. Alverson. 2012. Throughfall chemistry and soil nutrient effects of the invasive shrub *Lonicera maackii* in deciduous forests. *Am. Midl. Nat.* 168: 43-55.
- Yanai, R.D., M.A. Arthur, M. Acker, C.R. Levine, and B.B. Park. 2012. Variation in mass and nutrient concentration of leaf litter across years and sites in a northern hardwood forest. *Canadian Journal of Forest Research* 42: 1597-1610.

- Poulette*, M.M. and M.A. Arthur. 2012. The impact of the invasive shrub *Lonicera maackii* on the decomposition dynamics of a native plant community. *Ecological Applications* 22:412-424.
- Srinivasan, M.P., S.K. Gleeson, and M.A. Arthur. 2012. Short-term impacts of nitrogen fertilization on a montane grassland ecosystem in a South Asian biodiversity hotspot. *Plant Ecology and Diversity* 5:289-299.
- Fatemi, F.R., R.D. Yanai, S.P. Hamburg, M.A. Vadeboncoeur, M.A. Arthur, R.D. Briggs, and C.R. Levine. 2011. Allometric equations for young northern hardwoods: the importance of age-specific equations for estimating aboveground biomass. *Canadian Journal of Forest Research* 41:881-891.
- Alexander*, H.D. and M.A. Arthur. 2010. Implications of a predicted shift from upland oaks to red maple on forest hydrology and nutrient availability. *Canadian Journal of Forest Research*: 40: 716-726.
- Green*, S.R. and M.A. Arthur. 2010. Oak and red maple seedling survival and growth following periodic prescribed fire on xeric ridgetops on the Cumberland Plateau. *Forest Ecology and Management* 259: 2256-2266.
- Lovett, G.M., M.A. Arthur, K.C. Weathers and J.M. Griffin. 2010. Long-term changes in forest carbon and nitrogen cycling caused by an introduced pest/pathogen complex. *Ecosystems* 13: 1188-1200.
- McEwan*, R.W., L.G. Arthur-Paratley, L.K. Rieske and M.A. Arthur. 2010. A multi-assay comparison of seed germination inhibition by *Lonicera maackii* and co-occurring native shrubs. *Flora* 205:475-483.
- Royse*, J., M.A. Arthur, A. Schorgendorfer, and D.L. Loftis. 2010. Establishment and growth of oak (*Quercus alba*, *Quercus prinus*) seedlings in burned and fire-excluded upland forests on the Cumberland Plateau. *Forest Ecology and Management* 260: 502-510. Doi: 10.1016/j.foreco.2010.05.005.
- Weand*, M.P., M.A. Arthur, G.M. Lovett, K.C. Weathers, R.L. McCulley. 2010. Effects of tree species and nitrogen addition on forest floor microbial communities and extracellular enzymes. *Soil Biology and Biochemistry* 42: 2161-2173.
- Weand*, M.P., M.A. Arthur, G.M. Lovett, F. Sikora and K.C. Weathers. 2010. The phosphorus status of northern hardwoods differs by species but is unaffected by nitrogen fertilization. *Biogeochemistry* 97:2-3.
- Alexander*, H.D. and M.A. Arthur. 2009. Foliar morphology and chemistry of upland oaks, red maple, and sassafras seedlings in response to single and repeated prescribed fires. *Canadian Journal of Forest Research* 39: 740-754.
- Christensen, L.M., G.M. Lovett, K.C. Weathers and M.A. Arthur. 2009. The Influence of tree species, nitrogen fertilization and soil C:N ratio on gross soil nitrogen transformations. *Soil Sci. Soc. Am. J.* 73: 638-646.
- Fabio* E.S., M.A. Arthur, C.C. Rhoades. 2009. Influence of moisture regime and tree species composition on nitrogen cycling dynamics in hardwood forests of Mammoth Cave National Park, Kentucky, USA. *Canadian Journal of Forest Research* 39: 330-341.
- McEwan*, R.W., M. K. Birchfield**, A. Schoergendorfer and M.A. Arthur. 2009. Leaf phenology and freeze tolerance of the invasive shrub Amur honeysuckle and potential native competitors. *Journal of the Torrey Botanical Society* 136:212-220.

- McEwan*, R.W., L.K. Rieske, and M.A. Arthur. 2009. Potential interaction between invasive woody shrubs and the gypsy moth (*Lymantria dispar*), an invasive insect herbivore. *Biological Invasions* 11: 1053-1058.
- Alexander*, H.D., M.A. Arthur, D.L. Loftis, S.R. Green*. 2008. Survival and growth of upland oak and co-occurring competitor seedlings following single and repeated prescribed fires. *Forest Ecology and Management* 256: 1021-1030.
- Blum, J.D., A.A. Dasch, S.P. Hamburg, R.D. Yanai and M.A. Arthur. 2008. Use of foliar Ca/Sr discrimination and $^{87}\text{Sr}/^{86}\text{Sr}$ ratios to determine soil Ca sources to sugar maple foliage in a northern hardwood forest. *Biogeochemistry* 87: 287-296.
- Hancock**, J.E., M.A. Arthur, K.C. Weathers and G.M. Lovett. 2008. Aboveground net primary production and total belowground carbon allocation along a gradient of beech bark disease impact in the Catskill Mountains, New York. *Canadian Journal of Forest Research* 38: 1267-1274.
- Loucks*, E., M.A. Arthur, J.E. Lyons and D.L. Loftis. 2008. Characterization of fuel before and after a single prescribed fire in an Appalachian hardwood forest. *Southern Journal of Applied Forestry* 32: 80-88.
- Templer, P.H., M.A. Arthur, G.M. Lovett, and K.C. Weathers. 2007. Plant and soil natural abundance $\delta^{15}\text{N}$: Indicators of relative rates of nitrogen cycling in temperate forest ecosystems. *Oecologia* 153: 399-406.
- Binkley, D., D.M. Kashian, S. Boyden, M.W. Kaye, J.B. Bradford, M.A. Arthur, P.J. Fornwalt, M.G. Ryan. 2006. Patterns of growth dominance in forests of the Rocky Mountains, USA. *Forest Ecology and Management* 263:193-201.
- Blankenship**, B.A. and M.A. Arthur. 2006. Stand structure over nine years in burned and fire-excluded oak stands on the Cumberland Plateau, Kentucky. *Forest Ecology and Management* 225:134-145.
- Lovett, G.M., C.D. Canham, M.A. Arthur, and K.C. Weathers. 2006. Forest ecosystem responses to exotic pests and pathogens in eastern North America. *BioScience* 56:395-405.
- Newman*, G., M.A. Arthur, and R.N. Muller. 2006. Above- and belowground net primary production in a temperate mixed deciduous forest. *Ecosystems* 9:317-329.
- Chiang*, J., M.A. Arthur and B.A. Blankenship**. 2005. The effect of prescribed fire on gap fraction in an oak forest on the Cumberland Plateau. *Journal of the Torrey Botanical Society* 132: 432-441.
- Yanai, R.D., J.D. Blum, S.P. Hamburg, M.A. Arthur, C.A. Nezat, and T.G. Siccama. 2005. New Insights into Calcium Depletion in Northeastern Forests. *Journal of Forestry* 103:14-20.
- Yanai, R.D., R.P. Phillips, M.A. Arthur, T.G. Siccama, and E.N. Hane. 2005. Spatial and temporal variation in calcium and aluminum in northern hardwood forest floors. *Water, Air and Soil Pollution* 160:109-118.
- Lovett, G.M., K.C. Weathers, M.A. Arthur and J.C. Schultz. 2004. Nitrogen cycling in a northern hardwood forest: do species matter? *Biogeochemistry* 67: 289-308.
- Gilbert**, N.L., S.L. Johnson, S.K. Gleeson, B.A. Blankenship** and M.A. Arthur. 2003. Effects of prescribed fire on physiology and growth of *Acer rubrum* and *Quercus* spp. seedlings in an oak-pine forest on the Cumberland Plateau, KY. *Journal of the Torrey Botanical Society* 130: 253-264.
- Griffin, J.M., G.M. Lovett, M.A. Arthur and K.C. Weathers. 2003. The distribution and severity of beech bark disease in the Catskill Mountains, NY. *Canadian Journal of Forest Research* 33:1754-1760.

- Washburn*, C.S.M. and M.A. Arthur. 2003. Tree species effects on soil nutrient availability in an oak-pine forest. *Canadian Journal of Forest Research* 33:2321-2330.
- Yanai, R.D., S.V. Stehman, M.A. Arthur, C.E. Prescott, A.J. Friedland, T.G. Siccama, and D. Binkley. 2003. Detecting change in forest floor carbon storage. *Soil Science Society of America Journal* 67:1583-1593. .
- Hamburg, S.P., R.D. Yanai, M.A. Arthur, J.D. Blum and T.G. Siccama. 2003. Biotic control of calcium cycling in northern hardwood forests: acid rain and aging forests. *Ecosystems* 6:399-406.
- Kuddes-Fischer*, L.M. and M.A. Arthur. 2002. Response of understory vegetation and tree regeneration to a single prescribed fire in oak-pine forests. *Natural Areas Journal* 22:43-52.
- Lovett, G.M., K.C. Weathers, and M.A. Arthur. 2002. Control of N loss from forested watershed by soil C:N ratio and tree species composition. *Ecosystems* 5:712-718.
- Rieske, L.K., H.H. Housman*, and M.A. Arthur. 2002. Effects of prescribed fire on canopy foliar chemistry and suitability for an insect herbivore. *Forest Ecology and Management* 160:177-187.
- Arthur, M.A., S.P. Hamburg, and T.G. Siccama. 2001. Validating allometric estimates of aboveground living biomass and nutrient contents of a northern hardwood forest. *Canadian Journal of Forest Research* 31:11-17.
- Arthur, M.A. and R.D. Yanai. 2000. Distinguishing the effects of environmental stress and forest succession on changes in the forest floor. *Korean Journal of Ecology* 23:83-88.
- McEwan**, R.W., R.N. Muller, M.A. Arthur and H.H. Housman*. 2000. Temporal and ecological patterns of flowering dogwood mortality in the mixed mesophytic forest of eastern Kentucky. *Journal of the Torrey Botanical Society*. 127:221-229.
- Retzlaff, W.A., M.A. Arthur, N.E. Grulke, D.A. Weinstein and B. Gollands. 2000. Use of a single-tree simulation model to predict effects of ozone and drought on growth of a white fir tree. *Tree Physiology* 20:195-202.
- Yanai, R.D., M.A. Arthur, T.G. Siccama and C.A. Federer. 2000. Challenges of measuring forest floor organic matter dynamics: Repeated measures from a chronosequence. *Forest Ecology and Management* 138:273-283.
- Arthur, M.A. and J.A. Thompson. 1999. Problem-based learning in a Natural Resources Conservation and Management curriculum: A capstone course. *Journal of Natural Resources and Life Sciences Education* 28:97-103.
- Arthur, M.A., T.G. Siccama, and R.D. Yanai. 1999. Calcium and magnesium in wood of northern hardwood forest species: relations to site characteristics. *Canadian Journal of Forest Research* 29:339-346.
- Arthur, M.A. and Y. Wang*. 1999. Soil nutrients and microbial biomass following weed control treatments in a Christmas tree plantation. *Soil Science Society of America Journal* 63:629-637.
- Blankenship*, B.A. and M.A. Arthur. 1999. Prescribed fire affects eastern white pine recruitment and survival on eastern Kentucky ridgetops. *Southern Journal of Applied Forestry* 23:144-150.
- Taylor*, L.A., M.A. Arthur and R.D. Yanai. 1999. Forest floor microbial biomass across a northern hardwood forest successional sequence. *Soil Biology and Biochemistry* 31: 431-439.
- Woodbury, P.B., M.A. Arthur, G. Rubin, L.H. Weinstein, and D.C. McCune. 1999. Gypsum application reduces selenium uptake by vegetation on a coal ash landfill. *Water, Air and Soil Pollution* 110:421-432.
- Yanai, R.D., T.G. Siccama, M.A. Arthur, and C.A. Federer. 1999. Accumulation and depletion of base cations in forest floors in the northeastern US. *Ecology* 80:2774-2787.

- Arthur, M.A., G.B. Coltharp, and D.L. Brown. 1998. Effects of best management practices on forest streamwater quality in eastern Kentucky. *Journal of the American Water Resources Association* 34:481-495.
- Arthur, M.A., R.D. Paratley and B.A. Blankenship*. 1998. Single and repeated fire affect survival and regeneration of woody species in an oak-pine forest. *Journal of the Torrey Botanical Society* 125:225-236.
- Weinstein, D.W., L.J. Samuelson and M.A. Arthur. 1998. Comparison of the response of red oak (*Quercus rubra* L.) seedlings and mature trees to ozone exposure using simulation modeling. *Environmental Pollution* 102:307-320.
- Arthur, M.A., R.N. Muller and S. Costello**. 1997. Species composition in a central hardwood forest in Kentucky eleven years after clearcutting. *American Midland Naturalist* 137:274-281.
- Fahey, T.J. and Arthur, M.A. 1994. Further studies of root decomposition following harvest of northern hardwoods forest. *Forest Science* 40:618-629.
- Siccama, T.G., Hamburg, S.P., Arthur, M.A., Yanai, R.D., Bormann, F.H., and Likens, G.E. 1994. Corrections to the allometric equations and plant tissue chemistry for the Hubbard Brook Experimental Forest. *Ecology* 75:246-248.
- Arthur, M.A. and Fahey, T.J. 1993. Controls on soil solution chemistry in an Engelmann spruce, subalpine fir forest in north-central Colorado. *Soil Science Society of America Journal* 57:1122-1130.
- Arthur, M.A., Tritton, L.M. and Fahey, T.J. 1993. Dead bole mass and nutrients remaining 23 years after clearfelling of a northern hardwood forest. *Canadian Journal of Forest Research* 23:1298-1305.
- Arthur, M.A. and Fahey, T.J. 1993. Throughfall chemistry in an Engelmann spruce, subalpine fir forest in north-central Colorado. *Canadian Journal of Forest Research* 23:738-742.
- Arthur, M.A., Rubin, G., Woodbury, P.B., and Weinstein, L.H. 1993. Gypsum amendment to soil can reduce selenium uptake by alfalfa grown in the presence of coal fly ash. *Plant and Soil* 148:83-90.
- Arthur, M.A. and Fahey, T.J. 1992. Biomass and nutrients in an Engelmann spruce - subalpine fir forest in north-central Colorado: pools, annual production and internal cycling. *Canadian Journal of Forest Research* 22:315-325.
- Arthur, M.A., Schneider, R.E., Rubin, G. and Weinstein, L.H. 1992. Uptake and accumulation of selenium by terrestrial plants growing on a coal fly ash landfill: Part 1. Corn. *Environmental Toxicology and Chemistry* 11:541-547.
- Arthur, M.A., Rubin, G., Woodbury, P.B., Schneider, R.E., and Weinstein, L.H. 1992. Uptake and accumulation of selenium by terrestrial plants growing on a coal fly ash landfill: Part 2. Forage and root crops. *Environmental Toxicology and Chemistry* 11:1289-1299.
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- Mattingly**, K., J. Lempke, McEwan, R., Paratley, R., Bray, S. and Arthur, M. 2014. Recovery of forest diversity after removal of invasive *Euonymus fortunei*. Midwest Ecology and Evolution Conference, March 1-2, 2014, Dayton, OH.
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- Blankenship*, B.A. and M.A. Arthur. 1996. Control of eastern white pine with late winter prescribed fire and its effects on nutrients, microbial biomass, and loss of organic matter. *Bulletin of the Ecological Society of America* 77(3):40.
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- Taylor*, L.A. and M.A. Arthur. 1995. An assessment of microbial biomass across a northern hardwood forest successional sequence. *Agronomy Abstracts* 1995:306.
- Wang*, Yating and M.A. Arthur. 1995. Effects of four weed management strategies on soil microbial biomass and nutrients in a Christmas tree plantation. *Agronomy Abstracts* 1995:230.
- Arthur, M.A., T.G. Siccama and R.D. Yanai. 1995. The relationship of calcium and magnesium in wood of three hardwoods to site conditions at the Hubbard Brook Experimental Forest. *Bulletin of the Ecological Society of America* 76(2):8
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- Arthur, M.A., D.A. Weinstein and B. Gollands. 1993. Predicting the effects of tropospheric ozone on the growth of mature white fir trees. *Bulletin of the Ecological Society of America* 74(3):150.
- Yanai, R.D., T.G. Siccama and M.A. Arthur. 1993. Changes in forest floor mass and nutrient content over 17 years in a northern hardwood forest. *Bulletin of the Ecological Society of America* 74(3):496.
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- Arthur, M.A. and J. Gold. 1991. Elevated concentrations of selenium in alfalfa plants grown in columns with soil overlying coal fly ash. *Agronomy Abstracts* 1991:302.

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Mentoring of Graduate Students

Dissertation director:

- Todd Rounsaville, PhD. Topic: Biology and ecology of *Euonymus fortunei*.
- Zhijie Yang, PhD. Topic: Influence of disturbance and soil warming on forest soil carbon cycling.
- Megan Poulette, Ph.D. 2012. Topic: Spatial patterning of the effects of savanna trees and exotic species on soil nutrient and C cycling and soil biota
- Matthew Weand, Ph.D. 2010. Topic: Interactions between N and P cycling and microbial communities in northern hardwood forests
- Heather Alexander, PhD. 2009. Topic: Oak regeneration failure: Impacts on N cycling and effects of prescribed fire
- Erin Hladilek, co-advised with Dr. John Obrycki, 2008

Thesis director:

- Devin Black, MS. Topic: Landscape restoration of an upland oak forest using mastication and burning.
- Zach Poynter, MS. Topic: Change in stand structure and oak regeneration over twenty years in burned and fire-excluded oak stands on the Cumberland Plateau, Kentucky
- Nic Williamson, MS. Topic: Improving awareness of the ecological, social, and economic importance of urban trees on the University of Kentucky campus.
- Suraj Upadhyaya. 2015. Topic: Using remotely sensed data to evaluate the ecological and economic impacts of wildfire in the Daniel Boone National Forest, Kentucky. Co-advised with Marco Contreras
- Abe Levin-Nielsen, co-advised with Songlin Fei, 2012
- Heather Wilson, MS. 2011. Topic: Plant community response to Amur honeysuckle removal in Bluegrass urban remnant forests
- Jacob Royse. 2008. Establishment and development of hardwood seedlings in response to prescribed fire in a central Appalachian forest.
- Marty Acker. 2006. Base cation concentration and content in litterfall and woody debris across a northern hardwood forest chronosequence.
- Eric Fabio. 2006. Influence of moisture regime and tree species on nitrogen cycling and decomposition dynamics in deciduous forests of Mammoth Cave National Park, Kentucky, USA.
- Tara Littlefield (Co-advised with Chris Barton). 2007. Carbon and nutrient dynamics in regenerating forests within the eastern Kentucky coal fields.
- Stephanie Green. 2005. The effects of prescribed fire on stand structure, canopy cover and seedling populations in oak dominated forests on the Cumberland Plateau, KY.

David Lyon. 2004. Persistent effects of eastern redcedar on calcareous glade soils and plant community.

Elizabeth Loucks. 2004. The effects of landscape scale prescribed fire on fuel loading and tree health in an Appalachian hardwood forest, Kentucky.

Jyh-min Chiang. 2002. Prescribed fire effects on understory light environment and seedling performance of oak and red maple in eastern Kentucky.

Greg S. Newman. 2002. Carbon allocation and interannual variation in net primary production in a temperate mixed deciduous forest.

Linda Kuddes-Fischer. 1999. Response of understory vegetation and tree regeneration to a single prescribed fire in an oak-pine ecosystem.

Carol S.M. Washburn 1999. Tree species effects on soil nutrient availability and the response to fire in an oak-pine forest.

Beth Blankenship. 1997. Response of eastern white pine, soil nutrients and microbial biomass to prescribed fire in the Red River Gorge.

Laurie Taylor. 1996. An assessment of microbial biomass across a northern hardwood forest successional sequence.

Yating Wang. 1996. Effects of four weed management strategies on soil microbial biomass and nutrients in a Christmas tree plantation.

Post-doctoral fellow:

Ryan McEwan, 2006-2008.

Non-thesis M.S. degrees directed:

Greg Abernathy, 1999.

Heather Housman. 2001.

Amy Thompson. 2000.

Graduate Committee member, PhD

Brittany Adam, Engineering; Tom Coleman, Entomology; Hannah Harris, Forestry; Janet Lensing, Entomology; Chris Strohm, Entomology; Madhu Srinivisan, Biology; Shawn Lucas, Soils Program; John Davenport, Geography; Kelton Welch, Entomology; Elihu Levine, U. of Louisville; Jann Fry, Biology;

Graduate committee member, MS: 8

Outside examiner for PhD dissertation defense: 3

Professional Activities

Editorial, Reviewing and Professional Society Responsibilities

Associate Editor:

Biogeochemistry, 2011-2013

Ecology, 2006-2009

Soil Science Society of America Journal, 2004-2010

Forest Science, 2001-2005

Journal of Environmental Quality, 1995-1998

Panelist:

National Science Foundation, March 2014

Department of Energy panel, Ecosystem Sciences, January 2012
JFSP panel, January 2012
National Science Foundation, Ecosystems Grant Panel
National Science Foundation, Field Stations and Marine Laboratories
U.S. Environmental Protection Agency, Peer Review Panel for STAR Fellowships
National Science Foundation, Ecological Studies Grant Panel, October 2002
U.S. Environmental Protection Agency, Peer Review Panel for Ecological Indicators
Member, American Institute of Biological Sciences (AIBS) Nominating Committee, 2002.

Ad hoc Proposal Reviews:

National Science Foundation, 10/00, 10/01, 4/03, 9/03, 3/04, 10/04, 3/05, 10/07
USDA-NRI, 4/05.
Austrian Science Fund, 10/04

External reviewer for tenure/promotion:

Ohio University, Department of Biology
Boston College, Department of Biology
Virginia Tech, Department of Forestry
University of Hawai'i, Department of Natural Resources and Environmental
Management
Michigan State University, Department of Forestry
Mississippi State University, Department of Forestry

Peer review teams:

*National Science Foundation, Peer review of H.J. Andrews Forest Long Term Ecological
Research site, Corvallis, OR. August 2011.*
*National Science Foundation, Peer review of H.J. Andrews Forest Long Term Ecological
Research site, Corvallis, OR. July 2005.*
*Bent Creek Experimental Forest, USDA Forest Service, Technical Assistance Visit, December
6-7, 2004.*
*U.S. Environmental Protection Agency, Peer Review Team to review research plan for a
proposed E.P.A. research project, Corvallis, OR. July 1999.*

Manuscript reviewer for: Biogeochemistry, Bioscience, Canadian Journal of Botany, Canadian
Journal of Forest Research, Ecological Applications, Ecological Monographs, Ecology, Forest
Ecology and Management, Forest Science, Journal of Ecology, Journal of the Torrey Botanical
Society, Soil Science Society of America Journal.

Book Reviewer:

Yale University Press: Science Writing, Robert Goldbort. (2004, 2005)
John Wiley and Sons: Forest Ecology, Barnes, B.V., D.R. Zak, S.R. Denton and S.H. Spurr.
(1997)

Judge: Ecological Society of America Buell Award for Best Student Poster, 1995, 1996, 1998

Invited Presentations and Seminars

Fujian Normal University, Fujian Province, China, June 2012
Wildflower weekend, Keynote address, Natural Bridge State Park, May 2012
Miami University of Ohio, Department of Biology, Oxford, OH, April 2012
Tiachung University, Taichung, Taiwan, March 2011
Taiwan University, Taipei, Taiwan, March 2011
Dunghua University, Dungha, Taiwan, March 2011

North American Forest Ecology Workshop, Richmond, VA, June 2011
Kentucky Prescribed Fire Council, First Annual Meeting, Greenville, KY, September 2009
Kentucky Prescribed Fire Council, June 2008.
Virginia Tech, Department of Forestry. November 2007.
Eastern Kentucky University, Department of Biology. September 2006.
Centre College, Department of Biology, Centre, Kentucky. March 2006.
Alabama A&M University, Department of Forestry. January 2006.
Northern Kentucky University, Department of Biology. November 2004.
University of Louisville, Department of Biology. 2002.
Eastern Kentucky University, Department of Biology. 2002.
Ohio University, Department of Environmental and Plant Biology. 2002.
Colorado State University, Natural Resources Graduate Student Colloquium. 2001.
Institute of Ecosystem Studies, Millbrook, NY. 2000.
Ohio State University, Dept. of Evolution, Ecology, and Organismal Biology, 2000.
Third International Conference on Long-Term Ecological Research in East Asia-Pacific Region in
Seoul, Korea, 1999
University of Northern Iowa, Department of Biology. 1999.
Bryn Mawr, Environmental Sciences Group. 1999.
Cornell University, Department of Natural Resources. 1999.
University of Illinois, Department of Biology. 1995.
University of New Hampshire, Department of Natural Resources. 1994.
University of Louisville, Biology Department. 1994.
Institute of Ecosystem Studies, Millbrook, NY. 1993.

Professional Affiliations

Ecological Society of America, American Institute of Biological Sciences, Soil Science Society of
America, American Women in Science, Society of American Foresters, Association of
Southeastern Biologists.

Professional Service

Extramural Advisory Committees:

- Member, Steering Committee member for the 2014 5th Fire and Oaks conference to be held in
Alabama, 2015.
- Prescribed Fire Task Force, Convened by the Kentucky Division of Forestry, 2001- 2003.
- Steering Committee, Conference on “Fires, People, and the Central Hardwood Landscape,”
held March 12-14, 2000.
- Natural Areas Scientific Advisory Committee, Bernheim Arboretum and Research Forest,
Bardstown, KY. 1999-2003.
- Research Advisory Committee, National Outdoor Leadership School, Lander, WY. 1990-2001.
- Advisory Board, Raven Run Nature Sanctuary, Lexington, KY. 1994-1997

Presentations and trainings:

- Timber Quality Workshop, Oak Woodlands and Forests Fire Consortium, October 16-7,
2013, Poplar Bluffs, MO.
- Workshop on Ecological Burning (Rx 301), September 24, 2011, Greenville, KY.

Cumberland Plateau Prescribed Fire Workshop, August 11-13, 2008. Planned, organized and convened two-day workshop with Daniel Boone National Forest partners, held at Natural Bridge State Park.

Fire ecology in upland oak ecosystems. Presentation for USFS NASP training, June 2008, Asheville, NC.

Fire and oak ecosystems on the Cumberland Plateau. Training presentation for Rx-310, *Introduction to Fire Effects* class, December 5, 2007, London, KY.

Fire ecology and management in the Cumberlands. Presentation to the *Scientific Foundations of Conservation Planning in the Cumberland Plateau and Mountains* conference, Knoxville, TN, November 13-14, 2007.

Prescribed fire and oak regeneration, Presentation to Oak Regeneration and management, Professional Forestry Workshop, October 3-4, 2007, Lexington, KY.

Fire ecology and research in Appalachian hardwood forests. One-day presentation as part of the US Forest Service PASS (Program of Advanced Silvicultural Studies) Training, Mountain Module Section, May 2006, Asheville, NC.

Fire ecology and management in the central hardwood forest. Two-day presentation as part of the US Forest Service PASS Training, June 2004, Asheville, NC.

Fire and oak regeneration in the central Appalachians. Presented to the Joint Fire Science Program Annual Scientists Meeting, Phoenix, AZ, March 2003.

Prescribed fire effects in oak-pine forests. Presented to East Kentucky Chapter, Society of American Foresters, September 2001.

Other professional recognition

Faculty Futures Award. An incentive award from the University of Kentucky, College Agriculture recognizing achievement and potential in research and leadership. 2005.

TEACHING AND ADVISING

Courses taught (see Teaching Portfolio for teaching evaluations)

- A&S 100 Pathways and Barriers to Sustainability, 2cr, 2014
- A&S 100 Real-World Sustainability, 1 cr, 2015
- FOR 375 Dendrology and ecology, 1 credit, undergraduate forestry summer camp
1993, 1994, 1995, 1996, 1998
- FOR 340 Forest ecology, 3 credits, undergraduate, 1993-1996, 1998, 2000, and 2002-2014
- NRC 471 Senior problem in natural resources, 3 credits, undergraduate, 1993-1999, 2001, 2003, 2004, 2011, 2013-2015
- FOR 612 Forest ecosystem dynamics, 3 credits, graduate, 1994, 1997, 1999, 2001, 2003, 2005
- FOR 620 Biogeochemistry; 3 credits, graduate, 1994
- FOR 770 Graduate seminar, 1 credit, graduate, 1998, 2004, 2010, 2011, 2012
- FOR620 Graduate seminar, 2 credits, Complex ecology, 2005, co-taught with Dr. David Wise, Entomology

UNIVERSITY SERVICE

Committee Assignments

Department of Forestry

Graduate Committee, 1994-1999, 2002-2005, 2007-2009, 2011-2013.

Advisory Committee to the Chair on faculty review, 2000-2001, 2004, 2010, 2011.

Search Committee Chair, Restoration Ecologist Position. 1997-1998.

Search Committees

- Landscape Forest Ecologist, 2013-2014
- Forestry Department Chair, 2010
- Silviculture, 2007
- Forestry and Natural Resources Economics, 2005.
- Forestry Department Chair, 2002-2004.
- Forest Hydrologist Position, 1997-1998.
- Robinson Forest Director Position, 1995-1996.
- Silviculture Extension Position, 1995.
- Forest Hydrologist position, 1994

College of Agriculture

- Search Committee, Associate Dean of Research, 2014
- Planning Committee for Natural Resources and Environmental Sciences, 2007-2009
- College of Agriculture Review Committee, 2007
- Tracy Farmer Center for the Environment Science Advisory Committee, 2006-2007
- Agriculture Faculty Council, 2005-2007
- Agronomy Department, Faculty Search Committee, 2005
- Periodic Review Committee, Department of Landscape Architecture, 2004-2005
- Proposal reviewer, Precision Resource Management Committee grants, 2004 and 2005.
- College of Agriculture Strategic Planning Committee, 2003.
- College Advisory Committee on Appointment, Promotion and Tenure. 2001-2002.
- Search Committee, Associate Dean of Research, 2001.
- Natural Resources Conservation and Management Coordinating Committee. 1993 to present. This committee is responsible for guiding the curriculum for the NRC major.
- Professional Development Committee, 1997-2001. This committee was charged with guiding professional development activities to assist faculty in developing excellence in instructional programs.
- SB 271 Advisory Committee, 1997 to 1999. This committee was responsible for making recommendations to the Associate Deans of Agriculture regarding dissemination of funds from the Senate Bill 271 Water Quality Program. Work entailed reviewing proposals and progress reports, convening a symposium, and guiding future funding agendas.
- Review of upper-class scholarship applications, 1998.
- Gamma Sigma Delta Outstanding Graduate Student Award Committee, 1999.
- Committee to Review GEN 100 and 200, 1999. This committee of eight faculty from throughout the College of Agriculture was charged with the task of evaluating two courses required of all Agriculture majors since 1994.

Other Committees

- University Undergraduate Council, 2014-2016
- University Senate, 2011-2013, 2013-2016; Senate Academic Programs Committee Chair, Biological Sciences Academic Area Committee, 2011-2012.
- Biological Sciences Academic Area Committee, 2006-2008, 2010-2012
- Review committee, Women in Underrepresented Areas Fellowships, 2005-2007.
- UK Task Force on Sustainability, 2004. Subcommittee chair, Transportation Subcommittee.
- Graduate Council Committee on Fellowships and Traineeships, 2004.

Tracy Farmer Center for the Environment, Director Search Committee, 2002.
University Senate, 2001-2003. Structure and Organization Committee.
Center for Ecology, Evolution and Behavior Executive Committee, 1997 to 1998.
Search Committee, Evolutionary Biologist position, Morgan School of Biological Sciences. 1997.
Ad hoc committee to develop a management plan for the Ecological Research Facility (ERF),
Morgan School of Biological Sciences. 1996-1997.

CURRICULUM VITAE

Terrell T. "Red" Baker
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RESIDENCE

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OFFICE

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Department of Forestry
University of Kentucky
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EDUCATION

Ph.D.	Forest Biology	Auburn University	December, 1998
M.S.	<i>Forest Resources</i>	<i>Clemson University</i>	<i>December, 1994</i>
B.A.	Economics	University of the South	May, 1989

CURRENT EMPLOYMENT

University of Kentucky

2010-present Chairman and Professor, James Graham Brown Endowed Professor of Forestry,
Department of Forestry, College of Agriculture

Emphases/Efforts

Administrative:

Administratively responsible for Land Grant University Forestry Department including Cooperative Extension, Research, and Teaching missions. Supervise 13 full-time faculty and, directly or indirectly, 13 full-time professional staff, 3 administrative staff, 4 post-doctoral scholars. Total budget exceeds \$2.3 million. Additional grants and contracts currently exceed \$1 million. Undergraduate enrollment of 65 students, a 30% increase over 10-yr average, and graduate enrollment of 29 (20 MS and 9 Ph.D.). Student Credit Hour production has more than doubled since 2009. Research production as measured by publications increased substantially since 2010. Currently co-teach GEN 300, Communication and Professionalism in Forestry and Natural Resources.

Co-founded Forest Health Research and Education Center at UK; joint effort between UK and USDA Forest Service Southern Research Station. Developed Wildlife Forester undergraduate curriculum track to allow forestry graduates to become certified wildlife biologists. Led effort to establish UK FireCats, first student wildland firefighting team in Kentucky. Led effort to revise

Forestry undergraduate curriculum (2014). Led effort to expand undergraduate forestry internship program with goal of 100% participation by undergraduates.

PREVIOUS EMPLOYMENT

New Mexico State University

2009-2010 **Coordinator/Director**, Range Improvement Task Force (RITF)
2007-2009 **Interim Coordinator/Director**, RITF
2006-2007 **Professor, Riparian Management Specialist**, Extension Animal Science & Natural Resources Dept., New Mexico State University, 60% Cooperative Extension Service (CES), 40% Agricultural Experiment Station (AES)
2004-2006 **Associate Professor, Riparian Specialist**, New Mexico State University
1998-2004 **Assistant Professor, Riparian Specialist**, New Mexico State University

Emphases/Efforts

Administrative:

Coordinator/Director of Range Improvement Task Force, a 30-year old multi-disciplinary applied research and extension team comprised of 8 faculty members (and up to 45 staff) from three CES and AES departments. Responsible for vision, leadership, and management of partial faculty appointments including nearly \$680,000 annual hard-dollar budget, not including grants and contracts totaling approximately \$630,000 annually. Work closely with agricultural industry, state and federal agency directors, county commissioners, state legislators, and NM Congressional Delegation to bring timely and relevant expert testimony to natural resource conflicts throughout state. Responsibilities required detailed knowledge of public policy, public land history and law, and state and federal land management agency policies and regulations. Appointed to serve on NM Executive Directors' Committee, a team of leaders from the primary state and federal natural resource agencies in the state to coordinate programming and troubleshoot problems. Serve as periodic Interim Department Head for Extension Animal Sciences and Natural Resources Department.

Extension:

Developed and managed first *Riparian Ecology and Management Program* for CES in NM. Program focuses on teaching fundamentals of riparian ecology and management strategies to improve watershed, riparian, and stream function while maintaining economic integrity of management units (livestock, forestry, wildlife). Much of work focuses on management of uplands and watershed processes. Work closely with County CES faculty, state and federal agencies, industry groups, conservation organizations, and elected officials at all levels. Riparian extension programs are often designed and delivered around research and monitoring projects, closely integrating Extension and Research missions.

Developed and managed first *Forest Ecology and Management Program* for CES in NM. Provided educational services to state and federal forest management entities to develop strategies for restoring southwestern forest structure, reduce wildfire potential, improve understory production, improve watershed hydrological processes, and improve wildlife habitat. Multi-disciplinary

approaches are used for educational programs and demonstration projects. Extension programs and Research activities are fully integrated and complementary. Work closely with elected officials, other universities, and state agency personnel to bolster Cooperative Extension Service capability in Forest Management realm.

Research:

Riparian research focuses on vegetation dynamics in riparian habitat, livestock effects and livestock/wildlife interactions on functional processes within southwestern riparian areas, and management strategies to appropriately and sustainably graze southwestern riparian systems. Selected specific projects include: meadow forage utilization in Gila National Forest, livestock grazing effects on montane riparian streams, rangeland response to application of dairy manure, riparian vegetation ID guide, supplementation strategies to manage riparian shrubs, and browsing effects on selected riparian shrubs. Cooperate closely with County CES Faculty and agricultural producers to identify research needs, develop relevant and applied research, and collaboratively conduct research. Research results inform and serve as site-specific riparian educational programs, demonstration projects, and vehicle for collaboration.

Forestry-related research focuses on ecology and management in southwestern National Forests, silvicultural treatments to reduce wildfire potential and improve forest understory production and watershed processes, and mechanical harvesting effects on forest soils, runoff, and erosion. Selected specific projects include: wildland fire response to silvicultural treatments in southwestern forests, silvicultural treatment effectiveness in reducing wildland fire danger at the Wildland-Urban Interface, effects of silvicultural treatments on ungulate foraging relationships, soil disturbance from mechanical harvesting and effects on runoff and erosion, and multiple combined silvicultural treatments to reduce wildland fire danger and improve forest condition. Cooperators include state and federal agencies, producer groups, County Extension faculty and on-campus faculty. Work closely with Rocky Mountain Research Station (Flagstaff, Arizona). Work closely with agency personnel to conduct necessary NEPA, install research treatments, and transfer knowledge to be put into practice.

Courses:

Range Science 550 (Masters Special Topics), Range Science 650 (Ph.D. Special Topics), Range Science 599 (Masters Thesis), Range Science 600 (Doctoral Research), Range Science 700 (Doctoral Dissertation). Annual Riparian Ecology and Management Field Laboratory for Range Science 440. Annual 2-day Introduction to Southwestern Natural Resources Ecology and Management lab for Philmont Scout Ranch Summer Staff. Courses taught as needed, guest lectures/labs frequently delivered upon request.

PREVIOUS RELATED POSITIONS

1994-1998 **Graduate Research Assistant**, School of Forestry, Auburn University
Advisor: Dr. B. Graeme Lockaby
Dissertation: *Fine root dynamics on a forested floodplain and litter decomposition in four forested floodplain communities in the southern United States.*

- Designed and executed regional floodplain decomposition and fine root study
- Assisted with other floodplain field research throughout southeastern US

- Member of field research team in Tapajos National Forest in the Brazilian Amazon
 - Developed graduate seminar and served as part-time teaching assistant
- 1992-1994 **Research Assistant**, Department of Forest Resources, Clemson University
 Advisor: Dr. David Van Lear
 Thesis: *The influence of Rhododendron maximum on species richness in the riparian ecosystem of Wine Spring Creek.*
- Acquired funding through Coweeta Hydrological Lab for Masters research
 - Designed and executed southern Appalachian riparian study examining *Rhododendron maximum* effects on riparian vegetation
 - Provided field support for numerous other studies
- 1991-1992 **Programs Manager**, National Wilderness Institute, Washington, DC
- Developed community, corporate, and membership programs for nonprofit think tank.
 - Drafted fundraising, project proposals, wrote column for quarterly magazine (*NWI Resource*), and drafted speeches.
 - Supervised general office management, membership database, internship programs, and assisted with government relations on Capitol Hill.
- 1990 **Volunteer**, The Georgia Chapter of The Nature Conservancy
- Hiked entire 2,162 miles of Appalachian Trail
 - Raised approximately \$6,000 for TNC Georgia Chapter

SUMMARY OF SCHOLARLY ACTIVITIES

- Principal Investigator/Co-PI on grants or contracts totaling approx. \$4.44 million from state, federal, county, and private sources.
- Author/co-author on 30 peer-reviewed publications.
- Author/co-author on 11 Range Improvement Task Force/Agricultural Experiment Station Reports.
- Author/co-author on 45 Extension, outreach publications, or expert testimony.
- Author/co-author on 74 papers, presentations, abstracts, and posters at professional conferences.
- Author/co-author on 31 popular press articles (newspaper, magazine, TV/Radio, press releases).
- Presenter/co-presenter to local groups/organizations or requested to provide expert testimony on more than 600 occasions.
- Service on 35 graduate committees (23 M.S. and 12 Ph.D.) – Chaired 5 M.S. and 3 Ph.D.

Honors:

- Teacher Who Made a Difference (2014)
- James Graham Brown Endowed Professor (2010-present)
- NM Extension Specialists' Association Distinguished Service Award (2008)
- NM Section SRM Rangeland Manager of the Year (2006)

- NMSU CAHE Extension Early Career Award, Epsilon Sigma Phi, (2005)
- Academic Keys Who's Who in Agricultural Higher Education (2003)
- Gamma Sigma Delta, Honor Society of Agriculture (2000)
- USDA Certificate of Appreciation, Iatt Creek Ecosystem Research Project (2000)
- Xi Sigma Pi, Forestry Honor Society (1993)
- Order of Gownsmen, University of the South Academic Honor Society (1989)

SELECTED SERVICE

National

- National Association of University Forest Resource Programs (NAUFRP) (2011-present)
 - Chair, Research Committee (2015-present)
- Member, Executive Committee (2011-present)
- Member, Extension Committee (2012-present)
 - Chair, Southern Region (2011-2014)
- Chair, Society of American Foresters Reaccreditation Visiting Team University of Maine School of Forest Resources (2013)
- Member, University of Tennessee Forestry, Wildlife and Fisheries Periodic Review (2013)
- Member, USDA Forest Service Research and Development Diversity and Inclusiveness Ad Hoc Committee (2012)
- Society for Range Management (1998-2010)
- Advisory Council (2008-2010)
- Watershed and Riparian Committee (2001-2010)
- NM Section President (2009)

Other Professional Organization Affiliations: Society of American Foresters (1992-present), New Mexico Riparian Council (1998 - 2001), New Mexico Watershed Coalition (1999-2000), New Mexico Extension Specialists Association (1998 - present), Ecological Society of America (1997 - 1999), Society of Wetland Scientists (1997 - 1999).

Journal Reviewer: *Rangeland Ecology and Management, Southeastern Naturalist, Journal of American Water Resources Association, Plant and Soil, Biotropica, Journal of Environmental Quality, Soil Science Society of America Journal, Journal of Range Management, Hydrobiologia, Soil Science Society of America Journal.*

State

- Member, Kentucky Forest Industries Association Strategic Planning Committee (2011)
- Ex-Officio Member, Kentucky Woodland Owners' Association Board of Directors (2010-2011)
- Ex-Officio Member, Kentucky Farm Bureau Forestry Committee (2011)
- New Mexico Natural Resource Agency Executive Directors' Committee (2009-present)
- 4-H Wildlife Habitat Evaluation Program State Planning Committee (2002, 2009)
- New Mexico Section of the Society of Range Management (1998-present)
- President (2009)
- Board of Directors (2006-2008)
- Chair, Youth Activities Committee; Co-Founder, High School Youth Forum (2000-2006)

- Board of Directors, NM Forest and Watershed Restoration Inst. at NM Highlands Univ. (2007-present)
- Advisory Board, NM Forest and Watershed Coordinating Group, NM State Forestry (2007-present)
- Member, New Mexico State Technical Committee (1998-2008)

Technical Reviewer: NM Water Resources Research Institute, NRCS Geographical Priority Area Proposals, NMSU Agricultural Experiment Station, Middle Rio Grande Endangered Species Collaborative Research Program.

University/College

- Chair, Department of Animal and Food Sciences Department Chair Search Committee (2014).
- Member, UK IRPE Program Review Redesign Committee (2011).
- Chair, COA Agricultural Economics Program Review (2010-2011).
- Faculty Senator (2007-2008)
- University Affairs Committee
- Cooperative Extension Service Director's Advisory Board (2005-2006, 2007-2010)
 - Chair, NMSU College of Agriculture & Home Economics All College Conference (2003)
- Chair, Joe Skeen Institute for Rangeland Restoration Conference (2006)
- NMSU Extension Specialists' Association
- President – (2005-2006)
- Treasurer – (1998-2000)
- NMSU Performance Evaluation Review Committee (2005-2006)
- Chair, NMSU College of Agricultural, Consumer, & Environmental Sciences All College Conference Planning Committee 2003, Co-Chair 2002.
- New Employee Orientation and Coaching Program (2000-present)
- NMSU CAHE Ad Hoc Publications Committee (2001-2002)
- Instructor, New Mexico 4-H Sportfishing Program (2000-2001)
- Instructor, New Mexico Shooting Sports (Archery) (2000-2003)
- NM Ag in the Classroom Organizing Committee (2000)
- NMSU Animal & Range Science Department Graduate Faculty Committee (2001-present)
- Advisor, NMSU Animal and Range Sciences Department Range Club (1999-2002)
- Student Senator, Auburn University Graduate Student Organization (1995-1997)
- Auburn Univ. School of Forestry Strategic Planning Committee (1995-1997)
- Auburn Univ. School of Forestry Graduate Policy & Procedures Committee (1995-1997)

Search Committees:

1. Chair, RITF Non-Tenure Track, College-Rank Extension Spec. for Forest & Fire-Adapted Systems (2009)
2. Chair, Research Specialist I, RITF (2009)
3. Chair, Southwest District Cooperative Extension Service Department Head (2004)
4. Gerald Thomas Distinguished Chair (2004)
5. Chair, Research Specialist I, RITF and Ext. Animal Resources Department (2003)
6. Chair, Research Specialist I, RITF and Ext. Animal Resources Department (2002)
7. Chair, Research Specialist I, RITF and Ext. Animal Resources Department (2001)
8. NMSU Agricultural Communications Editor (2001)

9. Assistant Professor of Watershed Studies (2000-2001)
10. Extension Natural Resource Specialist (2000)

Local/Community

Board of Directors, Tombaugh Elementary School Afterschool Program (2007-present)
Head Coach, Vipers U8-U10 Las Cruces Soccer Team (2006-present)
Treasurer, Auburn Chapter Ducks Unlimited (1997-1998)

PEER-REVIEWED PUBLICATIONS

❖ 29 total

- 1) Cram, D., T. Baker, C. Edminster, A. Fernald, A. Cibils, and D. VanLeeuwen. Vegetation patterns in a dry mixed conifer forest in south central New Mexico - north and south aspects 50+ years following timber harvest. (*In preparation*)
- 2) Cram, D., T. Baker. Piñon-juniper management regulations and practices in New Mexico: a review of potential economic and ecological effects (*in review*).
- 3) Cram, D., T. Baker, A. Fernald, A. Cibils, D. VanLeeuwen. 2015. Fuel and vegetation trends following fire in treated vs. untreated forests. *Forest Science* (*in press*)
- 4) Fernald, A.G., J. Gallegos, T.T. Baker, and D. VanLeeuwen. 2012. Evaluation of litter hydrology in ponderosa pine and mixed conifer stands of northern New Mexico. *New Mexico Journal of Science*: 46:121-136.
- 5) Smallidge, S.T., T.T. Baker, D.M. VanLeeuwen, W.R. Gould, and B.T. Thompson. 2010. Elk distribution relative to spring vegetation greenness values. *International Journal of Ecology* 2010: 10p (online: ID579808).
- 6) Lujan, A., S.A. Utsumi, S.T. Smallidge, T.T. Baker, , R.E. Estell, A.F. Cibils, S.L. Ivey. 2010. Manipulating sheep browsing levels on coyote willow (*Salix exigua* Nutt.) with supplements. *Sheep and Goat Research Journal* 25:32-38.
- 7) Utsumi, S.A., A.F. Cibils, R.E. Estell, T.T. Baker, and J.H. Walker. 2010. One-seed juniper sapling use by goats in relation to stocking density and mixed grazing with sheep. *Rangeland Ecology and Management* 63(3):273-286.
- 8) Mason, G.J., T.T. Baker, D.S. Cram, J.C. Boren, A.G. Fernald, and D.M. VanLeeuwen. 2009. Mechanical fuel treatment effects on vegetation in a New Mexico dry mixed conifer forest. *Forest Ecology and Management* 257(3):868-875.
- 9) Helmus, A.M., A.G. Fernald, D.M. VanLeeuwen, L.B. Abbott, A.L. Ulery, and T.T. Baker. 2009. Surface water seepage effects on shallow ground-water quality along the Rio Grande in northern New Mexico. *Journal of American Water Resources Association* 45(2):407-418.

- 10) Cabrera, V.E., L.J. Stavast, T.T. Baker, M.K. Wood, D.S. Cram, R.P. Flynn, and A.L. Ulery. 2009. Soil and runoff response to dairy manure application on New Mexico rangeland. *Agriculture, Ecosystems, Environment* 131(3-4) pp 255-262.
- 11) Lucas, R.W., T.T. Baker, M. K. Wood, C.D. Allison, and D.M. VanLeeuwen. 2009. Response of streambanks to different intensities and seasons of cattle grazing in two montane riparian areas in western New Mexico. *NM Water Resources Research Institute Miscellaneous Report No. M29*.
- 12) Wampler, C.R., J.K. Frey, D.M. VanLeeuwen, J.C. Boren, and T.T. Baker. 2008. Mammals in mechanically thinned and non-thinned mixed-coniferous forest in the Sacramento Mountains, New Mexico. *The Southwestern Naturalist* 53(4):431-443.
- 13) Cabrera, V.E., C.P. Mathis, R.E. Kirksey, and T.T. Baker. 2008. Case Study: Development of New Mexico Dairy Manure, a Seasonal Prediction Model for Manure Excretion by Dairy Cattle. *Professional Animal Scientist* 24:175-183.
- 14) Mason, G.J., T.T. Baker, D.S. Cram, J.C. Boren, A.G. Fernald, and D.M. VanLeeuwen. 2007. Mechanical fuel treatment effects on fuel loads and indices of crown fire potential in a south central New Mexico dry mixed conifer forest. *Forest Ecology and Management* 251(3):195-204.
- 15) Ortiz, M., C. Brown, A.G. Fernald, T.T. Baker, R. Creel, and S. Guldan. 2007. Land Use Change Impacts on *Acequia* Water Resources in Northern New Mexico. [*Journal of Contemporary Water Research and Education* \(137\):47-54.](#)
- 16) Fernald, A.G., T.T. Baker, and S. Guldan. 2007. Hydrologic, Riparian, and Agroecosystem Functions of Traditional *Acequia* Irrigation Systems. *Journal of Sustainable Agriculture* 30(2):147-171.
- 17) Allison, C.D., J.L. Holechek, T.T. Baker, J.C. Boren, N.K. Ashcroft, and J.M. Fowler. 2007. Rapid assessment methodology for proactive rangeland management. *Rangelands* 29(2):45-50.
- 18) Cram, D.S., T.T. Baker, A.G. Fernald, C.D. Allison, A. Madrid, and R. Rummer. 2007. Mechanical thinning impacts on runoff, infiltration, and sediment yield following fuel reduction treatments in a southwestern dry mixed-conifer forest. *Journal of Soil and Water Conservation* 62(5):359-366.
- 19) Cram, D.S., T.T. Baker, A.G. Fernald, C.D. Allison, A. Madrid, and R. Rummer. 2007. Reducing the impacts of mechanical thinning in a southwestern forest. Technical Transfer Briefing, *Journal of Soil and Water Conservation* 62(5):121A.
- 20) Madrid, A., A.G. Fernald, T.T. Baker, and D.M. VanLeeuwen. 2006. Evaluation of silvicultural treatment effects on infiltration, runoff, sediment yield, and soil moisture in a mixed conifer New Mexico forest. *Journal of Soil and Water Conservation* 61(3):159-168.

- 21) Cram, D.S., T.T. Baker, and J.C. Boren. 2006. Wildland Fire Effects in Silviculturally Treated vs. Untreated Forest Stands of New Mexico and Arizona. *USDA Forest Service Rocky Mountain Research Station Research Paper RMRS-RP-55*.
- 22) Holechek, J.L., T.T. Baker, J.C. Boren, and D. Galt. 2006. Grazing impacts on rangeland vegetation: What we have learned. *Rangelands* 28(1):7-13.
- 23) Stavast, L.J., T.T. Baker, A.L. Ulery, R.P. Flynn, M.K. Wood, and D.S. Cram. 2005. New Mexico blue grama rangeland response to dairy manure application. *Rangeland Ecology and Management* 58:423-429.
- 24) Lucas, R.W., T.T. Baker, M.K. Wood, C.D. Allison, and D.M. VanLeeuwen. 2004. Riparian vegetation response to different intensities and seasons of cattle grazing in western New Mexico. *Journal of Range Management* 57:466-474.
- 25) Boren, J.C., T.T. Baker, D. Cowley, B.J. Hurd, S. Eaton, and G.J. Mason. 2004. Terrestrial vegetation inventory of water delivery systems between San Acacia Diversion and the Bosque del Apache National Wildlife Refuge. *New Mexico Water Resources Research Institute Technical Completion Report* 333.
- 26) Baker, T.T., B.G. Lockaby, W.H. Conner, C.E. Meier, J.A. Stanturf, and M.K. Burke. 2001. Leaf litter decomposition and nutrient dynamics in four southern forested floodplain communities. *Soil Science Society of America Journal* 65(4):1334-1347.
- 27) Baker, T.T., W.H. Conner, B.G. Lockaby, J.A. Stanturf, and M.K. Burke. 2001. Fine root productivity and dynamics on a forested floodplain in South Carolina. *Soil Science Society of America Journal* 65(2): 545-556.
- 28) Baker, T.T. and D.H. Van Lear. 1998. Relations between density of Rhododendron thickets and diversity of riparian forests. *Forest Ecology and Management* 109: 21-32.
- 29) Lockaby, B.G., R.G. Clawson, and T.T. Baker. 1997. Response of three hardwood species to irrigation and fertilization on an upland site. *Southern Journal of Applied Forestry* 21(3): 123-129.

TECHNICAL & AGRICULTURAL EXPERIMENT STATION REPORTS (peer-reviewed)

❖ 11 total

- 1) Smallidge, S.T., Heather J. Halbritter, Terrell T. Baker, Nicholas K. Ashcroft, Doug S. Cram, and John M. Fowler 2015. RITF Report 82, "Elk and Livestock in New Mexico: Issues and Conflicts on Private and Public Lands" http://aces.nmsu.edu/pubs/_ritf/RITF82.pdf
- 2) Ashcroft, N.K., C.P. Mathis, S.T. Smallidge, J.M. Fowler, and T.T. Baker. 2010. Re-establishment of the Mexican grey wolf: the economics of depredation. *Range Improvement Task Force Report* 80. New Mexico State University. Las Cruces, NM. In Review.

- 3) Gomez, J., S.T. Smallidge, N.K. Ashcroft, and T.T. Baker. 2008. Data entry, organization, and analysis for Rapid Assessment Methodology. New Mexico State University *Range Improvement Task Force Report 76*.
- 4) Cabrera, V.E., C.P. Mathis, R.E. Kirksey, and T.T. Baker. 2007. NM-Manure, a Seasonal Prediction Model for Manure Excretion by Dairy Cattle. New Mexico State University *Agricultural Experiment Station Research Bulletin 797*.
- 5) Boren, J.C. and T.T. Baker. 2007. Challenges and opportunities for developing prescribed grazing guidelines to enhance habitat for endangered species in the Southwest. Pages 47-59 *In Proceedings of the Symposium presented at the 59th Annual Society for Range Management Meeting, Vancouver, BC. Montana State University Press.*
- 6) Baker, T.T. and J.C. Boren. 2007. Livestock grazing prescriptions to enhance riparian wildlife habitat? Pages 30-46 *In Proceedings of the Symposium presented at the 59th Annual Society for Range Management Meeting, Vancouver, BC. Montana State University Press.*
- 7) Allison, C.D., J. Holechek, J.C. Boren, T.T. Baker, J.M. Fowler, and N.K. Ashcroft. 2004. RAM: Rapid Assessment Methodology for Assessing Range Condition. New Mexico State University Cooperative Extension Service *Range Improvement Task Force Report 58*.
- 8) Holechek, J., T.T. Baker, and J.C. Boren. 2004. Controlled Grazing Versus Grazing Exclusion Impacts on Rangeland Ecosystems: What We Have Learned. New Mexico State University *Range Improvement Task Force Report 57*.
- 9) Allison, C.A., T.T. Baker, J.C. Boren, B.D. Wright, and A.G. Fernald. 2001. Range, riparian, water quality, and wildlife monitoring for New Mexico ranchers. New Mexico State University Cooperative Extension Service *Range Improvement Task Force Report 53*.
- 10) Baker, T.T. and J.C. Boren. 2000. Livestock management in southwestern riparian areas dominated by woody vegetation: A summary and extrapolation of the literature. New Mexico State University Cooperative Extension Service *Range Improvement Task Force Report 50*.
- 11) Allison, C.A., J.C. Boren, and T.T. Baker. 2000. Herbaceous utilization by elk in selected mountain meadows in the Gila National Forest. New Mexico State University Cooperative Extension Service, *Range Improvement Task Force Report 49*.

PROFESSIONAL ORGANIZATION CONFERENCE PRESENTATIONS, ABSTRACTS, AND PROCEEDINGS

❖ 74 total

- 1) Cram, D., T. Baker. Using prescribed fire to manage mixed conifer structure and composition. Southwest Fire Ecology Conference. Santa Fe, NM March 1, 2012.
- 2) Cram, D., T. Baker. Structure and composition of a dry mixed-conifer forest in New Mexico. Society of American Foresters Annual Meeting. Honolulu, HI November 2–5, 2011.

- 3) Cram, D. C., T. Baker. Pinyon-juniper management regulations and practices in New Mexico. Society of American Foresters Annual Meeting. Albuquerque, NM October 27–31, 2010.
- 4) Thorpe, J., A.F. Cibils, D. Bailey, and T.T. Baker, Organizers. 2009. Tales of tradition and innovation on the NM Range: Producers' Forum. Symposium of Society for Range Management 62nd Annual Meeting. Albuquerque, NM. February 11, 2009.
- 5) Cram, D.S., T.T. Baker, and C.B. Edminster. 2009. Treated vs. Untreated southwest forest response following wildland fire. Society for Range Management 62nd Annual Meeting. Albuquerque, NM. February 8-12, 2009.
- 6) Cram, D., T. Baker, and C. Edminster. Treated vs. untreated understory forest response following wildland fire in the southwest: implications for range managers. Society for Range Management National Convention, Albuquerque, NM. February 9, 2009.
- 7) Cram, D.S., T.T. Baker, and C.B. Edminster. 2009. Treated vs. Untreated southwest forest response following wildland fire. Tall Timbers Research Station 24th Fire Ecology Conference: Future of Prescribed Fire, Public Awareness, Health, and Safety. Tallahassee, Florida. January 11-15, 2009.
- 8) Baker, T.T. Organizer. 2009. Meeting Energy Challenges for the New Century: Implications for Range Management. New Mexico Section Society for Range Management Annual Winter Meeting. Albuquerque, NM. January 8-9, 2009.
- 9) Baker, T.T. Organizer. 2008. Philmont Scout Ranch. Managing rangelands, livestock, and boy scouts since 1938. New Mexico Section Society for Range Management Summer Tour. Cimarron, NM. July 24-25, 2008.
- 10) Baker, T.T., C.P. Mathis, J.C. Boren, S.T. Smallidge, G. Hawkes, A.G. Fernald, C.D. Allison, and J.M. Fowler. 2008. New Mexico Range Improvement Task Force: An Integrated Team. *J. Anim. Sci.* 86 (Suppl. 2): Laramie, WY. June 23-27, 2008.
- 11) Cram, D.S., T.T. Baker, G.J. Mason. 2008. Evaluation of silvicultural treatment effects on infiltration, runoff, and sediment yield in a south central New Mexico dry mixed conifer forest. Mixed Conifer/Aspen Ecology and Management Meeting, Santa Fe, NM. February 20, 2008.
- 12) Mason, G.J., T.T. Baker, J.C. Boren, D.M. VanLeeuwen, A.G. Fernald, and D.S. Cram. 2008. Crown fire potential and vegetative response under different frequencies and intensities of silvicultural treatments in mixed conifer stands in the Lincoln National Forest, New Mexico. Mixed Conifer/Aspen Ecology and Management Meeting, Santa Fe, NM. February 20, 2008.
- 13) Mason, G.J., T.T. Baker, J.C. Boren, D.M. VanLeeuwen, A.G. Fernald, D.S. Cram, and C.B. Edminster. 2007. Vegetative response of dry mixed-conifer stands to silvicultural treatment. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Helena, MT. August 21-24, 2007.

- 14) Mason, G.J., T.T. Baker, J.C. Boren, D.M. VanLeeuwen, A.G. Fernald, D.S. Cram, and C.B. Edminster. 2007. Fuel loads and crown fire potential in silviculturally treated dry mixed conifer forests. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Helena, MT. August 21-24, 2007.
- 15) Cram, D.S., T.T. Baker, and C.B. Edminster. 2007. Mixed silvicultural treatments on the Sacramento Ranger District, Cloudcroft, New Mexico. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Helena, MT. August 21-24, 2007.
- 16) Madrid, A., A.G. Fernald, and T.T. Baker. 2007. Evaluation of silvicultural treatment effects on infiltration, runoff, sediment yield, and soil moisture in a mixed conifer New Mexico forest. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Helena, MT. August 21-24, 2007.
- 17) Lujan, A., T.T. Baker, A.F. Cibils, S.A. Utsumi, S. Ivey, R. Estell, and M. Peterson. 2007. Manipulating sheep browse on willow. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Helena, MT. August 21-24, 2007.
- 18) Ashcroft, N.K., T.T. Baker, A.G. Fernald, J.C. Boren, A.F. Cibils, D.M. VanLeeuwen, and J.M. Fowler. 2007. Biological Landscape Enhancement in Natural Resource Development (BLEND). Joe Skeen Institute for Rangeland Restoration Annual Workshop. Helena, MT. August 21-24, 2007.
- 19) Hurd B.J., J.C. Boren, T.T. Baker, D.C. Cram, and G.J. Mason. 2007. Effects of grazing, timber harvest, and wildfire on big game forage quantity and quality. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Helena, MT. August 21-24, 2007.
- 20) Wampler, C.R., J.K. Frey, J.C. Boren, T.T. Baker. 2007. Effects of silvicultural treatments on the small mammal community in a southwest coniferous forest. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Helena, MT. August 21-24, 2007.
- 21) Cram, D.S., T.T. Baker, A.G. Fernald, C.D. Allison, A. Madrid, R. Rummer. 2007. Mechanical thinning impacts on runoff, infiltration, and sediment yield following fuel reduction treatments in a southwestern dry mixed-conifer forest. Soil and Water Conservation Society Annual Meeting. Tampa, FL. July 21- 26, 2007.
- 22) Cram, D.S., G.J. Mason, and T.T. Baker. 2007. Upper Watershed Management: Forests, Fire, and Water. NM Section of the Society for Range Management. Albuquerque, NM. January 10-11, 2007.
- 23) Ortiz, M., C. Brown, R. Creel, A.G. Fernald, S. Guldan, and T.T. Baker. 2006. The impacts of land use change on water resources, riparian vegetation, and traditional acequia culture in north-central New Mexico. New Mexico Water Research Symposium, New Mexico Tech, Socorro, New Mexico. August 15, 2006.
- 24) Ortiz, M., C. Brown, A.G. Fernald, R. Creel, T.T. Baker, and S. Guldan. 2006. The impacts of land use change on water resources, riparian vegetation, and traditional acequia culture

in north-central New Mexico. Annual Meeting of the Universities Council on Water Resources, Santa Fe, NM. July 19, 2007.

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- 26) Allison, C.D., S.T. Smallidge, T.T. Baker, D.M. VanLeeuwen, and J.C. Boren. 2006. Landscape level temporospatial distribution of a northcentral New Mexico elk herd in relation to public-land livestock grazing. The Wildlife Society Thirteenth Annual Conference, Anchorage, Alaska. September 23-27, 2006.
- 27) Hays, A.E., K.B. Hays, R.N. Wilkins, J. Mosley, and T.T. Baker. 2006. Using high resolution imagery to monitor conifer encroachment. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Cloudcroft, NM. September 12-15, 2006.
- 28) Mason, G.J., T.T. Baker, J.C. Boren, D.M. VanLeeuwen, A.G. Fernald, and D.S. Cram. 2006. Vegetative response of dry mixed-conifer stands to silvicultural treatment. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Cloudcroft, NM. September 12-15, 2006.
- 29) Mason, G.J., T.T. Baker, J.C. Boren, D.M. VanLeeuwen, A.G. Fernald, and D.S. Cram. 2006. Fuel loads and crown fire potential in silviculturally treated dry mixed conifer forests. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Cloudcroft, NM. September 12-15, 2006.
- 30) Cram, D.S. and T.T. Baker. 2006. Mixed silvicultural treatments on the Sacramento Ranger District, Cloudcroft, New Mexico. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Cloudcroft, NM. September 12-15, 2006.
- 31) Madrid, A., A.G. Fernald, and T.T. Baker. 2006. Evaluation of silvicultural treatment effects on infiltration, runoff, sediment yield, and soil moisture in a mixed conifer New Mexico forest. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Cloudcroft, NM. September 12-15, 2006.
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- 33) Ashcroft, N.K., T.T. Baker, A.G. Fernald, J.C. Boren, A.F. Cibils, D.M. VanLeeuwen, and J.M. Fowler. 2006. Biological Landscape Enhancement in Natural Resource Development (BLEND). Joe Skeen Institute for Rangeland Restoration Annual Workshop. Cloudcroft, NM. September 12-15, 2006.
- 34) Hurd B.J., J.C. Boren, T.T. Baker, D.C. Cram, and G.J. Mason. 2006. Effects of grazing, timber harvest, and wildfire on big game forage quantity and quality. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Cloudcroft, NM. September 12-15, 2006.

- 35) Wampler, C.R., J.K. Frey, J.C. Boren, and T.T. Baker. 2006. Effects of silvicultural treatments on the small mammal community in a southwest coniferous forest. Joe Skeen Institute for Rangeland Restoration Annual Workshop. Cloudcroft, NM. September 12-15, 2006.
- 36) Ortiz, Q., C. Brown, A.G. Fernald, T.T. Baker, R. Creel, and S. Guldan. 2006. The Impacts of Land Use Change on Water Resources and Traditional *Acequia* Culture in Northern New Mexico. 2006 UCOWR Annual Meeting. Santa Fe, NM. July 20, 2006.
- 37) Baker, T.T., J.C. Boren, and M.K. Wood. 2006. Livestock grazing prescriptions to enhance wildlife habitat? A review. *In*: J. Knight, D. Rollins, and J.C. Boren. (Tech. Coords.) Proceedings of the Society for Range Management Symposium: Prescribed Livestock Grazing to Enhance Wildlife Habitat. Vancouver, BC. February 13-17, 2006.
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- 39) Mason, G.J., T.T. Baker, J.C. Boren, D.M. VanLeeuwen, A.G. Fernald, D.S. Cram, and B.J. Hurd. 2006. Vegetative response of mixed conifer stands to different types and frequencies of silvicultural treatment. Society for Range Management National Convention, Vancouver, BC. February 12-17, 2006.
- 40) Hurd, B.J., J.C. Boren, T.T. Baker, D.S. Cram, and G.J. Mason. 2006. Effects of grazing, timber harvest, and wildfire on big game forage quantity and quality. Society for Range Management 59th Annual Meeting. Vancouver, BC. February 14, 2006.
- 41) Hurd, B.J., J.C. Boren, T.T. Baker, and C.B. Edminster. 2006. Distributional and dietary overlap of elk, deer, and cattle in the Lincoln National Forest. Society for Range Management 59th Annual Meeting. Oral presentation. Vancouver, BC. February 16, 2006.
- 42) Mason, G.J., T.T. Baker, J.C. Boren, D.M. VanLeeuwen, A.G. Fernald, D.S. Cram, and B.J. Hurd. 2005. Fuel loading and vegetative response of mixed conifer stands to different types and frequencies of silvicultural treatment. Society of American Foresters Annual Conference. Ft. Worth, TX. October 19-23, 2005.
- 43) Wood, M.K. and T.T. Baker. 2005. Defining Healthy Riparian Zones. River and Lake Restoration. 2005 UCOWR/NIWR Annual Conference. Portland, ME. July 12-14, 2005.
- 44) Cram, D.S., T.T. Baker, J.C. Boren, and C.B. Edminster. 2005. Wildfire effects in silviculturally treated vs. untreated forests of the southwestern United States. European Geosciences Union Special Session on Wildland Fire: Spatial and Temporal Patterns of wildfires: models, theory, and reality. Vienna, Austria. April, 2005.

- 45) Boren, J.C. and T.T. Baker. 2005. Wildlife Habitat Restoration of NMSU's Joe Skeen Institute. Joe Skeen Institute for Rangeland Restoration Annual Meeting. Kerrville, TX. April 11-13, 2005.
- 46) Baker, T.T., D.S. Cram, G.J. Mason, and J.C. Boren. 2005. Rangeland and Forest Restoration Initiative of NMSU's Joe Skeen Institute. Joe Skeen Institute for Rangeland Restoration Annual Meeting. Kerrville, TX. April 11-13, 2005.
- 47) Baker, T.T. 2005. Practical approaches to science-based watershed restoration. Western Community Partnerships for Restoration Conference. Ruidoso, NM. March 30-31, 2005.
- 48) Cram, D.S., T.T. Baker, and J.C. Boren. 2005. Wildfire effects in treated vs. untreated forests. Wildland Fire 2005. Albuquerque, NM. February 16-18, 2005.
- 49) Mason, G.J., T.T. Baker, J.C. Boren, D.S. Cram, B.J. Hurd, and C.B. Edminster. 2004. Fuel loading and vegetative response of mixed-conifer stands to different types and frequencies of silvicultural treatment. Mixed-Severity Fire Regime Conference, Spokane, WA. November 17-19, 2004.
- 50) Cram, D.S., T.T. Baker, J.C. Boren, C.B. Edminster. 2004. Wildland fire effects in silviculturally treated vs. untreated pine and mixed conifer stands of the Southwest. Mixed-Severity Fire Regime Conference, Spokane, WA. November 17-19, 2004.
- 51) Madrid, A., A.G. Fernald, and T.T. Baker. 2004. Evaluation of Forest Thinning Effects on Runoff, Sediment Yield, and Vegetative Cover in a New Mexico Forest. New Mexico Water Resources Research Institute 49th Annual Conference. Ruidoso, NM. September 21-22, 2004.
- 52) Baker, T.T. and J.C. Boren. 2004. New Mexico State University's Joe Skeen Institute for Rangeland Restoration – Forest/Rangeland Restoration Initiative. Montana State University Research Report.
- 53) Boren, J.C. and T.T. Baker. 2004. New Mexico State University's Joe Skeen Institute for Rangeland Restoration – Wildlife Habitat Improvement Initiative. Montana State University Research Report.
- 54) Baker, T.T. and J.C. Boren. 2004. New Mexico State University's Joe Skeen Institute for Rangeland Restoration – Forest/Rangeland Restoration Initiative. Rocky Mountain Research Station Research Report.
- 55) Boren, J.C. and T.T. Baker. 2004. New Mexico State University's Joe Skeen Institute for Rangeland Restoration – Wildlife Habitat Improvement Initiative. Research Overview for Rocky Mountain Research Station.
- 56) Cram, D.S., T.T. Baker, J.C. Boren, and C.B. Edminster. 2003. Wildland Fire Effects in Silviculturally Treated vs. Untreated Forest Stands in New Mexico and Arizona. 57th Annual Meeting of the Society for Range Management. Salt Lake City, UT. January 24-30, 2003.

- 57) Cram, D.S., T.T. Baker, J.C. Boren, and C.B. Edminster. 2003. Wildland Fire Effects in Silviculturally Treated vs. Untreated Forest Stands in New Mexico and Arizona. 2nd International Wildland Fire Ecology and Fire Management Congress. Orlando, FL. November 16-20, 2003.
- 58) Hurd, B.J., J.C. Boren, T.T. Baker, and B.D. Wright. 2003. Effects of Big Game and Livestock on Plant Cover in Logged Areas. Western States and Provinces Elk and Deer Workshop. Jackson Hole, WY. May 21-24, 2003.
- 59) Cram, D.S., T.T. Baker, J.C. Boren, C.B. Edminster. 2002. Inventory and classification of wildland fire effects in silviculturally treated vs. untreated forest stands of New Mexico and Arizona. 2002 Fire Conference: Managing Fire and Fuels in the Remaining Wildlands and Open Spaces of the Southwestern United States, San Diego, CA. December 2-5, 2002.
- 60) Baker, T.T., R. Lee, and M.K. Wood. 2002. Southwestern riparian areas: historical management and current challenges. *In*: Integrated Trans-boundary Water Management. Universities Council on Water Resources Conference. Traverse City, MI. July 24, 2002.
- 61) Allison, C.D., T.T. Baker, J.C. Boren, B.D. Wright, and A.G. Fernald. Monitoring Rangelands in New Mexico: Range; range, riparian, erosion and water quality, and wildlife. *In*: Proceeding from 3rd Association of Natural Resource Extension Professionals. Naples, FL. June 3-6, 2002.
- 62) Stavast, L.J., T.T. Baker, M.K. Wood, A.L. Ulery, and R.P. Flynn. 2002. Application of dairy wastes to blue grama rangelands in New Mexico: Results on vegetation, soils, and runoff water quality. 55th Annual Meeting of the Society for Range Management. Great Rivers, Great Plains, Great Opportunities. Kansas City, MO. February 13-19, 2002.
- 63) Lucas, R.W., T.T. Baker, M.K. Wood. 2001. Effects of cattle grazing on two riparian areas in the Gila National Forest, New Mexico. Proceedings 37th Annual meeting of the American Water Resource Association. Albuquerque, NM. November 11-14, 2001.
- 64) Baker, T.T. 2001. Management of New Mexico's riparian areas. Pages 1-8 *In*: Proceedings New Mexico Watershed Management: Restoration, Utilization, and Protection. New Mexico Water Resources Research Institute. Santa Fe, NM. November 6, 2001.
- 65) Baker, T.T. 2001. Livestock management in southwestern riparian areas. World Wide Web Proceedings Southern Region Extension Water Quality Coordinators Annual Conference. Gulf Shores, AL. October 30, 2001.
- 66) Van Lear, D.H., D.B. Vandermast, C.T. Rivers, T.T. Baker, B.D. Clinton, and T.A. Waldrop. 2001. Rhododendron encroachment threatens future health of Appalachian cove forests. Society of American Foresters Annual Convention. Denver, CO. September 13-17, 2001.
- 67) Lucas, R.W., T.T. Baker, and M.K. Wood. 2001. Riparian area response to altering season of use and intensity of cattle grazing in the Gila National Forest, New Mexico. Proceedings 86th Annual meeting of the Ecological Society of America. Madison, WI. August 5-10, 2001.

- 68) Van Lear, D.H., D.B. Vandermast, C.T. Rivers, T.T. Baker, C.W. Hedman, B.D. Clinton, and T.A. Waldrop. 2001. Rhododendron encroachment threatens future health of Appalachian Cove Forests. 3rd North American Forestry Ecology Workshop. Duluth, MN. June 24-27, 2001.
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- 70) Lucas, R.W., T.T. Baker, and M.K. Wood. 2001. Riparian area response to different seasons and intensities of cattle grazing in the Gila National Forest, New Mexico. Proceedings 54th Annual meeting of the Society for Range Management. Kailua-Kona, HI. February 18-23, 2001.
- 71) Hernandez, I.I., T.T. Baker, and M.K. Wood. 2001. Prioritizing areas for natural resources improvement in the Rio Laja Watershed, Guanajuato, Mexico. Society for Range Management 54th Annual Meeting. Kona, HI, February 17-23, 2001.
- 72) Baker, T.T. 2000. Riparian management and monitoring in New Mexico. *In*: 5th Annual United States Environmental Protection Agency Region 6 Non-Point Source Pollution Watershed Conference. Angel Fire, NM. May, 2000.
- 73) Baker, T.T., W.H. Conner, B.G. Lockaby, M.K. Burke, and J.A. Stanturf. 2000. Root Growth. Pages 42-43 *In*: M.K. Burke and M.H. Eisenbies (Eds.). The Coosawhatchie Bottomland Ecosystem Study: a report on the development of a reference wetland. USDA Forest Service Southern Research Station, Asheville, North Carolina, Gen. Tech. Rep. SRS-38.
- 74) Baker, T.T., W.H. Conner, B.G. Lockaby, J.A. Stanturf, and M.K. Burke. 2000. Litter decomposition. Pages 49-50 *In*: M.K. Burke and M.H. Eisenbies (Eds.). The Coosawhatchie Bottomland Ecosystem Study: a report on the development of a reference wetland. USDA Forest Service Southern Research Station, Asheville, North Carolina, Gen. Tech. Rep. SRS-38.

COOPERATIVE EXTENSION SERVICE & OUTREACH PUBLICATIONS, INCLUDING WRITTEN EXPERT TESTIMONY

❖ 45 total

- 1) Cram, D., and T. Baker. 2012. Startup Guide for Forestry and Wood Products Cooperatives in New Mexico. New Mexico Cooperative Extension Publication Guide Z-117.
- 2) Cram, D., T. Baker. Research and extension review for 2010. Range Improvement Task Force Advisory Board Meeting, Albuquerque, NM. December 2, 2010.
- 3) Cram, D., and T. Baker. Review of Hanson (2010): *The Myth of "Catastrophic" Wildfire – a new ecological paradigm of forest health* for NM State Forestry. October 2010.
- 4) Smallidge, S.T. and T.T. Baker. Review of misuse of animal unit equivalencies and conversion factors in USFS management of federal grazing permits. March 2009.

- 5) Baker, T.T. Review of Senate Joint Memorial 40/Off-Road Vehicle proposal to create new legislation guiding management and regulation of off-road vehicles. November 2008.
- 6) Baker, T.T. Review of Governor's Outstanding National Resource Waters proposal to list 5,300 miles of NM streams as ONRWs. September 2008.
- 7) Smallidge, S.T., T.T. Baker, C.D. Allison, and J.M. Fowler. Cedar Breaks Allotment Management Plan. July 2008.
- 8) Baker, T.T., C.D. Allison, and B. Hinrichs. Review of Noninsured Crop Disaster Assistance Program in New Mexico. February 2008.
- 9) Baker, T.T., C.P Mathis, S.T. Smallidge, J.C. Boren, and N.K. Ashcroft. NM Ranching. 2008. New Mexico State University Cooperative Extension Service, Range Improvement Task Force, and Agricultural Experiment Station Brochure.
- 10) Smallidge, S.T., N.K. Ashcroft, J.M. Fowler, and T.T. Baker. Review of NM Department of Game and Fish wolf effects on elk population model. December 2007.
- 11) McDaniel, K., T.T. Baker, and D.S. Cram. Review of the efficacy of leafy spurge monitoring on the Philmont Scout Ranch to Questa Ranger District of Carson National Forest. June 2007.
- 12) Baker, T.T. Review of the North Otero County Grazing EA. June 2007.
- 13) Baker, T.T. and S.T. Smallidge. Review of AOI for Jarita Mesa Allotment, El Rito District of Carson national Forest. February 2007.
- 14) Fowler, J.M., T.T. Baker, and J.C. Boren. Mexican Spotted Owl Science Review. Report for Otero County Commission. September 2006
- 15) Gomez, J., T.T. Baker, and S.T. Smallidge. Jarita Mesa Allotment range monitoring report for October 2006. Report submitted to El Rito District of Carson National Forest. October, 2006.
- 16) Baker, T.T. and S.T. Smallidge. Jarita Mesa Allotment range monitoring report for August 2006. Report submitted to El Rito District of Carson National Forest. August 2006.
- 17) Baker, T.T. Review of the NM Environment Department, and allotment inspection, of the Flechado Allotment on the Camino Real District of the Carson National Forest. June 2006.
- 18) Baker, T.T., J. Gomez, and G.J. Mason. Jarita Mesa Grazing Assessment. Monitoring report for USDA Forest Service, Rio Arriba County, and Jarita Mesa Grazing Association. May 2006.
- 19) Baker, T.T. New Mexico State University's Forest and Rangeland Restoration Initiative. Joe Skeen Institute for Rangeland Restoration Web Publication. April 2006.

- 20) Mason, G.J., T.T. Baker, J.C. Boren, D.M. VanLeeuwen, A.G. Fernald, D.S. Cram, and B.J. Hurd. 2006. Fuel loading and vegetative response of mixed conifer stands to different types and frequencies of silvicultural treatment. Livestock Research Briefs and Cattle Growers Short Course, Clovis, NM. March 23–24, 2006.
- 21) Baker, T.T. and D.S. Cram. 2005. Frequently asked questions: Riparian and Forest Management. E-Extension Website.
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- 24) Boren, J.C., S.C. Eaton, B.J. Hurd, and T.T. Baker. 2005. Monitoring elk, deer, and pronghorn populations on your ranch. Corona Range and Livestock Research Center Field Day, New Mexico State University. Corona, NM. July 22, 2005.
- 25) Baker, T.T., J.C. Boren, and C.D. Allison. 2005. Riparian grazing management. Livestock Research Briefs and Cattlegrowers' Shortcourse. Annual Proceedings. March 2005.
- 26) Mason, G.J., T.T. Baker, J.C. Boren, D.S. Cram, and B.J. Hurd. 2005. Fuel loading and vegetative response of mixed conifer stands to different types and frequencies of silvicultural treatment. Livestock Research Briefs and Cattlegrowers' Shortcourse. Alamogordo, NM. March 2005.
- 27) Boren, J.C., S. Eaton, T.T. Baker, and B. Starnes. 2004. Financial incentives for New Mexico's private landowners to manage wildlife. New Mexico State University Cooperative Extension Service Brochure.
- 28) Cram, D.S., and T.T. Baker. Fuel and forage management in Southwestern forests. New Mexico Stockman Magazine. March 2004.
- 29) Fernald, A.G., S. Guldán, T.T. Baker, and J.P. King. 2003. Irrigation Ditch Seepage Effects on Surface Water/Groundwater Interaction along the Rio Grande Corridor. *In: Efficient Irrigation for Water Conservation*. New Mexico State University *Water Task Force Report #1*.
- 30) Boren, J.C., T.T. Baker, and D.E. Cowley, B.J. Hurd. 2003. Growing trout in New Mexico ponds. New Mexico State University *Cooperative Extension Service Guide L-108*.
- 31) Boren, J.C., B.D. Wright, and T.T. Baker. 2003. Tanning deer hides and small fur skins. New Mexico State University *Cooperative Extension Service Guide L-103*.

- 32) Baker, T.T., J.C. Boren, and C.D. Allison. 2001. Riparian management strategies for New Mexico landowners. *New Mexico Cooperative Extension Service Guide B-119*.
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TELEVISION, AUDIO, NEWSPAPER, MAGAZINE, & NEWSLETTER

❖ 34 total

- 1) Baker, T.T. 2013. UK's role in upcoming Kentucky Wood Expo. University of Kentucky "at the Half" halftime radio interview. September 9, 2013
- 2) Baker, T.T. 2012. The Forestry Department and Forest Industry in Kentucky, University of Kentucky "at the Half" halftime radio interview. November 5, 2012.
- 3) Baker, T.T. 2012. Letter from the Chair. Department of Forestry Fall Newsletter, University of Kentucky. August 2012.
- 4) Baker, T.T. 2011. Letter from the Chair. Department of Forestry Fall Newsletter, University of Kentucky. January 2011.
- 5) Baker, T.T. 2010. Letter from the Chair. Kentucky Woodlands Magazine. November 2010.
- 6) Baker, T.T. 2010. Letter from the Chair. Department of Forestry Fall Newsletter, University of Kentucky. September 2010.
- 7) Baker, T.T. 2009. Del escritorio del president (From the desk of the president). NM Section Society for Range Management Newsletter. Fall 2009.
- 8) Baker, T.T. 2009. Del escritorio del president. Getting engaged, re-engaged, and energized; SRM's NM Section has a role to play. NM Section Society for Range Management Newsletter. Spring 2009.
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- 10) Cram, D.S. and T.T. Baker. 2008. Philmont Scout Ranch: Managing rangelands, livestock, and boy scouts since 1938. New Mexico Section Society for Range Management Newsletter. Summer 2008.
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- 14) Pehr, D., T.T. Baker, and D.S. Cram. 2006. Researchers test gentler tree-thinning machine. Las Cruces Sun News. February 2006.
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- 18) Baker, T.T. and D.S. Cram. 2005. Riparian vegetation response to grazing in southwestern mountains. Aggie Notes. New Mexico Stockman. February 2005.
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- 20) Baker, T.T. and D.S. Cram. 2003. Study Supports Forest Clearing. Albuquerque Journal. June 22, 2003.
- 21) Baker, T.T. and D.S. Cram. 2003. Fuel Load Reduction found to be critical in curbing wildfires. Las Cruces Sun News. June 14, 2003.
- 22) Baker, T.T. 2003. Livestock Management in Southwestern Riparian Areas. Aggie Notes. New Mexico Stockman. July 2003.
- 23) Allison, C.D., J. Holechek, J.M. Fowler, J.C. Boren, T.T. Baker, and N.K. Ashcroft. 2003. RAM: Rapid Assessment Methodology for Assessing Range Condition. Northern New Mexico Stockman's Newsletter. April 2003.
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- 25) Baker, T.T. 2002. Drought challenges New Mexico's farmers and ranchers and threatens a severe 2002 fire season. KRWG News interview. April 26, 2002.

- 26) Baker, T.T. and A. Perez-Wright. 2001. Announcing Black Mesa Range Camp. New Mexico State University Cooperative Extension Service and New Mexico Section of the Society for Range Management April 2001.
- 27) Baker, T.T. 2001. New Mexico's 2nd Annual High School Youth Forum. New Mexico Section of the Society for Range Management Spring Newsletter.
- 28) Robinson, K. and Baker, T.T. 2001. Workshops teach land monitoring. Albuquerque Journal March 2001.
- 29) Baker, T.T. 2001. New Mexico's 2nd annual High School Youth Forum. New Mexico Section of the Society for Range Management Spring Newsletter.
- 30) Baker, T.T. and A. Perez-Wright. 2000. Announcing the first annual New Mexico High School Youth Forum. New Mexico State University Cooperative Extension Service and New Mexico Section of the Society for Range Management. September 2000.
- 31) Parker, L. and T.T. Baker. 2000. Panel considers the value of cattle on public land. Las Cruces Sun-News. June 2000.
- 32) Baker, T.T. 2000. New Mexico's 1st annual High School Youth Forum. New Mexico Section of the Society for Range Management Fall Newsletter. November 2000.
- 33) Perez-Wright, A. and T.T. Baker. 2000. New Mexico's High School Youth Forum. Press Release to New Mexico newspapers and radio stations. New Mexico State University Cooperative Extension Service. September 2000.

EXTERNAL FUNDING

❖ Cumulative Funding \$4.875 million

A proposal to create the Forest Health Research and Education Center at the University of Kentucky. 2014. Joint Venture Agreement submitted to USDA Forest Service Southern Research Station. \$591,780.00. 2 years.

Belli, K., J.M. Fly, G. Blank, P.S. Williams, L. Lhotka, S. Bullard, and T.T. Baker. 2013. A Comprehensive Recruitment and Retention Assessment System for Forest Resource Programs. Grant submitted to Higher Education Challenge Grant program. \$596,989. Funding denied.

Belli, K., J.M. Fly, G. Blank, P.S. Williams, L. Lhotka, S. Bullard, and T.T. Baker. 2011. A Comprehensive Recruitment and Retention Assessment System for Forest Resource Programs. Grant submitted to Higher Education Challenge Grant program. \$565,330. Funding denied, resubmittal planned.

Enhancing Forestry Students' Team Building and Leadership Skills. L. Lhotka and T. Baker. (2011). Charles E. Barnhart Fund for Academic Excellence. \$851. [Not funded]

Department of Forestry Graduate Program. L. Lhotka, T. Baker, and D. Wagner. (2011). Graduate School Academic Year (GSAY) Fellowship Application. The GSAY Fellowships include a stipend of \$15,000 per year, in-state and out-of-state tuition scholarships and student health insurance. [Decision pending].

Enhancing Forestry Students' Team Building and Leadership Skills. L. Lhotka, J. Ringe, T. Baker. (2011). Teaching Incentive and Improvement Fund for the College of Agriculture. \$851. [Funded]

Smallidge, S.T., S. Eaton, T.T. Baker. 2010. Natural Resources Youth Education: 4-H Wildlife Habitat Evaluation Program: A Proposal Submitted to the U.S. Fish and Wildlife Service on behalf of the 4-H Wildlife Habitat Evaluation Program National Committee. (\$254,600 through 2014).

N. Ashcroft, S.T. Smallidge, D. Cram, and T.T. Baker. 2010. Rangeland Improvement: Analyzing the cumulative impacts of federal land policy and management. (\$214,080).

Hawkes, J., D. Cram, and T.T. Baker. 2010. Eastern Gila Forest and Community Restoration Project. (\$58,824).

Baker, T.T. 2010. Multiple-use issues within Otero County related to the Lincoln National Forest. (\$25,000).

Fernald, A., S. Guldan, and T.T. Baker. 2010. Efficient irrigation for water conservation. AES and CES through CSREES and TAMU. (\$50,000).

Baker, T.T., N. Ashcroft, and S.T. Smallidge. 2009. Rangeland Improvement: Analyzing the cumulative impacts of federal land policy and management. (\$200,640).

Baker, T.T. 2009. Multiple-use issues within Otero County related to the Lincoln National Forest. (\$25,000).

Smallidge, S.T., T.T. Baker, and C.D. Allison. 2008. Monitoring the effects of salt cedar control on the Canadian River Riparian Restoration Project. (\$42,000).

Schneberger, M., D.S. Cram, and T.T. Baker. 2008-2013. Eastern Gila Forest and Community Restoration Project. USDA Region 3 CFRP Grants. (\$60,000 for 3 years).

Baker, T.T., N. Ashcroft, and S.T. Smallidge. 2008. Multiple-use issues within Otero County related to the Lincoln National Forest. (\$25,000).

Baker, T.T. 2008. Analyzing the cumulative impacts of federal land policy and management. (\$225,000).

Baker, T.T., and J.M. Fowler. 2008. New Mexico State University Vegetation Monitoring Team. 2008 New Mexico State Legislature. (\$99,300).

Fowler, J. and T.T. Baker, T.T. 2007. Analyzing the cumulative impacts of federal land policy and management. (\$225,000).

Baker, T.T. and J.C. Boren. 2007-2009. Inventory of southwestern national forest wildfires: An assessment of silviculturally treated versus untreated wildland fires. USDA Rocky Mountain Experiment Station Grant (\$224,504).

Boren, J.C. and T.T. Baker. 2007-2009. Effects of silvicultural treatments for fuels management and forest restoration on habitat and wildlife responses on southwestern national forests. USDA Rocky Mountain Experiment Station Grant \$200,000).

Allison, C.D., T.T. Baker, S.T. Smallidge. 2007. PSA between the Ute Creek Watershed Restoration & Management Project and NMSU. September 18, 2006 through June 30, 2007. (\$21,184).

Allison, C.D., T.T. Baker, S.T. Smallidge. 2006-2007. Monitoring the effects of salt cedar control on the Canadian River. Canadian River Riparian Restoration Project. September 18, 2006 through June 30, 2007. (\$80,500).

Baker, T.T., D.S. Cram, G.J. Mason, and J.C. Boren. 2006. Wildfire and fuels management effects in treated stands on southwestern national forests 2007-2008. Amendment submitted to Rocky Mountain Research Station. May 2006. \$90,833.

Allison, C.D, T.T. Baker, S.T. Smallidge. 2006-2007. Ute Creek Riparian Restoration Monitoring Project. (\$19,800).

Baker, T.T. 2007. Riparian Vegetation Restoration along South-Central New Mexico Montane Stream Systems. USDA MacIntire-Stennis Program (\$150,000 – 30,000 per year for 5 years).

Allison, C.D, T.T. Baker, S.T. Smallidge. 2005-2006. Canadian River Riparian Restoration Monitoring Project. (\$80,500).

Baker, T.T., J.C. Boren, D.S. Cram, J.M. Fowler, and C.D. Allison. 2006-2008. New Mexico State University's Joe Skeen Institute for Forest and Rangeland Management Research – Forest/Rangeland Restoration Initiative. Joe Skeen Institute for Rangeland Restoration. (\$110,546).

Brown, C., A.G. Fernald, T.T. Baker, R. Creel, and M. Ortiz. 2005-2006. The Impacts of Land Use Change on Water Resources and Traditional *Acequia* Culture in North Central New Mexico. NMSU Research Mini-Grant Program Water Science and Education Center of the Natural Resources Cluster. (\$25,000).

Baker, T.T., J.C. Boren, D.S. Cram, and B.J. Hurd. 2006-2007. Inventory of southwestern national forest wildfires: An assessment of silviculturally treated versus untreated wildland fires. USDA Rocky Mountain Experiment Station Grant \$105,696).

Boren, J.C., T.T. Baker, B.J. Hurd, and D.S. Cram. 2004 – 2006. Effects of silvicultural treatments for fuels management and forest restoration on habitat and wildlife responses on

southwestern national forests. USDA Rocky Mountain Experiment Station Grant (\$169,610 for two years).

Baker, T.T., D.S. Cram, A.G. Fernald, and C. Ochoa. 2004-2005. Mechanical Harvesting Impacts on Site Disturbance, Ground Cover and Runoff/Erosion. USDA Forest Service Southern Research Station Agreement. (\$26,000).

Baker, T.T., J.C. Boren, D.S. Cram, J.M. Fowler, and C.D. Allison. 2005-2007. New Mexico State University's Joe Skeen Institute for Forest and Rangeland Management Research – Forest/Rangeland Restoration Initiative. Joe Skeen Institute for Rangeland Restoration. (\$136,477).

Baker, T.T., J.C. Boren, D.S. Cram, J.M. Fowler, and C.D. Allison. 2004-2006. New Mexico State University's Joe Skeen Institute for Forest and Rangeland Management Research – Forest/Rangeland Restoration Initiative. Joe Skeen Institute for Rangeland Restoration. (\$115,465).

Boren, J.C., Baker, T.T., D.S. Cram, J.C. Boren, J.M. Fowler, and C.D. Allison. 2004-2006. New Mexico State University Joe Skeen Institute for Forest and Range Management Research and Education: Wildlife Management and Ecology. (\$115,464 total).

Baker, T.T., J.C. Boren, D.S. Cram, J.M. Fowler, and C.D. Allison. 2003-2005. New Mexico State University's Joe Skeen Institute for Forest and Rangeland Management Research – Forest/Rangeland Restoration Initiative. Joe Skeen Institute for Rangeland Restoration. (\$139,121).

Boren, J.C., T.T. Baker, D.S. Cram, J.M. Fowler, and C.D. Allison. 2003-2005. New Mexico State University Joe Skeen Institute for Forest and Range Management Research and Education: Wildlife Management and Ecology. (\$145,102).

Baker, T.T., J.C. Boren, D.S. Cram, and B.J. Hurd. 2004-2006. Inventory of southwestern national forest wildfires: An assessment of silviculturally treated versus untreated wildland fires. USDA Rocky Mountain Experiment Station Grant (\$102,702).

Boren, J.C. and T.T. Baker, B.J. Hurd, and D.S. Cram. 2004. Foraging relationships between elk, mule deer and cattle on salvage-logged sites in southwestern national forests: Research joint venture amendment for Phase Four. USDA Rocky Mountain Experiment Station Grant (\$83,488 total).

Baker, T.T., J.C. Boren, D.S. Cram, and B.J. Hurd. 2003. Inventory of southwestern national forest wildfires: An assessment of silviculturally treated versus untreated wildland fires. USDA Rocky Mountain Experiment Station Grant (\$84,799).

Boren, J.C., T.T. Baker, B.J. Hurd, J.M. Fowler. 2002-2003. Foraging relationships between elk, mule deer and cattle on southwestern national forests: Research joint venture amendment for phase three. USDA Forest Service Rocky Mountain Research Station Grant (\$80,000).

Baker, T.T. and L. Stavast. 2002. Evaluating the effects of manure applications on broom snakeweed populations, other vegetation, soil, and runoff on rangelands in New Mexico. New Mexico State University snakeweed research project (\$24,000).

Boren, J.C., T.T. Baker, and B.D. Wright. 2001. Natural Resources Education for New Mexico Youth. US Fish and Wildlife Service, Extension Sea Grant Program (\$25,000).

Fernald, A.G., S. Guldan, T.T. Baker, J.P. King. 2001. Irrigation ditch seepage effects. USDA Special Projects: Efficient Irrigation for Water Conservation in the Rio Grande Basin, College of Agriculture and Home Economics (\$139,033)

Baker, T.T., J.C. Boren, J.M. Fowler, and A.G. Fernald. 2001. Inventory of southwestern national forest wildfires: An assessment of silviculturally treated versus untreated wildland fires. USDA Rocky Mountain Experiment Station Grant (\$225,000)

Baker, T.T. and L. Stavast. 2001. Evaluating the effects of manure applications on broom snakeweed populations, other vegetation, soil, and runoff on rangelands in New Mexico. New Mexico State University snakeweed research project (\$24,000).

Baker, T.T. 2001. Riparian area response to different seasons and intensities of livestock use on southwestern riparian forests. USDA MacIntire-Stennis Program (\$100,000 – 20,000 per year for 5 years).

Boren, J.C., B.D. Wright, and T.T. Baker. 2000. Foraging relationships between elk, mule deer and cattle on southwestern national forests: Research joint venture amendment for Phase Two. USDA Rocky Mountain Experiment Station Grant (\$120,000).

Baker, T.T., J.C. Boren, J.M. Fowler, and C.D. Allison. 2000. Grazing Management of southwestern riparian areas. Scarborough-Lineberry Foundation (\$15,000).

Abbott, L., T.T. Baker, and C.D. Allison. 2000. An assessment of Jaguar habitat in northern Mexico in relation to traditional livestock operations. Center for International Studies, New Mexico State University (\$800).

GIFTS

❖ Cumulative gift funding raised since 2010 ~ \$217,000 (not all attributed to T. Baker)

Forest Health Research and Education Center. Donations for personnel and research endeavors 2013-present. (\$280,000)

Anonymous donor supporting Department of Forestry undergraduate student participation in Kentucky Woodland Owner Annual Meetings. 2010-present. (\$10,000)

UK Forestry Alumni Scholarship. 2012-present. (\$10,177)

Taylor Family Forestry Fund to support Forestry Undergraduate Capstone Course. 2012-present. (\$3,045)

Pete McNeil Forestry Leadership Scholarship Fund. 2012-present. (\$2,650)

Dave Maehr Memorial Fund. 2012-present. (\$675)

Walt Disney World Wildlife Research Fund. 2010-present. (\$50,000)

Green Forests Work. 2010-present. (\$112,800)

Center for Forest and Wood Certification (\$28,000)

CURRICULUM VITAE

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EDUCATION:

Ph.D. 1999. Soil Science, University of Kentucky
Dissertation: Colloid Enhanced Transport and Desorption of Contaminants
Through Macropores in Kentucky Soils.

M.S. 1997. Plant and Soil Sciences, University of Kentucky
Thesis: Water Quality and Mineralogical Attributes of a Constructed
Wetland Treating Acid Mine Drainage.

B.S. 1989. Centre College, Danville, Kentucky

PROFESSIONAL EXPERIENCE:

Director of the University of Kentucky Appalachian Center, July 2015 to present.

Professor of Forest Hydrology and Watershed Management, University of Kentucky,
Department of Forestry, July 2013 to present. DOE: 75% research; 25% teaching.

President and Founder, Green Forests Work. 501(c)3 organization established to reforest
land affected by surface mining in Appalachia. 2009 to present.

Sabbatical Leave, University of Kentucky, March 15 – August 16, 2012. University of
South Australia, Australian CRC CARE (Cooperative Research Centre for Contamination
Assessment and Remediation of the Environment) and at coal mines operated by Peabody
Energy in Queensland and New South Wales.

Associate Professor of Forest Hydrology and Watershed Management, University of
Kentucky, Department of Forestry, July 2008 to June 2013. DOE: 75% research; 25%
teaching.

Assistant Professor of Forest Hydrology and Watershed Management, University of
Kentucky, Department of Forestry, January 2003 to June 2008. DOE: 75% research; 25%
teaching.

Adjunct Professor, University of Louisville, Biology Department, January 2004 to present.

Adjunct Professor, South Carolina State University, Biology Department, January 2000 to 2006.

Research Hydrologist, USDA Forest Service, Southern Research Station, Center for Forested Wetland Research, Charleston, SC. Stationed at US DOE Savannah River Site, SC. January 2002 to January 2003.

Postdoctoral Research Soil Scientist, Southern Research Station, Center for Forested Wetland Research, Charleston, SC. Stationed at US DOE Savannah River Site, SC. February 1999 to January 2002.

Research and Teaching Assistant, University of Kentucky, September 1994 to January 1999.

Chemist and Field Technician, Fouser Environmental, Versailles, KY, January 1990 to June 1994.

CURRENT RESEARCH:

J.M. Lhotka, C.D. Barton, and J.W. Stringer. 2015-2017. Effect of grading technique on forest productivity of high-value tree species in reforested surface mine lands. \$221,048. Barton-PI.

T. Fearer, C. Barton, M. French, T. Horn (and others). 2015 – 2020. Cerulean Warbler Appalachian Forestland Enhancement. USDA NRCS – Regional Conservation Partnership Program. \$8,000,000. (Approximately \$1,000,000 toward mine reforestation work overseen by Barton). Barton-coPI.

C.D. Barton and J.W. Stringer. 2014-2016. Restoring forests and wildlife habitat at Robinson Forest. Appalachian Forest Renewal Initiative, National Fish and Wildlife Foundation. \$140,000. Barton-PI.

C.D. Barton. 2013-2015. Green Forests Work for Appalachia: Phase II Implementation. Appalachian Regional Commission, \$300,000. Barton-PI.

C.D. Barton, C. Cotton and A.D. Karathanasis. 2011-2014; 2015-2018. Evaluation of acidic atmospheric deposition and its influence on soil solution composition in the Daniel Boone National Forest. USDA Forest Service, \$91,597. Barton-PI

C.D. Barton, S. Eggerud, S. Jones, E. Burks and P. Angel. 2013-2014. Mower Tract Ecological Restoration Project. American Rivers, \$225,000. Barton-PI

C.D. Barton. 2011-2012. Green Forests Work for Appalachia: Phase I Development and Deployment. Appalachian Regional Commission, \$300,000. Barton-PI.

R. Warner, C. Barton, C. Agouridis, J. Unrine. 2011-2013. Appalachian Research Initiative for Environmental Science. Virginia Tech. \$340,239 (\$53,357 sub award to Barton). Barton-co-PI and PI.

C.D. Barton and D.E. Fletcher. 2010-2014. Assessment of Structure, Function and Stability in a Gradient of Disturbed SRS Streams - Phase III. USDA Forest Service, Cooperative Research Grant, \$313,117. Barton-PI.

C.T. Agouridis, C.D. Barton, R.C. Warner, A.A. Gumbert, and S.F. Higgins. 2010-2013. Development and Implementation of Stream Restoration and Riparian Corridor Techniques for Enhancing Water Quality in the Cane Run Watershed. USDA NRCS, \$360,000. Barton co-PI and PI.

Subprojects:

1. C.T. Agouridis, R.C. Warner, C.D. Barton, and S.F. Higgins. Evaluating the Effectiveness of Weep Berm Systems for Treating Runoff from the Composting of Horse Muck: \$216,268.
2. C.D. Barton, C.T. Agouridis and S.F. Higgins. Control and Treatment of Runoff from a Muck Storage Pad using a Permeable Containment Basin and Phytotechnologies: \$109,782.
3. C.T. Agouridis, S.F. Higgins and C.D. Barton. Examining the Effects of Stream Restoration and Riparian Buffer Development on Water Quality of a Small Spring-fed Stream: \$15,428.

C.T Agouridis, R.C. Warner, C.D. Barton and T.C. Dowdy. 2010-2012. Use of GIS and WATER Model to Identify and Delineate Stream Types in Eastern KY. USDA-National Institute of Food and Agriculture (NIFA), Precision Agriculture: Precision Resource Management, \$48,200. Barton co-PI.

B. Lee and C.D. Barton. 2010-2012. Determining Landscape Areas for Targeted Reforestation Efforts. USDA-National Institute of Food and Agriculture (NIFA), Precision Agriculture: Precision Resource Management, \$45,051. Barton co-PI.

C.D. Barton. 2011-2012. Continued Monitoring of American Chestnuts on Surface Mines in KY. The American Chestnut Foundation, \$5,000. Barton-PI.

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PROFESSIONAL PRESENTATIONS/ABSTRACTS:

C.D. Barton, T.R. Littlefield, C. Hoy and C. Agouridis. 2015. Hydrologic Characterization of Three Headwater Wetlands in Southeastern Kentucky, USA. ASABE Annual International Meeting. New Orleans, LA. July 26-29, 2015 (*invited presentation*)

Whitney Blackburn-Lynch, C. Agouridis, **C. Barton**, and R. Warner. 2015. Impacts of Flooding on Forested Headwater Streams. ASABE Annual International Meeting. New Orleans, LA. July 26-29, 2015

C.D. Barton. 2015. From Butcher Holler to Monkey Broke Creek: Restoring forests on surface coal mines. 38th Council on Forest Engineering. Lexington, KY. July 19-22, 2015. (*invited presentation*)

Angel Hanna, **C.D. Barton**, M. French and P.N. Angel. 2015. Engaging the Public in Mine Land Reforestation: Volunteer Tree Planting Events in Appalachia. 2015 Joint conference of the American Society of Mining and Reclamation (32nd Annual) and the Appalachian Regional Reforestation Initiative (9th Annual). Lexington, KY June 7-11, 2015.

Elizabeth Hansen, **C.D. Barton** and A. Drayer. 2015. Climate Change and Native Forest Establishment: A Case Study from Eastern Kentucky. 2015 Joint conference of the American Society of Mining and Reclamation (32nd Annual) and the Appalachian Regional Reforestation Initiative (9th Annual). Lexington, KY June 7-11, 2015.

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Emma Witt, **Christopher Barton**, Jeffrey W. Stringer, Alex Cherry and Randall Kolka. 2014.

Impact of forest harvest with variable streamside management zone configurations on hydrologic response in perennial headwater streams. SAF-Symposium of Best Management Practice Effectiveness in the Eastern US. Blacksburg, VA. May 12-15, 2014.

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Barton, C.D. 2014. From Butcher Holler to Monkey Broke Creek: Restoring forests on surface coal mines. University of Kentucky-Entomology Seminar Series. Lexington, KY. March 13. (*invited presentation*)

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Agouridis, C.T., A. Gumbert, S. Higgins, **C. Barton**, J. Fox, G. Brion, and A. Fryar. Combining Research, Extension and Service-Based Learning Efforts in the Cane Run Watershed. 2013 ASABE International Meeting, Kansas City, Missouri, July 20-25.

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Barton, C.D. Effectiveness of Streamside Management Zones in Eastern Kentucky. KY Agricultural Water Quality Authority. Frankfort, Kentucky. January 24, 2013.

Barton, C.D. SMZ Effectiveness in Robinson Forest. KY BMP Board. Frankfort, Kentucky. December 11, 2012.

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Barton, C.D. The Forestry Reclamation Approach: A Regional Reforestation Initiative With Global Application. University of South Australia, Cooperative Research Centre for Contamination Assessment and Remediation of the Environment; Adelaide Australia. June 15, 2012.

Barton, C.D. The Forestry Reclamation Approach: A Regional Reforestation Initiative With Global Application. University of Queensland, Centre for Mined Land Rehabilitation; Brisbane, Australia. June 13, 2012.

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Maupin, T.P., C.T. Agouridis, **C.D. Barton**, and R.C. Warner. 2012. Conductivity Sensor Performance. Poster# 121336913. 2012 ASABE International Meeting, Dallas, TX, July 29-August 3.

Maupin, T.P., C.T. Agouridis, **C.D. Barton** and R.C. Warner. Laboratory Evaluation of Conductivity Sensor Accuracy and Temporal Consistency 2012 National Meeting of the American Society of Mining and Reclamation, Tupelo, MS Sustainable Reclamation June 8 - 15, 2012.

Angel, H., **C.D. Barton** and P. Angel. Influence of weed mats and tree shelters on survival and height growth of American chestnut on post-bond release surface mines in eastern Kentucky. 2012 National Meeting of the American Society of Mining and Reclamation, Tupelo, MS Sustainable Reclamation June 8 - 15, 2012.

Eiche, N., and **C.D. Barton**. Long-term effectiveness of BMPs in eastern Kentucky. Society of American Foresters National Convention. Hawaii. November 2-6, 2011.

Williamson, T., J. Newson, C. Agouridis, **C. Barton**, R. Warner, J. Villines. Hydrologic Modeling of Ephemeral Stream Channels in Coal Region of Eastern Kentucky. ASA-CSA-SSSA Annual Conference; San Antonio, TX. October 16-19, 2011.

Barton C.D. Restoring Ecosystem Services on Surface Mines in Appalachia. Centre College Convocation; Danville, KY. October 18, 2011. (*invited presentation*)

Barton C.D. Restoring Ecosystem Services on Surface Mines in Appalachia. Midwest Ground Water Conference; Lexington, KY. September 20, 2011. (*invited presentation*)

Barton C.D. Green Forests Work for Appalachia. Presentation to Executive Staff of the Appalachian Regional Commission; Prestonsburg, KY. September 7, 2011. (*invited presentation*)

Otte, Hillary, **C.D. Barton** and C. Agouridis. Use of rain garden technologies to control runoff from equine waste. International Phytotechnology Society Conference “Putting Plants to Work where we Live, Labor, Breathe, and Play”. Portland, Oregon; September 13-16, 2011.

Dean E. Fletcher, Garrett K. Stillings, Michael H. Paller, and **Christopher D. Barton**. Legacy disturbances and restoration potential of Coastal Plain streams. American Fisheries Society Annual Conference. Little Rock, Arkansas; September 13, 2011.

Barton C.D. Green Forests Work for Appalachia. Presentation to Executive Staff of the Appalachian Regional Commission; Prestonsburg, KY. September 7, 2011. (*invited presentation*)

Hoy, C., **C. Barton** and C. Agouridis. Characterization of Headwater Seep Wetlands in Southeastern Kentucky. Joint Meeting of Society of Wetland Scientists, WETPOL (Wetland Pollutant Dynamics and Control) and Wetland Biogeochemistry. Prague, Czech Republic. July 3-8, 2011.

Barton C.D. Principles for Establishing Ecologically Successful Riparian Corridors. USEPA, USACOE, USDOJ Interagency Stream Mitigation Workshop; Lexington, KY. April 14, 2011. (*invited presentation*)

Dean E. Fletcher, Garrett K. Stillings, Michael H. Paller, and **Christopher D. Barton**. Legacy disturbances and restoration potential of Coastal Plain streams. 2011 Georgia Water Resources Conference; Athens, GA. April 11-13, 2011.

Barton C.D. Green Forests Work for Appalachia. Presentation to Executive Staff of the Appalachian Regional Commission; Washington, DC. April 7, 2011. (*invited presentation*)

Barton C.D. Restoring Ecosystem Services on Surface Mines in Appalachia. USEPA Brownfields Conference; Philadelphia, PA. April 5, 2011. (*invited presentation*)

Barton C.D. Central Appalachia in Transition and the Need for Economic Revitalization. 2011 Good Jobs, Green Jobs National Conference; Washington, DC. Feb. 8-10, 2011. (*invited presentation*)

Barton C.D. Restoring Ecosystem Services on Surface Mines in Appalachia. 2010 ASA-CSSA-SSSA Annual Meeting; Long Beach, CA. Nov. 1-4. (*invited presentation*)

E. L. Witt, **C. D. Barton**, J. W. Stringer and R. K. Kolka. Impact of Streamside Management Zone Width and Canopy Retention on Hydrologic Response Following Forest

Harvest in Appalachian Headwater Streams. 2010 AWRA Annual Water Resources Conference; Philadelphia, PA, November 1-4, 2010

Barton C.D., C. Agouridis, R. Warner, K. Ward and P. Angel. Effects of FRA on water quality. 2010 Joint Mining Reclamation Conference: ASMR, ARRI. Pittsburgh, PA. June 5-11, 2010 (*invited presentation*)

Mastin, C., C. Agouridis, **C.D. Barton** and R. Warner. Water Quality Response to Headwater Stream Restoration on a Head of Hollow Fill. 2010 Joint Mining Reclamation Conference: ASMR, ARRI. Pittsburgh, PA. June 5-11, 2010

Barton C.D., D. Graves, C. Agouridis, R. Warner, J. Stringer and P. Angel. Reforestation of Surface Mines in Appalachia. 17th Central Hardwood Forest Conference. Lexington, KY. April 5-7, 2010 (*invited keynote presentation*)

Brinks, J., J.M. Lhotka and **C.D. Barton**. One year response of American sycamore (*Plantanus occidentalis*) and black locust (*Robinia pseudoacacia*) to granular fertilizer applications on a reclaimed surface mine in eastern Kentucky. 17th Central Hardwood Forest Conference. Lexington, KY. April 5-7, 2010.

Witt, E., **C.D. Barton**, J. Stringer, D. Bowker and R. Kolka. Evaluating best management practices for ephemeral channel protection following forest harvest in the Cumberland Plateau – Preliminary findings. 17th Central Hardwood Forest Conference. Lexington, KY. April 5-7, 2010.

D. Bowker, J. Stringer, **C.D. Barton**, and S. Fei. GIS and GPS analysis of mobile harvesting equipment and sediment delivery to streams during forest harvest operations on steep terrain. 17th Central Hardwood Forest Conference. Lexington, KY. April 5-7, 2010.

Patrick Angel, Carl E. Zipper, James A. Burger, and **Christopher Barton**. Restoring Forests on Coal-Mined Land: The Appalachian Regional Reforestation Initiative. Southern Regional Science Association's 49th Annual Meeting. Washington, DC. March 25-27, 2010.

Barton C.D., C. Agouridis, R. Warner and P. Angel. Reforestation of Surface Mines in Appalachia. Environmental Protection Agency (webinar). Atlanta, GA. January 6, 2010 (*invited*)

Mastin, C., C. Agouridis, **C.D. Barton** and R. Warner. Recreating a Headwater Stream on a Head of Hollow Fill. Mid-Atlantic Stream Restoration Conference. Morgantown, WV. November 3-5, 2009.

Barton C.D. Reforestation of Surface Mines in Appalachia. Appalachian Regional Commission – Executive Staff. Washington, DC. November 18, 2009 (*invited*)

Barton C.D., C. Agouridis, R. Warner and P. Angel. Reforestation of Surface Mines in Appalachia. Forum on Coal in Kentucky. Lexington, KY. November 5, 2009 (*invited*)

Barton C.D. Green Forest Works for Appalachia. United Nations Environmental Programme – Billion Tree Campaign Press Conference. New York, NY. Sept. 21, 2009 (*invited*)

Moser, L., and **C. Barton**. 2009. Carolina Bay restoration: Control of undesired hardwood competitors. Society of Wetland Scientists Annual Conference. Madison, WI. June 21 -26, 2009.

DeSteven, D., B. Sharitz and **C. Barton**. 2009. Evaluating success in passively restored depressional wetlands. Society of Wetland Scientists Annual Conference. Madison, WI. June 21 -26, 2009.

Witt, E., **C. Barton**, R. Kolka, D. Bowker and J. Stringer. Evaluating Best Management Practices for Ephemeral Channel Protection during Forest Harvest in the Cumberland Plateau-Preliminary Findings. 2009 ASABE Annual International Meeting. Reno, Nevada. June 21 – June 24, 2009

Agouridis, C., **C.D. Barton** and R. Warner. 2009. Recreating a Headwater Stream on a Head of Hollow Fill. Geomorphic Reclamation and Natural Stream Design at Coal Mines- Technical Forum. Bristol, VA. April 28-30, 2009. (*Invited*)

Warner, R., C. Agouridis and **C.D. Barton**. 2009. Modeling sediment loss on geomorphic regarded forest lands in Kentucky. Geomorphic Reclamation and Natural Stream Design at Coal Mines- Technical Forum. Bristol, VA. April 28-30, 2009. (*Invited*)

Barton, C.D., B.J. Koo, S. Maharaj and D. Graves. 2008. Carbon Sequestration on Reforested Mine Lands in the Appalachian Region of the United States. 5th International Phytotechnologies Conference. Nanjing, China. October 22-25, 2008. (*Invited Keynote Presentation*)

Koo, B.J., D. Fletcher, T. Hinton and **C.D. Barton**. Assessment of Stream Fish Mortality from Short-Term Exposure to Illite Clays used as an *In-Situ* Method for Remediating ¹³⁷Cs Contaminated Wetlands. 24th Annual International Conference on Soils, Sediments and Water. University of Massachusetts at Amherst. October 20-23, 2008.

French, M. E., **C. D. Barton**, D. Graves, P. N. Angel, and F. V. Hebard. 2007. Direct-seeding versus containerized transplantation of American chestnuts on loose mine spoil in the Cumberland Plateau. USEPA and National Groundwater Association Remediation of Abandoned Mine Lands Conference. Denver, CO. October 2-3, 2008.

Roger Burke, Ken Fritz, Brent Johnson, Stephanie Fulton, and Christopher Barton. 2008. Impact of Mountaintop Mining/ Valley Fill on the Stable Carbon Isotopic Composition and Concentration of Dissolved Organic Carbon and Dissolved Inorganic Carbon in Headwater Streams. The 6th International Conference on Applications of Stable Isotope Techniques to Ecological Studies. Honolulu, Hawaii. August 25-29, 2008.

Reeves, C., J. Stringer, C. Barton and C. Agouridis. 2008. Sedimentation rates of temporary skid trail headwater stream crossings. Addressing Forest Engineering Challenges of the Future. Proceedings of the 31st Annual Meeting of the Council on Forest Engineering. Charleston, SC June 25-28.

Angel, P.N., **C.D. Barton**, R.C. Warner, C. Agouridis, T. Taylor, and S.L. Hall. Tree Growth, Natural Regeneration and Hydrologic Characteristics of Three Loose-Graded Surface Mine Spoils in Kentucky. 2008 National Meeting of the American Society of Mining and Reclamation, Richmond, VA, New Opportunities to Apply Our Science. June 14-19, 2008.

Barton, C.D., D. Marx, R. Sweigard and W. Barton. Evaluating Spoil Amendment Use and Mycorrhizal Inoculation on Reforestation Success in the Eastern and Western Kentucky Coalfields. 2008 National Meeting of the American Society of Mining and Reclamation, Richmond, VA, New Opportunities to Apply Our Science. June 14-19, 2008.

Adank, K.M., **C.D. Barton**, M.E. French and P. DeSa. Occurrence of Phytophthora on Reforested Loose-Graded spoils in Eastern Kentucky. 2008 National Meeting of the American Society of Mining and Reclamation, Richmond, VA, New Opportunities to Apply Our Science. June 14-19, 2008.

Reeves, C., J. Stringer, C. Barton and C. Agouridis. 2008. Sediment delivery from temporary stream crossing technologies. Society of American Foresters 2007 National Convention; Portland, Oregon October 23-27.

Angel, P., **C.D. Barton**, R. Warner, C. Agouridis, S. Hall, R. Sweigard and D. Graves. 2007. Tree growth on loose-graded surface mine spoil in Kentucky. Society of American Foresters 2007 National Convention; Portland, Oregon October 23-27.

C. Cotton, **C.D. Barton** and D. Graves. 2007. Growth response of two tree species on reclaimed minelands in eastern Kentucky. Society of American Foresters 2007 National Convention; Portland, Oregon October 23-27.

Taylor, T., C. Agouridis, R. Warner, **C. Barton**, D. Graves and P. Angel. 2007 Hydrologic and water quality characteristics of loose-graded mine spoil. Society of American Foresters 2007 National Convention; Portland, Oregon October 23-27.

Taylor, T., C. Agouridis, R. Warner, **C. Barton**, D. Graves and P. Angel. 2007 Curve numbers for forested watersheds and loose-graded mine spoil. Society of American Foresters 2007 National Convention; Portland, Oregon October 23-27.

Hall, S.L., **C.D. Barton** and C. Baskin. 2007. Seed Banks as restoration tools on surface-mined lands in central Appalachia. Society of American Foresters 2007 National Convention; Portland, Oregon October 23-27.

R. Sweigard, K. Hunt, V. Badaker, D. Graves and **C. Barton**. 2007. Physical characteristics of root growth media on reclaimed mine land and its effect on reforestation. Society of American Foresters 2007 National Convention; Portland, Oregon October 23-27.

Barton, C.D., C. Agouridis and R. Warner. 2007. Recreating a headwater stream system on a head-of-hollow fill. Mid-Atlantic Stream Restoration Conference; Cumberland, Maryland November 6-8.

Edwards, J., **C.D. Barton** and A.D. Karathanasis. 2007. Removal of Mn from an Alkaline Mine Drainage Using a Bioreactor with Different Organic Carbon Sources. ASA-CSSA-SSSA Annual Meeting; New Orleans, LA. Nov. 4-8.

Hall, S.L., **C.D. Barton** and C. Baskin. 2007. Soil Seed Banks as Catalysts for Succession on Surface-mined Lands in Central Appalachia. 92nd Annual Meeting of the Ecological Society of America. San Jose, CA. August 5-10.

Barton, C.D. 2007. Carbon Sequestration by Forests on Reclaimed Mines. 2007 Mined Land Reforestation Conference. Abingdon, VA, August 7-8. (*Invited*)

Warner, R., **C. Barton** and C. Agouridis. 2007. Mining and Mine Reforestation: Influences on Watershed Hydrology. 2007 Mined Land Reforestation Conference. Abingdon, VA, August 7-8. (*Invited*)

Adank, K.M., **C.D. Barton**, M. E. French, and P. B. de Sá. 2007. Survey of *Phytophthora* on Reclaimed Mine Land Spoils. 2007 Mined Land Reforestation Conference. Abingdon, VA, August 7-8.

French, M. E., **C. D. Barton**, D. Graves, P. N. Angel, and F. V. Hebard. 2007. Direct-seeding versus containerized transplantation of American chestnuts on loose mine spoil in the Cumberland Plateau. 2007 Mined Land Reforestation Conference. Abingdon, VA, August 7-8.

Agouridis, C. T., **C. D. Barton**, R.C. Warner, D.A. Bidelspach, G.D. Jennings, R. Osborne, and J.W. Marchant. 2007. Design of a Headwater Stream System for a Head-of-Hollow Fill. 2007 Mined Land Reforestation Conference. Abingdon, VA, August 7-8. (*Invited*)

Fritz, K., S. Fulton, B. Johnson, **C. Barton**, J. Jack, D. Word, and R. Burke. 2007. Do Post-Mining Constructed Channels Replace Functional Attributes of Headwater Streams? Proceedings: North American Benthological Societies 55th Annual Meeting, Columbia SC, June 3-7.

Michels, A., **C. D. Barton**, T. Cushing, P. Angel, R. Sweigard, and D. Graves. 2007. Evaluation of Low Spoil Compaction Techniques for Hardwood Forest Establishment on an Eastern Kentucky Surface Mine. 2007 National Meeting of the American Society of Mining and Reclamation, Gillette WY, June 2-7.

French, M.E., **C.D. Barton**, D. Graves, P.N. Angel, and F.V. Hebard. 2007. Evaluation of Mine Spoil Suitability for the Introduction of American Chestnut Backcrosses in the Cumberland Plateau. 2007 National Meeting of the American Society of Mining and Reclamation, Gillette WY, June 2-7.

Angel, P.N., **C.D. Barton**, R.C. Warner, C. Agouridis, R.J. Sweigard, and D.H. Graves. 2007. Tree Growth and Natural Regeneration on Loose-Graded Brown and Gray Sandstone and Mixed Sandstone/Shale Surface Mine Spoils in Kentucky: Preliminary Findings. 2007 National Meeting of the American Society of Mining and Reclamation, Gillette WY, June 2-7.

Andrews, D.M., **C.D. Barton**, R.K. Kolka, and C.C. Rhoades. 2006. Hyporheic zone development and water quality improvement in a restored riparian area. Annual Conference of the Geological Society of America, Philadelphia, PA. October 22-25.

Angel, P.N., D.H. Graves, **C.D. Barton**, R.C. Warner, P.W. Conrad, R.J. Sweigard and C. Agouridis. 2006 Surface Mine Reforestation Research: Evaluation of Tree Response to Low Compaction Reclamation Techniques. National Meeting of the Society of American Foresters. Pittsburgh, PA. October 25-29.

Agouridis, C.T., R.C. Warner, **C.D. Barton**, D.A. Bidelspach, G.D. Jennings, J.W. Marchant, and R. Osborne. 2006. Promoting a Paradigm Shift in Head-of-Hollow Fill Design through Public Education. Abstract for Stream Restoration in the Southeast: Accomplishments and Opportunities, Charlotte, NC, October 2-5.

Agouridis, C.T., R.C. Warner, **C.D. Barton**, D.A. Bidelspach, G.D. Jennings, J.W. Marchant, and R. Osborne. 2006. Design of a Headwater Stream System for a Head-of-Hollow Fill. Abstract for Stream Restoration in the Southeast: Accomplishments and Opportunities, Charlotte, NC, October 2-5.

Kolka, R.K., D.M. Andrews, **C.D. Barton** and C.C. Rhoades. 2006. Vegetation establishment, hyporheic zone and soil development, in a restored stream/riparian area. International Conference on Forests and Waters in a Changing Environment. Beijing, China. August 8-10.

Hall, S.L., and **C.D. Barton**. 2006. From icon to upstart: Seed banks as restoration tools on surface-mined lands. 91st Annual Meeting of the Ecological Society of America. Memphis, TN. August 5-8.

Cherry, A., **C.D. Barton**, J. Stringer, and R.K. Kolka. 2006. Effects of federal environmental protection acts on "pristine" streams in eastern Kentucky. Soil and Water Conservation Society Annual Conference; Keystone, Colorado. July 22-26.

Lee, B.P., **C.D. Barton**, R.A. Katho, and F. Lynch. 2006. Robinson Forest Stream Assessment. KY GIS Conference: Ft. Mitchell, KY. July 17.

Maharaj, S., **C.D. Barton**, S.M. Rimmer, H. Rowe and A.D. Karathanasis. 2006. Distinguishing and quantifying “new carbon” from “old carbon” on reclaimed mine sites using thermogravimetry: Method development. Conference on Carbon Capture and Sequestration. Alexandria, VA. May 8-11.

Barton, C.D., B.J. Koo, S. Maharaj and D.H. Graves. 2006. Soil carbon accumulation rates on minelands in Appalachia. Conference on Carbon Capture and Sequestration. Alexandria, VA. May 8-11.

Barton, C.D., D.M. Andrews and R.K. Kolka. 2006. Influence of soil physicochemical properties on hydrology and restoration response in Carolina bay wetlands. International Conference on Hydrology and Management of Forested Wetlands. American Society of Agricultural and Biological Engineers, New Bern, NC. April 8-12.

Littlefield, T., **C.D. Barton**, and M.A. Arthur. 2006. Carbon and Nutrient Dynamics in Reforested Mine Sites within the Eastern Kentucky Coal Fields. National Meeting of the American Society of Mining and Reclamation, and the 7th ICARD. St. Louis MO. March 26-29.

Angel, P.N., D.H. Graves, **C.D. Barton**, R.C. Warner, P.W. Conrad, R.J. Sweigard and C. Agouridis. 2006 Surface Mine Reforestation Research: Evaluation of Tree Response to Low Compaction Reclamation Techniques. National Meeting of the American Society of Mining and Reclamation, and the 7th ICARD. St. Louis MO. March 26-29.

Cotton, C., **C.D. Barton** and D.H. Graves. 2006. A comparison of *Quercus Alba* and *Liriodendron Tulipifera* growth on reforested minelands and naturally regenerating forest. National Meeting of the American Society of Mining and Reclamation, and the 7th ICARD. St. Louis MO. March 26-29.

Maharaj, S., **C.D. Barton**, S.M. Rimmer, H. Rowe and A.D. Karathanasis. 2006. Distinguishing and quantifying “new carbon” from “old carbon” on reclaimed mine sites using thermogravimetry: Field validation. National Meeting of the American Society of Mining and Reclamation, and the 7th ICARD. St. Louis MO. March 26-29.

Taylor, T., C. Agouridis, **C. Barton**, and R. Warner. 2006. Hydrologic and Water Quality Characteristics of Loose-Dumped Mine Spoil. National Meeting of the American Society of Mining and Reclamation, and the 7th ICARD. St. Louis MO. March 26-29.

Barton, C.D., B.J. Koo, S. Maharaj and D.H. Graves. 2006. Carbon sequestration on minelands in Appalachia. National Meeting of the American Society of Mining and Reclamation, and the 7th ICARD. St. Louis MO. March 26-29.

Cotton, C., and **C.D. Barton**. 2006. Developing a method of site quality evaluation for *Quercus alba* and *Liriodendron tulipifera* in the eastern Kentucky coalfields. 15th Central Hardwood Forest Conference; Knoxville, TN. February 27 – March 1.

Maharaj, S., **C.D. Barton**, S.M. Rimmer, H. Rowe and A.D. Karathanasis. 2005. Development of a rapid assessment method for quantifying carbon sequestration on reclaimed coal mine sites. American Geophysical Union Fall Meeting; San Francisco, CA. Dec. 5-9.

Barton, C.D., B.J. Koo and D.H. Graves. 2005. Carbon sequestration on surface mine lands. ASA-CSSA-SSSA Annual Meeting; Salt Lake City, UT. Nov. 6-10.

Andrews, D.M., **C.D. Barton**, R.K. Kolka and C.C. Rhoades. 2005. Hyporheic zone development in a restored riparian area. ASA-CSSA-SSSA Annual Meeting; Salt Lake City, UT. Nov. 6-10.

Koo, B.J., T.G. Hinton and **C.D. Barton**. 2005. Assessment of fish mortality from short-term exposure to illite clays used as an *in-situ* method for remediating Cs¹³⁷ contaminated wetlands. ASA-CSSA-SSSA Annual Meeting; Salt Lake City, UT. Nov. 6-10.

Barton, C.D., P.N. Angel and P. Rothman. 2005. The Appalachian region reforestation initiative. The American Chestnut Foundations 22nd Annual Meeting; Lexington, KY. Oct. 28-30.

Ter Beest, J., **C.D. Barton**, D. Maehr and J. Larkin. 2005. What are elk doing to our forests? The Wildlife Society Conference; Madison, WI. September 29.

Littlefield, T., **C.D. Barton**, and M. Arthur. 2005. Carbon and nutrient dynamics in regenerating forests within the eastern Kentucky coal field. 90th Annual Meeting of the Ecological Society of America; Montreal, Canada. August 7-12.

Cherry, A., **C.D. Barton**, J. Stringer, and R.K. Kolka. 2005. Evaluating the effectiveness of streamside management zones in forested head water streams of Appalachia: Calibration phase. Soil and Water Conservation Society Annual Conference; Rochester, New York. July 30- Aug 4.

Ter Beest, J., **C.D. Barton**, D. Maehr and J. Larkin. 2005. Effects of a restored elk population on soils, vegetation and water quality in eastern Kentucky. Soil and Water Conservation Society Annual Conference; Rochester, New York. July 30- Aug 4.

Cotton, C., **C.D. Barton**, D. Graves, and P. Angel. 2005. Reforestation of Surface Mined Lands in the Appalachian Coal Fields, USA. The Thin Green Line-Symposium on Reforestation; Thunder Bay, Canada. July 26-28.

Andrews, M.D., and **C.D. Barton**. 2005. Using soil physicochemical data to predict hydrologic response in restored depression wetlands. Society of Wetland Scientists 26th Annual Meeting; Charleston, SC. June 5-10.

Angel, P.N., **C.D. Barton**, D. Graves, R. Sweigard and R. Warner. 2005. Improved Methods for the Establishment of Forests on Surface Mined Lands. American Society of Mine Reclamation Annual Conference; Breckinridge, CO. June 13-16.

Barton, C.D., and M.D. Andrews. 2004. Using soil physicochemical data to predict hydrologic response in restored depression wetlands. Society for Ecological Restoration-Coastal Plain Chapter Meeting; Raleigh, NC. March 25-27.

Barton, C.D., D. Graves, R. Sweigard, R. Warner. 2004. Carbon sequestration and mineland reforestation. 3rd Annual Carbon Capture and Sequestration Conference; ExchangeMonitor Publications 2004; Washington, DC. May 3-5.

Hitchcock, D.R., and **C.D. Barton**. 2004. Tritium phytoremediation at the Savannah River Site, SC USA: Water Management, remediation, and hydrologic research. The 6th Int. Conf. On Hydrosience and Engineering (ICHE-2004), May 30-June 3, Brisbane, Australia.

Koo, Bon-Jun, D.C. Adriano, **C.D. Barton**, and L.A. Newman. 2003. Biogeochemistry of heavy metals in the rhizosphere of pine seedlings (*Pinus taeda* L.) grown on amended coal combustion waste. ASA-CSSA-SSSA Annual Meeting, Denver, CO. Nov. 2-6, 2003.

Koo, Bon-Jun, D.C. Adriano, **C.D. Barton**, and R.M. Danker. 2003. Use of trees to remediate coal combustion waste sites: plant growth, bioavailability of heavy metals, and water quality. ASA-CSSA-SSSA Annual Meeting, Denver, CO. Nov. 2-6, 2003.

Barton, C.D., D. Marx, D.C. Adriano, Bon-Jun Koo, and L.A. Newman. 2003. Establishment of a forest to control hydrology and acid generation on a landfill containing coal combustion waste. ASA-CSSA-SSSA Annual Meeting, Denver, CO. Nov. 2-6, 2003.

Wein, Gary, Mark Amidon, **Chris Barton**, Cassie Bayer, Bob Blundy, Robin Brigmon, Carl Fliermans, Michael Heitkamp, Tom Hinton, Dan Kaplan, Pam McKinsey, Gary Mills, Lee Newman, Mark Phifer, Kim Powell, Tracy Punshon, Beth Richardson, Greg Rucker, Frank Sappington, Anja Schank, Steve Serkiz, and Bruce Schappell. Monitored Natural Remediation at U.S. Department of Energy's Savannah River Site, South Carolina. 2003. Ecological Society of America Annual Meeting. Savannah, GA. August, 2003.

De Steven, D., R.R. Sharitz, J.H. Singer, & **C.D. Barton** 2003. "Vegetation response in experimental restorations of Southeastern Coastal Plain depression wetlands." Oral paper, Society of Wetland Scientists Annual Meeting, New Orleans, LA, June 2003.

Barton, C.D. E, McDonald, S. Mockenhaupt and R. Rowell. Applying phytoremediation and bioremediation to brownfield sites. EPA Brownfield 2002 Conference. Charlotte, NC. November, 2002.

Aburime, S.A., J.C. Seaman, T.S. Steenhuis and **C.D. Barton**. Determination of contaminant flow paths in the vadose zone by model analysis. ASA, CSSA & SSSA 94th Annual Meeting. Indianapolis, IN. November, 2002.

Hitchcock, D.R., K.T. Rebel, **C.D. Barton**, J.S. Seaman, S.H. Rhia and J.I. Blake. Estimating efficiencies of tritium phytoremediation at the Savannah River Site. 18th Annual

International Conference on Contaminated Soils, Sediments and Water. Amherst, MA. October 2002.

Barton, C.D., R.R. Sharitz, D.D. DeSteven and D.I. Imm. Restoration of Carolina bay depression wetlands in South Carolina, USA. Nanjing International Wetlands Symposium. Nanjing, China. September 2002.

Kolka, R.R., **C.D. Barton**, C.C. Trettin and E.A. Nelson. An assessment framework for restored forested wetlands. Nanjing International Wetlands Symposium. Nanjing, China. September 2002.

De Steven, D., R.R. Sharitz, J.H. Singer, and **C.D. Barton** 2002. "Experimental restoration of Southeastern Coastal Plain depression wetlands." Poster, Ecological Society of America Annual Meeting, Tucson, AZ, August 2002.

Barton, C.D. and A.D. Karathanasis. A method for estimating soil macroporosity using thin section and dye tracer images. ASA, CSSA & SSSA 93rd Annual Meeting. Charlotte, NC. October, 2001.

Paddock, L.S., C.S. Romanek, **C.D. Barton**, J.C. Seaman and M. Denham. Geochemistry of an abandoned fly ash/reject coal pile landfill: Implications for remediation. ASA, CSSA & SSSA 93rd Annual Meeting. Charlotte, NC. October, 2001.

Barton, C.D., D.C. Adriano, F. Seay, and D. Marx. Evaluating techniques for establishing a vegetative cover on an acidic reject coal basin. American Society for Surface Mining and Reclamation 18th Annual National Conference. Albuquerque, NM. June 3-7, 2001.

De Steven, D., **C.D. Barton**, R.R. Sharitz, & J.H. Singer 2001. "A large-scale experiment for restoration of depression wetlands in South Carolina." Oral paper, Association of Southeastern Biologists Annual Meeting, New Orleans, LA, April 2001.

Singer, J.H., **C.D. Barton**, R.R. Sharitz, and D. DeSteven. Evaluating techniques for restoring 16 depression wetlands in South Carolina. Annual Meeting of the Society of Wetland Scientist. Chicago, IL. May 28-June 1, 2001.

Thompson, Y.L., A.D. Karathanasis, and **C.D. Barton**. Soil morphology, redox relationships, and hydrological regimes of seasonally inundated wetlands in western Kentucky. ASA, CSSA & SSSA 92nd Annual Meeting. Minneapolis, MN. November, 2000.

Barton, C.D., and J.H. Singer. Evaluating hydrogeomorphic characteristics in disturbed depression wetlands and predicting restoration response using topographic attributes. Annual Meeting of the Society of Wetland Scientist. Quebec, Canada. June 5-9, 2000.

Barton, C.D. Treatment of acid mine drainage using passive treatment systems. Bioengineering Symposium. Augusta, GA. July 20, 1999.

Barton, C.D., and A.D. Karathanasis. Colloid-enhanced desorption of zinc in soil monoliths. ASA, CSSA & SSSA 91st Annual Meeting. Salt Lake City, UT. October 31-November 4, 1999.

Barton, C.D., J.H. Singer, C.C. Trettin, and R.K. Kolka. Dissolved organic carbon distribution and water quality attributes in a restored bottomland forest. ASA, CSSA & SSSA 91st Annual Meeting. Salt Lake City, UT. October 31-November 4, 1999.

Singer, J.H., **C.D. Barton**, C.C. Trettin, R.R. Sharitz, and R.K. Kolka. Techniques for the restoration of isolated depression wetlands in South Carolina. ASA, CSSA & SSSA 91st Annual Meeting. Salt Lake City, UT. October 31-November 4, 1999.

Barton, C.D., and A.D. Karathanasis. Colloid-facilitated transport of atrazine and zinc through soil monoliths. ASA, CSSA & SSSA 90th Annual Meeting. Baltimore, MD. October 18-22, 1998.

Barton, C.D., and A.D. Karathanasis. Aerobic and anaerobic metal attenuation processes in a constructed wetland treating acid mine drainage. ASA, CSSA & SSSA 89th Annual Meeting. Anaheim, CA. October 26-31, 1997.

Barton, C.D., and A.D. Karathanasis. Speciation and stability of minerals forming in a constructed wetland treating acid mine drainage. Joint meeting of the Eastern Section-American Association of Petroleum Geologist and The Society for Organic Petrology. Lexington, KY. September 29, 1997.

Barton, C.D., and A.D. Karathanasis. Ameliorative design to improve the efficiency of constructed wetlands treating AMD in the Rock Creek watershed, Project close-out. Kentucky Nonpoint Conference. Lexington, KY. September 16, 1997.

Barton, C.D., and A.D. Karathanasis. Renovation of a failed constructed wetland treating high metal load acid mine drainage. ASA, CSSA & SSSA 88th Annual Meeting. Indianapolis, IN. November 2, 1996.

Thompson, Y.L., **C.D. Barton**, and A.D. Karathanasis. Redox, hydrology and morphological characteristics of hydric soils in western Kentucky. ASA, CSSA & SSSA 88th Annual Meeting. Indianapolis, IN. November 2, 1996.

TEACHING AND ADVISING:

Graduate student advising:

Completed:

Chase Clark, M.S. Forestry, 2015. The impacts of logging with current and modified best management practices on watershed characteristics in eastern Kentucky. *Currently*. Forest Technician at the University of Kentucky.

Brenee Muncy, M.S. Forestry, co-Major Advisor with Steven Price. 2014. Thesis: The effects of mountaintop removal mining and valley fills on stream salamander communities.

Kenton Sena, M.S. Forestry, 2014. Thesis: Influence of spoil type on afforestation success and hydrochemical function on a surface coal mine in eastern Kentucky. *Currently*. Ph. D. student at the University of Kentucky.

Tyler Sanderson, M.S. Forestry, 2014. Thesis: Monitoring the influence of acid deposition and soil and implications to forest health in the Daniel Boone National Forest. *Currently*. Research Technician, University of Kentucky.

Tom Maigret, M.S. Forestry, co-Major Advisor with John Cox. 2013. Thesis: Effects of streamside management zone timber harvest on salamander communities in Robinson Forest. *Currently*. Ph. D. student at the University of Kentucky.

Hillary Otte, M.S. Forestry, 2012. Thesis: Control and passive treatment of runoff from horse muck storage structures using rain gardens. *Currently*. Environmental Scientist, Otte Environmental.

Emma Witt, Ph.D. Soil Science, 2012. Dissertation: Evaluating streamside management zone effectiveness in headwater streams of the Cumberland Plateau. *Currently*. Assistant Professor, Richard Stockton College.

Catherine Hoy, M.S. Forestry, 2012. Thesis: Hydrologic characterization of three mountain wetlands in southeastern Kentucky. *Currently*. Environmental Scientist, Aquatic Resources.

Courtney Mastin, M.S. Forestry, 2010. Thesis: Preliminary evaluation of stream restoration and passive treatment technologies for the improvement of water quality on a surface mine in eastern Kentucky. *Currently*. Reclamation Specialist, USDI Office of Surface Mining.

Lee Moser, M.S. Forestry, 2009. Thesis: The effects of hardwood re-sprout control in hydrologically restored Carolina bay depression wetlands; Major Advisor. *Currently*. Environmental Scientist, Aquatic Resources.

Kathryn M. Ward, M.S. Earth and Environmental Sciences, 2009. Thesis: Influence of matrix geochemistry on *Phytophthora* detection on reforested mine lands in Appalachia; co-Major Advisor with Dr. Alan Fryar. *Currently*. Geologist, TX Division of Water.

Patrick Angel, Ph.D. Soil Science, 2008. Dissertation: Forest Establishment and Water Quality Characteristics as Influenced by Spoil Type on a Loose-Graded Surface Mine in Eastern Kentucky; Major Advisor. *Currently*. Soil Scientist/Forester, USDI Office of Surface Mining and Reclamation.

Jared Edwards, M.S. Plant and Soil Sciences, 2008. Thesis: Removal of manganese from Alkaline Mine Drainage Using a Bioreactor with Different Organic Carbon Sources; co-Major Advisor with Dr. Tasos Karathanasis. *Currently*. Stream Restoration Specialist, Stantec.

Sarah Hall, M.S. Forestry, 2007. Thesis: Topsoil Seed Bank of an Oak-Hickory Forest in Eastern Kentucky as a Restoration Tool on Surface Mines; Major Advisor. *Currently*: Assistant Professor, Berea College.

Tara Littlefield, M.S. Forestry, 2007. Thesis: Factors Controlling the Cycling and Distribution of Carbon on Reclaimed Minelands and Regenerating Clearcuts in Eastern Kentucky, co-Major Advisor with Dr. Mary Arthur. *Currently*: Botanist, Kentucky State Nature Preserves Commission.

Danielle Andrews, M.S. Plant and Soil Sciences, 2006. Thesis: Hyporheic Zone Development and Water Quality Improvement in a Restored Riparian Area; Major Advisor. *Currently*: Postdoctoral Research Scientist, Penn State University.

Alex Cherry, M.S. Forestry, 2006. Thesis: Hydrochemical Characterization of Ten Headwater Catchments in Eastern Kentucky, Major Advisor. *Currently*: Hydrologist, USGS.

Claudia Cotton, M.S. Forestry, 2006. Thesis: Developing a Method of Site Quality Evaluation for *Quercus Alba* and *Liriodendron Tulipifera* in the Eastern Kentucky Coal Field, Major Advisor. *Currently*: Soil Scientist, USDA Forest Service, Daniel Boone National Forest.

Sally Maharaj, M.S. Geology, 2006. Thesis: Distinguishing and Quantifying “New Carbon” From “Old Carbon” on Reclaimed Mine Sites Using Thermogravimetry: Method Development and Field Validation, co- Major Advisor with Dr. Harry Rowe. *Currently*: Chemist and Laboratory Supervisor, Kaizen Environmental Services Trinidad Limited.

In Progress:

Michael French, M.S. Forestry, Major Advisor.

Nik Eiche, M.S. Forestry, Major Advisor.

Richard Biemiller, Ph.D. Entomology, Major Advisor.

Kenton Sena, Ph.D. Integrated Plant and Soil Science

Advisory Committee Member:

David Lyons, M.S. Forestry, 2004

Jason Robinson, M.S. Plant and Soil Science, 2004

Julie Ter Beest, M.S. Forestry, 2005

Marty Acker, M.S. Forestry, 2006

Eric Fabio, M.S. Forestry, 2006

Brian Cook, M.S. Forestry, 2007

Adam Michels, M.S. Forestry, 2007

Jennifer Gentry, M.S. Biology (U of L), 2007

Timothy Taylor, M.S. Biosystems and Agricultural Engineering, 2007

Jarrold Miller, Ph.D. Soil Science, 2008

Luke Cecil, M.S. Forestry, 2009
 Matt Weand, Ph.D. Soil Science, 2009
 Oakes Routt, M.S. Biosystems and Agricultural Engineering, 2009
 Josh Brinks, M.S. Forestry, 2010
 David Parrott, M.S. Forestry, 2011
 Erin Barding, Ph.D. Animal Science, 2011
 Estifanos Haile, Ph.D., Geology, 2011
 Kevin Devine, M.S. Forestry, 2011
 Josh Adkins, Ph.D. Entomology, 2012
 Travis Maupin, M.S. Biosystems and Agricultural Engineering, 2012
 Christopher Reeves, M.S. Forestry, 2012
 Ross Guffey, M.S. Biosystems and Agricultural Engineering, 2012
 Daniel Bowker, M.S. Forestry, 2013
 Amanda Gumbert, Ph.D. Soil Science, 2013
 John Villines, M.S. Biosystems and Agricultural Engineering, 2013
 John McMaine, M.S. Biosystems and Agricultural Engineering, 2013
 Carla Landrum, Ph.D. Soil Science, 2013
 Mary (Deicher) Weatherford, M.S. Biosystems and Agricultural Engineering, 2014
 Wesley Staas, M.S. Forestry, 2015
 Whitney Blackburn-Lynch, Ph.D. Biosystems and Agricultural Engineering, 2015
 Derek Scott, M.S. Biosystems and Agricultural Engineering, 2015
 K.C. Birendra, M.S. Forestry, in-progress
 Meghan Langley, Ph.D. Biology (U of L), in-progress
 Catherine Skees, M.S. Earth and Environmental Sciences, in-progress

Post-doctoral scholars:

Jarrold Miller. June 1, 2008 – March 15, 2009. Received Ph.D. degree in Soil Science from the University of Kentucky in 2008. Scientific area of emphasis: Environmental and Soil Chemistry. Currently, Research Soil Scientists, USDA-ARS, Florence, SC.

Bon Jun Koo. July 1, 2004 – June 30, 2005. Received Ph.D. degree in Soil and Water Science from the University of California, Riverside in 2002. Scientific area of emphasis: Environmental Biogeochemistry. Currently, Assistant Professor, Natural and Physical Sciences Department, California Baptist University.

Courses Taught:

FOR 460G – Watershed Management, 3 credit hours.

<i>Semester</i>	<i># of Students</i>	<i>Course Evaluation[†]</i> <i>(College Mean)</i>	<i>Teaching Evaluation[†]</i> <i>(College Mean)</i>
Fall 2003	11	3.6 (3.3)	3.3 (3.4)
Fall 2004	23	3.2 (3.3)	3.4 (3.4)
Fall 2005	9	3.8 (3.3)	3.6 (3.4)
Fall 2006	19	3.8 (3.3)	4.0 (3.4)

Fall 2007	14	3.3 (3.3)	3.5 (3.4)
Fall 2008	16	3.5 (3.3)	3.6 (3.4)
Fall 2009	20	3.5 (3.3)	3.6 (3.4)
Fall 2010	21	3.4 (3.4)	3.3 (3.5)
Fall 2011	29	3.6 (3.4)	3.7 (3.5)
Fall 2012	27	3.8 (3.4)	3.8 (3.4)
Fall 2013	30	3.6 (3.5)	3.7 (3.5)
Fall 2014	37	3.0 (3.2)	2.9 (3.3)

† Scale 0 – 4.

FOR 480 – Integrated Forest Resource Management, 5-credit hours. Co-taught (50% responsibility) with Dr. Mike Lacki (03-06) and Dr. Tamara Cushing (07).

<i>Semester</i>	<i># of Students</i>	<i>Course Evaluation[†] (College Mean)</i>	<i>Teaching Evaluation[†] (College Mean)</i>
Spring 2003		<i>not rated</i>	<i>not rated</i>
Spring 2004	10	4.0 (3.2)	3.8 (3.4)
Spring 2005	14	3.9 (3.3)	3.9 (3.4)
Spring 2006	6	3.3 (3.3)	3.5 (3.4)
Spring 2007	13	<i>not rated</i>	<i>not rated</i>

† Scale 0 – 4.

FOR 770 – Environmental Monitoring and Data Acquisition, 1-credit hour.

<i>Semester</i>	<i># of Students</i>	<i>Course Evaluation[†] (College Mean)</i>	<i>Teaching Evaluation[†] (College Mean)</i>
Spring 2009	7	4.0 (3.3)	4.0 (3.4)

† Scale 0 – 4.

NRC 320 – Natural Resource Analysis (NRES Summer Camp), 3 credit hours.

<i>Semester</i>	<i># of Students</i>	<i>Course Evaluation[†] (College Mean)</i>	<i>Teaching Evaluation[†] (College Mean)</i>
Summer 2009	10	<i>not rated</i>	<i>not rated</i>
Summer 2010	20	3.9 (3.4)	3.9 (3.5)
Summer 2011	19	3.9 (3.4)	3.9 (3.5)
Summer 2013	9	3.8 (3.8)	3.8 (3.7)
Summer 2014	18	3.8 (3.4)	3.8 (3.4)
Summer 2015			

† Scale 0 – 4.

FOR 356 – Landscape Assessment, 5 credit hours. Co-taught with three others. Barton section evaluation only listed below.

<i>Semester</i>	<i># of Students</i>	<i>Course Evaluation[†]</i> <i>(College Mean)</i>	<i>Teaching Evaluation[†]</i> <i>(College Mean)</i>
Spring 2012	15	3.9 (3.4)	3.9 (3.5)
Spring 2013	17	4.0 (3.5)	4.0 (3.5)
Spring 2014	18	3.5 (3.3)	3.6 (3.4)
Spring 2015	14	3.6 (3.2)	4.0 (3.3)

[†] Scale 0 – 4.

NRC 320-002 – Natural Resource Analysis (NRES Summer Camp in Costa Rica). Developed course with Paratley, Philpott and Price in 2013.

FOR 602 – Renewable Natural Resources in a Global Perspective, Fall, 2003, 2005, 2007, 2009, 2011, 2013. Responsible for three 50-min class equivalents.

ENV 491 – Soils and Hydrology, 4 credit hours; Summers 1999 - 2005. Responsible for half of the instruction. Operated by Savannah River Environmental Sciences Field Station and South Carolina State University.

PLS 366 – Fundamentals of Soil Science, 3 credit hours; Fall, 1998. Teaching Assistant for Course.

PLS 367 – Soil and Water Analysis, 2 credit hours; Fall, 1998. Teaching Assistant for Course.

Undergraduate Advising/ Internships:

- Elizabeth Hansen, Pomona College. Examined tree species performance on ripped mine lands with differing soil amendments. Presentation: Hansen, E, C. Barton and A. Drayer. 2015. Challenges for Native Forest Establishment on Surface Mines in a Time of Climate Change. 2015 National Meeting of the American Society of Mining and Reclamation, Lexington, KY. June 8 - 12, 2015.
- Teagan Dolan, SUNY College of Environmental Science and Forestry. Examined influence of spoil compaction on tree survival and growth on surface coal mines. Summer 2014.
- Elizabeth Bishop, UK, Ag Communications Major. Green Forests Work Intern. Summer 2014.
- Hannah Angel, UK, Forestry Major. Restoring American chestnut on surface mined lands. Summer and Fall 2011- 2013. Presentation: Angel, H, C.D. Barton and P. Angel. Influence of weed mats and tree shelters on survival and height growth of American chestnut on post-

bond release surface mines in eastern Kentucky. 2012 National Meeting of the American Society of Mining and Reclamation, Tupelo, MS Sustainable Reclamation June 8 - 15, 2012.

- Brian Murphy, UK, PLS Major. Working with KDNR on digitizing mining permit maps. Fall 2010.

- Adam King, UK, NRCM Major. Examined alternative techniques for restoring sediment ponds on surface mine lands. NRCM Internship: Spring 2007.

- Nick Baker, UK, NRCM Major. Examined hydrologic differences between created and natural ephemeral streams in Eastern Kentucky. NRCM Internship: Spring 2006. Presentation: N. Baker and D. Dale. 2006. Surface Coal Mining Impacts on Headwater Stream Functions. UK Showcase of Scholars; Lexington, KY. April 25.

- David Dale, UK, NRCM Major. Examined water quality differences between created and natural ephemeral streams in Eastern Kentucky. NRCM Internship: Spring 2006. Presentation: N. Baker and D. Dale. 2006. Surface Coal Mining Impacts on Headwater Stream Functions. UK Showcase of Scholars; Lexington, KY. April 25.

- Francis Lynch, University of the South, Math Major. Examined stream geomorphology in Robinson Forest. Presentation: Lee, B.P., C.D. Barton, R.A. Katho, and F. Lynch. 2006. Robinson Forest Stream Assessment. KY GIS Conference: Ft. Mitchell, KY. July 17.

- Forrest Miller, Centre College, Biology Major. Examined stream chemistry in Robinson Forest. Summer 2005.

- Emma Witt, NRCM Major. Examined hydrology in restored section of Wilson Creek, Bernheim Forest. NRCM Internship: Spring 2004.

Also mentored undergraduate students for senior or summer internships (3 from South Carolina State University, 1 from the University of South Carolina, 1 from University of North Carolina at Asheville, 2 from Tuskegee)

SERVICE AND RECOGNITION

Green Forests Work 501(c)3 Organization:

Green Forests Work exists to re-establish healthy and productive forests on formerly mined lands in Appalachia. Building on lessons learned from research the program has achieved the following:

- 2009: 35,000 trees; 500 volunteers; 9 events; 72 partners
- 2010: 145,000 trees; 2,000 volunteers; 27 events; 102 partners
- 2011: 352,000 trees; 1,500 volunteers; 28 events; 156 partners
- 2012: 228,000 trees; 2,500 volunteers; 34 events; 190 partners
- 2013: 256,000 trees; 1,900 volunteers; 38 events; 196 partners

- 2014: 201,000 trees; 1,900 volunteers; 34 events; 199 partners
- 2015: 374,038 trees; 1637 volunteers; 47 events; 231 partners

Meetings, Presentations, Consultations:

Organized the 2015 Joint conference of the American Society of Mining and Reclamation (32nd Annual) and the Appalachian Regional Reforestation Initiative (9th Annual) held in Lexington, KY June 7-11, 2015. Over 200 in attendance. Led and organized day-long field tour for 110 participants.

Co-host of the 38th Council on Forest Engineering held in Lexington, KY. July 19-22, 2015. Led and co-organized field tour of eastern Kentucky for approximately 75 participants.

Trees and Water Quality Workshop. November 9, 2011 and February 5, 2013. UK Arboretum. Instructors: Chris Barton, and Dave Lenard. 18 and 10 attendees, respectively.

Riparian Buffer Restoration Workshop. October 19 and October 21, 2010; April 19, 2011, October 5, 2011 and August 14, 2012. UK Arboretum. Instructors: Carmen Agouridis, Chris Barton, Amanda Gumbert, and Jim Lempky. 20, 24, 23, 19 and 15 attendees, respectively.

Barton, C.D., Panelist: Coal Mining and Reclamation. Governor's Conference on Energy and the Environment. Lexington, KY. September 27, 2011.

Organized the 4th Annual Conference for the Appalachian Region Reforestation Initiative held August 4-6, 2009 at the Jenny Wiley State Park in Kentucky. There were 210 registered participants. Research activities at Robinson Forest, Starfire Mine and the Bent Mountain mine were visited during the conference.

Organized the 24th Annual Central States Forest Soils Conference held in Hazard, KY October 12-14, 2004. There were 92 registered participants from 7 states in attendance. Research activities at Robinson Forest, Robinson Substation at Quicksand, and the Starfire mine were highlighted and visited during the conference.

Mineland Reforestation presentations - Numerous tours have been conducted on our Starfire Mine research site in Perry Co. and the Bent Mt. site in Pike Co. with over 3000 in attendance representing various state and federal agencies, coal companies, forest industries, teachers and citizens. A group of selected tours are listed below:

- Mined Land Reclamation Research: Little Elk Reforestation Tour. Leadership Kentucky, September 13, 2013. 55 attendees.
- Mined Land Reclamation Research: Reforestation, Hydrology, Water Quality and Stream Restoration. Presentation for the KY Governors Scholars, Starfire Mine and Guy Cove, July 8, 2011. 22 attendees.

- Mined Land Reclamation Research: Reforestation, Hydrology, Water Quality and Stream Restoration. Presentation for the USEPA, Starfire Mine and Guy Cove, April 20, 2010. 16 attendees.
- Mined Land Reclamation Research: Reforestation, Hydrology and Water Quality. Presentation for the Kentucky Future Farmers of America, Bent Mountain Mine, May 11, 2006. 135 attendees.
- Mined Land Reclamation Research: Reforestation, Hydrology and Water Quality. Presentation for the Senator Mitch McConnell's Staff, Bent Mountain, December 14, 2005. 20 attendees.
- Mined Land Reclamation Research: Reforestation, Hydrology and Water Quality. Presentation for the Appalachian Regional Reforestation Initiative Members, Bent Mt. Mine, August 10, 2005. 25 attendees.
- Mined Land Reclamation Research: Reforestation, Hydrology and Water Quality. Report for U.S. Fish and Wildlife Service and Office of Surface Mining Terrestrial Carbon Sequestration and Appalachian Regional Reforestation Initiative Workshop, Hazard, KY, June 21, 2006. 44 attendees.
- Mined Land Reclamation Research: Hydrology and Water Quality. Presentation for the Federal Office of Surface Mining Inspectors, Bent Mt. Mine, July 12, 2005. 41 attendees.
- Congressional Staff Visit to Robinson Forest – Presentations on Mineland Reforestation were highlighted; April 14-16, 2004.

Robinson Forest SMZ project - A group of selected tours are listed below:

- Presentation for EKU public radio; Dec 17, 2012.
- Presentation for KY Farm Bureau; Oct. 27 and December 1, 2011.
- Presentation for Native American group from Montana: Robinson Forest; June 7, 2011, 12 participants.
- Presentation for RCARS Field Day: Robinson Forest; October 2, 2010, 42 participants.
- Presentation to USDA Silviculture Group: Robinson Forest; April 16, 2010, 33 participants.
- Presentation to Kentucky Governor's Scholars Program: Robinson Forest; July, 2009, 20 participants.
- Presentation to Eastern KY Chapter of the Society of American Forests: Robinson Forest; May, 2009, 21 participants.

- Presentation to Southern States BMP Board: Robinson Forest; October, 2007, 34 participants.
- Presentation to Kentucky Chapter of the Society of American Foresters: Robinson Forest; October, 2007, 12 participants.
- Presentation to Kentucky Wood Industry Association: Robinson Forest; July, 2006, 65 participants.
- Presentation to Kentucky Chapter of Soil and Water Conservation Society: Robinson Forest; April, 2006, 20 participants.
- Presentation to Kentucky BMP Board. Clayhole, KY; October, 2003, 14 participants.
- Presentation to Southern States BMP Board. Clayhole, KY; September, 2003

Carolina Bay Restoration Project – Presentation to Savannah River Research Advisory Committee. Aiken, SC; February, 2007; February, 2005 and November, 2003.

Editorship, reviewer service:

Associate Editor, International Journal of Phytoremediation, 2005 - present.

Associate Editor, International Journal of Mining, Reclamation and Environment, 2007 - present.

Associate Editor, Journal of Environmental Monitoring and Restoration, 2002 – present.

Manuscript Reviewer:

- Water, Air and Soil Pollution
- International Journal of Phytoremediation
- International Journal of Mining, Reclamation and Environment
- Journal of Environmental Monitoring and Restoration
- Environmental Geochemistry and Health
- USDA Forest Service, General Technical Report
- Journal of Environmental Quality
- Soil Science Society of America Journal
- Forest Science
- Ecological Engineering
- Journal of Hydrology
- Environmental Engineering and Geoscience
- Restoration Ecology
- Journal of Applied Ecology
- Geoderma
- Canadian Journal of Forest Research
- Hydrologic Processes
- Ecohydrology
- Forest Ecology and Management

- Wetlands
- Journal of the American Water Resources Association
- Southern Journal of Applied Forestry
- New Forests

Moderator:

Forest Hydrology Session: 17th Central Hardwood Forest Conference. Lexington, KY. April 5-7, 2010.

Session 23: Carbon Equivalent Landscapes: Setting the Agenda and Implementing the Details. 10th National Conference on Science, Policy and the Environment. National Council for Science and the Environment. Washington, DC. January 20-22, 2010.

Session VI: Genes and New Frontiers. 5th International Phytotechnologies Conference. Nanjing, China. October 22-25, 2008.

Session E: Mountain Top Removal and Valley Fill. Mid-Atlantic Stream Restoration Conference. Cumberland, Maryland November 6-8, 2007.

National Proposal Review Panels:

USGS National Institutes for Water Resources Grants Program. 2009.

EPA STARS Scholarship Review Panel, Aquatic Systems and Ecology. 2005. Washington D.C.

USDA CSREES National Research Initiative Competitive Grants Program. 2005

NOAA Sea Grant Proposal Review. 2003, 2007.

Committees:

Co-Chair of Planning Committee for the American Society of Mining and Reclamation's 2015 National Conference; Lexington, KY; June 1-5, 2015.

University of Kentucky Federal Uniform Guidance Working Group, 2014.

US Army Corps of Engineers, HGM Validation Project Delivery Team, Validate HGM Guidebook for High Gradient Ephemeral & Intermittent Streams in WV & KY, 2011-2013.

University of Kentucky Agriculture Faculty Council, 2009-2011.

Barnhart Fund for Excellence Committee, 2009-2011.

Steering Committee Member, UK Natural Resource Conservation and Management Academic Program, 2008 – present.

Committee on Research and Policy, Kentucky Water Resources Institute, 2004-2007, 2008-present.

Steering Committee Member, Precision Agriculture and Natural Resources, 2004-2006.

Appalachian Region Reforestation Initiative's Science Team, 2004-present. Co-team Leader 2007 -present.

University of Kentucky Representative, Consortium of Universities for the Advancement of Hydrological Sciences, 2003 - present.

UK Department of Forestry, Research Committee (chair), 2010 – 2013.

UK Department of Forestry, Graduate Program Committee, 2003 - 2005, 2006 - 2008, 2010 - 2012, 2014 - 2016.

UK College of Agriculture, Robinson Forest Committee, 2003 - present.

US DOE Savannah River Site, Wetland and Aquatic Issues Task Group, 1999-2003.

US DOE Savannah River Site, D-Area CERCLA/RCRA Integration Team, 1999-2003.

US DOE Savannah River Site, Monitored Natural Attenuation and Phytoremediation Task Group, 2000-2002.

Awards:

- American Society of Mining and Reclamation, Richard and Lela Barnhisel Researcher of the Year Award; 2015.
- United States Environmental Protection Agency; Scientific and Technological Achievement Award; Providing Science to Inform Decisions on Compensatory Mitigation of Headwater Streams Affected by Surface Mining; 2014.
- United States Department of Interior; Partners in Conservation Award; Appalachian Regional Reforestation Initiative; 2012.
- Association of Public and Land-Grant Universities; Exemplary Program Award; UK Mined Land Reforestation Project; 2011.
- United States Department of Interior; Presidential Migratory Bird Federal Stewardship Award; Appalachian Regional Reforestation Initiative; 2011.
- University of Kentucky, College of Agriculture; High Impact Research/Extension Program Award; Streamside Management Zone Effectiveness Project; 2010.
- United States Department of Interior, Cooperative Conservation Award; Appalachian Region Reforestation Initiative; 2007.

- United States Forest Service, Regional Forester's Award for Natural Resource Stewardship; Carolina Bay Restoration Project; 2006.
- University of Kentucky, Commonwealth Collaborative; 2005.
- United States Department of Agriculture, Forest Service; Southern Regional Forester's Cost Cutter - Entrepreneur Award, SRS Phytoremediation Program; 2000.
- United States Department of Agriculture, Forest Service; Southern Regional Forester's Seamless Government Award, Savannah River Environmental Sciences Field Station Establishment; 1999.
- Savannah River Environmental Sciences Field Station; Excellence in Teaching Award, 1999.
- Kentucky Research Challenge Trust Fund Fellowship; Graduate student fellowship, 1998.
- Soil Science Society of America; Division S6 (soil and water conservation) Graduate Student Award, 1997.
- United States Department of Agriculture Forest Service; Certificate of Appreciation Award, 1996.
- Louis S. Ison Graduate Student Scholarship; University of Kentucky, 1994.

Awards by Students:

- American Society of Mine Reclamation, Best Undergraduate Oral Presentation; Received by Elizabeth Hansen, 2015.
- National Science Foundation, East Asia and Pacific Summer Institutes (EAPSI) summer research fellowship, Received by Kenton Sena, 2014.
- National Association of State Land Reclamationists (NASLR) Educational Grant, Received by Kenton Sena, 2014.
- American Society of Mine Reclamation, Memorial Scholarship; Received by Kenton Sena, 2013.
- American Society of Mine Reclamation, 2nd Place Student Poster Presentation; Received by Kenton Sena, 2013.
- American Society of Mine Reclamation, 3rd Place Student Poster Presentation; Received by Hannah Angel, 2013.
- Ben Meadows Leadership Scholarship; Received by Hannah Angel, 2013.

- Soil Science Society of America, S-06 Soil and Water Conservation Graduate Student Award; Received by Emma Witt, 2012.
- American Society of Mine Reclamation, Memorial Scholarship; Received by Hannah Angel, 2012.
- American Society of Mine Reclamation, 1st Place Student Poster Presentation; Received by Hannah Angel, 2012.
- American Society of Mine Reclamation, Memorial Scholarship; Received by Katy Adank, 2008.
- KY EPSCoR, Research Enhancement Grant; Received by Katy Adank, 2007.
- American Society of Mine Reclamation, 3rd Place Oral Presentation; Received by Michael French, 2007.
- American Society of Mine Reclamation, Memorial Scholarship; Received by Tara Littlefield, 2006.
- American Society of Mine Reclamation, Memorial Scholarship; Received by Claudia Cotton, 2006.
- Soil Science Society of America, Graduate Student Presentation Award, Honorable Mention; Received by Danielle Andrews, 2005.
- American Association of Petroleum Geologists: Graduate Student Assistance Award; Received by Sally Maharaj, 2005.
- American Society of Mine Reclamation: Best Graduate Student Poster Presentation; Received by Patrick Angel, 2005.
- Society of Wetland Scientists: Honorable Poster Presentation; Received by Danielle Andrews, 2005.
- Soil and Water Conservation Society: Best Graduate Student Poster Presentation; Received by Alex Cherry, 2005.

Media Coverage of Program (Selected):

Soil Science Society of America: Soil Horizons

<https://www.soils.org/publications/articles/56/3/sh2015-56-3-f>

Al Jazeera English. Earthrise program. *Mountaintop Revival*. October 3rd, 2013.

<http://greenforestwork.com/gfw-earthrise-feature>

Yes! Magazine. A New Deal for Appalachia's Forests: Growing Biofuels? May 31st, 2013. <http://www.yesmagazine.org/new-economy/could-biofuels-mean-a-new-deal-for-appalachia-s-forests>.

WEKU Radio. *With A Vegetative Buffer Zone, Tributaries to the Kentucky River Can Stay Clean*. August 8, 2013.

The Economist. *Appalachia Terraforming: Restoring Streams and Forests in Coal Country*. February 2, 2012. <http://www.economist.com/blogs/democracyinamerica/2012/02/coal>

Popular Mechanics. *How to Reclaim Land Damaged by Coal Mining*. May 5, 2010. <http://www.popularmechanics.com/science/energy/coal-oil-gas/coal-mining-slide-reclamation>

The Lane Report

- *New Greenhouse Sprouts Learning Opportunities*. June 20, 2012.
- *Heal the Land, Heal the Nation: UK Contingent Plants Trees on 9/11 Site*. May 1, 2012.

Compass. USDA Forest Service-Southern Research Station. *Cleaning up our act: Planting trees to clean water*. Issue 8, March 2007.

Lexington Herald-Leader

- *Group plants trees in Eastern Kentucky as part of effort to reforest strip-mined land*. March 15, 2015
- *SOAR overlooking economic, job potential of forests*. February 15, 2015
- *Develop skilled work force to reforest strip-mined hills*. December 8, 2013
- *It's always better to err on the side of air*. November 11, 2013
- *The Plan: Plant 125 Million Trees*. August 16, 2009.
- *At Loggerheads*. October 7, 2007.
- *Reforesting the Mountaintop*. May 29, 2005.

The University of Kentucky, College of Agriculture "The mAGazine"

- *Rainy Days and Outcomes* (Acid Rain Project), Fall 2014.
- *Heal the Land, Heal the Heart* (Flight 93 Project); Summer 2012.
- *Reforesting the Globe*; Spring 2010.
- *Restoring Kentucky's Streams*; Summer 2009.
- *Bringing Back the Forest*; Fall 2008.
- *Water Quality*; Spring 2006.

Earth & Sky (Public Radio). *Using Trees to Clean Coal Ash*. January 2002.

Habitat Restoration at Flight 93 Memorial Site; US Fish and Wildlife; May 2012. <http://www.youtube.com/watch?v=fiixzXh5aR4>

Flight 93 Memorial Tree Planting; University of Kentucky, College of Agriculture; May 2012.

http://www.youtube.com/watch?v=Or_3gxXGkQc

Community Service:

- Board of Directors, UK Spindletop Hall, Inc, 2006 – 2010.
- Committee Member, Reforest the Bluegrass, 2003-2005.
- Youth Soccer Coach, 2007 – 2008.
- Youth Basketball Coach, 2006 – 2007.

Professional Organizations:

- American Water Resources Association
- Soil Science Society of America
- American Society for Surface Mining and Reclamation
- American Chestnut Foundation

TERRANCE E. CONNERS

EDUCATION

Ph.D.

Virginia Polytechnic Institute and State University 1985
Major: *Forestry and Forest Products* (Wood Engineering)
Dissertation Title: "The Effect of Moisture Gradients on the Stiffness and Strength of Yellow-Poplar"

M.S.

University of Massachusetts-Amherst 1979
Major: *Wood Science and Technology*
Thesis Title: "Investigation of Certain Mechanical Properties of a Wood-Foam Composite"

B.S.

The Pennsylvania State University 1976
Major: *Forest Products*

PROFESSIONAL EXPERIENCE

Department of Forestry, University of Kentucky 8/2001 to date
Extension Specialist in Forest Products Assistant Extension Professor 2001–2002; Promoted to Associate Extension Professor, 2002 Tenured, 2003

Mississippi Forest Products Laboratory and 12/97–7/01
Department of Forest Products, Miss. State Univ.
Associate Professor of Forest Products

Kimberly-Clark Corporation 1996–11/97
Corporate Research and Engineering Center, Neenah, WI
Research Manager, Fiber Technology R & D (830 Hay Points)

Mississippi Forest Products Laboratory and 1991–9/96
Department of Forest Products, Mississippi State University
Associate Professor of Forest Products

Integrated Paper Services 1989
Appleton, Wisconsin
Co-founder (Technical Services and Consulting for the pulp and paper industry)

The Institute of Paper Science & Technology 1987–1991
Assistant Professor of Material Science & Research Scientist Group Leader, Microscopy and Fiber Analysis

The Institute of Paper Science & Technology (Inst. of Paper Chemistry) 1985–1987 <i>Assistant Professor of Biology & Research Scientist</i> <i>Group Leader, Wood and Fiber Science</i>	
Department of Forest Products, Virginia Tech <i>Instructor</i>	1981
Department of Forest Products, Virginia Tech <i>Teaching/Research Assistant</i> 1982–1984	1979–1980
Department of Rhetoric, University of Massachusetts <i>Instructor (Undergraduate Composition)</i>	1979
Department of Forestry and Wildlife, Univ. of Massachusetts <i>Teaching Assistant</i>	1977–1978

SUMMARY OF CURRENT AND RECENT WORK AT THE UNIVERSITY OF KENTUCKY

Current Distribution of Effort: 90% Service, 10% Instruction

Pedagogical

- Appointed to the Graduate Faculty of the University of Kentucky in November 2005
- UK Department of Forestry, Co-Instructor for FOR 379 Harvest and Utilization of Wood, two weeks annually, 2002– date.
- Occasional lectures in other courses on a regular basis (see details in section about Pedagogy)
- Forestry Club Advisor, 2006–date

Extension Programming

- Small sawmill group coordination and assistance
- Youth programs (Junior and Senior Forestry 4-H, Wood Magic, FFA)
- Railway tie grading instruction programming
- Wood industry and general public assistance and education programs
- Regional wood industry and Extension Specialist development

Recent Research Projects

- Using wood fluorescence as a wood identification tool (2013 to date)
- Volatile organic compounds and HAPs from lumber drying: mechanisms and controls
- Wood particle absorbency for animal bedding

Administrative Contributions:

- UK Senate, member 2009–2014 (two-year term plus full three-year term) (elected member)
- UK College of Agriculture Faculty Council, Elected member, 2007–2009.
- Chairman (elected position) UK College of Agriculture Faculty Council, 2008–2009.
 - o Initiated and organized the first College of Agriculture Faculty Convocation (Introduction of new faculty, congratulations to tenured and promoted faculty, State-of-the-College Address by the Dean, August 26, 2008).
 - o Conducted October 2008 University Faculty Senate Elections.
 - o Coordinated Dean’s Question and Answer Session, November 3, 2008.
- Finalist for the University of Kentucky Board of Trustees, 2012.

Other Notable Professional Contributions:

- Editorial Board Member**, International Wood Products Journal. Published by Maney Publishing, 2009–date.
- Director**, Society for Wood Science and Technology, June 2012–2014.
- Member**, Railway Tie Association Education and Research and Development Committees
- Co-Founder**, The Central Kentucky Wood Producers Association (2011)
- Member, eXtension Wood Energy Community of Practice 2008 to date.
- Member, eXtension Wood Products Community of Practice (9/12 to date)

REFEREED JOURNAL PUBLICATIONS:

MacGregor, M.A. and T.E. Conners. 1987. Image analysis of an LWC paper reveals wire mark in the print density variations. *Tappi Journal* 70(9):95–100.

Conners, T.E. and T.E. McLain. 1988. Modeling moisture gradient effects on bending properties. *Wood and Fiber Science* 20(2):226–242.

Conners, T.E. 1989. Segmented models for stress-strain diagrams. *Wood Science and Technology* 23(1):65–73.

MacGregor, M.A. and T.E. Conners. 1989. MD microstriations in paper. *Tappi Journal* 72(4):177–181.

Burns, J.R., T.E. Conners and J.D. Lindsay. 1990. Dynamic measurement of density gradient development during wet pressing. *Tappi Journal* 73(4):107–113.

Conners, T.E. and P.J. Medvecz. 1991. Wood as a bimodular material. *Wood and Fiber Science* 24(4):413–423.

Burns, J.R., J.D. Lindsay and T.E. Conners. 1993. Dynamic measurements of stratified consolidation in a press nip. *Tappi Journal* 76(8):87–96.

Conners, T.E. and R.D. Seale. 1996. Mississippi State University's Wood Magic Science Fair. *Tappi Journal* 79(6):61–65.

Ibrahim, A., P.B. Oldham, T.E. Conners and T.P. Schultz. 1997. Rapid characterization of wood pulp lignin by Fourier transform Raman spectroscopy. *Microchemical Journal* 56:393–402.

Sun, Z., A. Ibrahim, P.B. Oldham, T.E. Conners, and T.P. Schultz. 1997. Rapid lignin measurement in hardwood pulp samples by near-infrared Fourier transform Raman spectroscopy. *Journal of Agricultural and Food Chemistry* 45(8):3088–3091.

Su, W., J.R. Boerner, U. Hooda, H. Yan, S. Banerjee, R. Shmulsky, L.L. Ingram, and T.E. Conners. 1999. VOC extraction from softwood through low-headspace heating. *Holzforschung* 53(6):641–647.

Garrard, A.W., H.M. Barnes, R.D. Seale, and T.E. Conners. 1999. Wood Magic Science Fair: Changing attitudes and perceptions. *Forest Products Journal* 49(2):10–15.

Ra, J.B., H.M. Barnes and T.E. Conners. 2001. Determination of boron diffusion coefficients in wood. *Wood and Fiber Science* 33(1): 90–103.

Conners, T.E., L.L. Ingram, W. Su, S. Banerjee, A.T. Dalton, M.C. Templeton and S.V. Diehl. 2001. Seasonal variation in southern pine terpenes. *Forest Products Journal* 51(6):89–94.

Conners, T.E., H. Yan and S. Banerjee. 2002. Mechanism of VOC release from high-temperature softwood lumber drying. *Wood and Fiber Science* 34(4): 666–669.

Ra, J.B., H.M. Barnes, and T. E. Conners, 2002. Predicting boron diffusion in wood from surface sorption. *Forest Products Journal* 52(10): 67–70.

Stiglbauer, P., T. Conners, and S. Banerjee. 2006. Influence of knife angle and ambient temperature on fines generation from flakers. *Forest Products Journal* 56(10): 86–89.

Banerjee, S., U. Hooda and T.E. Conners. 2007. Temperature effects on fines generation during wood flaking. *Appita Journal* 60(6): 482–484.

Banerjee, S., R. Yang, C. Courchene, and T.E. Conners. 2009. Scanning electron microscopy measurements of the surface roughness of paper. *Industrial and Engineering Chemistry Research* 48(9): 4322–4325. Second author (this journal lists authors by institution).

Tangirala, P., J. R. Heath, A. Radun, and T.E. Conners. 2010. A hand-held programmable logic-based temperature and relative-humidity sensor, processor and display system platform for automation and control of industry processes. *IEEE Transactions on Industry Applications* 46(4):1619–1624.

Steele, P.H., I. Hartley, J.E. Cooper, T.E. Conners, and R. King. 2010. The differential thermal response of knots and clear wood following rapid heating. *Research in Nondestructive Evaluation*: 21: 30–47.

PEER-REVIEWED PUBLICATIONS AND PRESENTATIONS

MacGregor, M.A. and T.E. Conners. 1987. Image analysis of an LWC paper reveals wire mark in the print density variations. Published as Institute of Paper Chemistry Technical Report 259, September, 1987, reviewed internally by other faculty of the Institute of Paper Chemistry prior to publication. *Also* presented at 1987 Tappi Engineering Conference, New Orleans, Louisiana.

Bunker, D.T. and T.E. Conners. 1990. Z-Directional pore volume distribution of pigment films. IPST Technical Paper Series Report Number 382, reviewed internally by other faculty of the Institute of Paper Chemistry prior to publication.

Bunker, D.T. and T.E. Conners. 1990. Z-Directional pore volume distribution of pigment films. Presented at the Coating Fundamentals Symposium jointly sponsored by TAPPI and CPPA in Montreal, P.Q., May 1991 and published in the Proceedings. (Reviewed for content quality by Session Chairman and committee, but not peer-reviewed for journal publication).

Burns, J.R., J.D. Lindsay and T.E. Conners. 1992. Dynamic measurements of stratified consolidation in a press nip. Presented at the Tappi Engineering Conference, September 1992. (Reviewed for content quality by Session Chairman and committee, but not peer-reviewed for journal publication). Published in the Proceedings.

Conners, T.E., L.L. Ingram, A. Thompson, M.C. Templeton, S. Diehl, W. Su and S. Banerjee. 1999. Effect of seasonal variation in southern pine terpenes on dryer emissions. Tappi International Environmental Conference Proceedings pp. 647–653, April 18–21, Nashville, TN. (Reviewed for content quality by Session Chairman and committee, but not peer-reviewed for journal publication). Published in the Proceedings.

Tangirala, P., J. Robert Heath, Arthur Radun and T.E. Conners. 2006. Development and Validation of a Programmable Logic Device (PLD) Based Sensor and Processor Microarchitecture System for Equilibrium Moisture Content Calculation in Wood Industries. Presented at the 2006 IEEE Sensors Applications Symposium held in Houston, Texas, February 7–9, 2006. “Papers will be reviewed by the technical program committee for originality, clarity, and technical merit.” Published in Proceedings, pages 135–140.

Conners, T.E. 2007. An Introduction to Cutting and Grading Railroad Ties. Department of Forestry, University of Kentucky, FORFS 07-12. 31 pages. Reviewed by technical staff of major U.S. railroads as well as the Executive Director of the Railway Tie Association.

Conners, T.E. 2008. Producing and Inspecting Railroad Crossties. University of Kentucky Cooperative Extension Service, FOR-108. 16 pages. Reviewed by technical

staff of major U.S. railroads as well as the Executive Director of the Railway Tie Association.

Conners, T.E. 2009. Senior 4-H Forestry Insect Identification Training. University of Kentucky Cooperative Extension Service, 4DC-05PA. 61 pages. Reviewed by 4-H entomologists from the University of Kentucky and West Virginia University for placement on the National 4-H Forestry website.

Conners, T.E. (Co-author, with representatives from 20 universities). 2009. Expanding Bioenergy Opportunities From Working Forests and Rangelands. Published by CSREES and Michigan State University. 4 pages.

Conners, T.E. 2009. Wood Energy Community of Practice. 28 FAQs edited, 21 published.

RTA Education Committee (including T.E. Conners). 2010. Video: Three hundred ties with defects, chosen from longer footage to demonstrate different species and defects.

RTA Education Committee (including T. E. Conners). 2010. Video: Test 1, a subset of the 300 ties used for a test (without answers).

RTA Education Committee (including T.E. Conners). 2010. Video: Test 1, a subset of the 300 ties used for a test (with answers this time).

RTA Education Committee (including T.E. Conners). 2010. Video: Test 2, a second subset of the 300 ties used for a test (without answers).

RTA Education Committee. 2010. Video: Test 2, a second subset of the 300 ties used for a test (with answers this time).

Conners, T., and T. Wilson. 2012. Evaluating the Economic Feasibility of a Woody Biomass Boiler Project. Peer-reviewed, awaiting co-author's revisions (3/12).

Conners, T.E. 2014. Identifying Wood: A Primer For Everyone. Part 1: Introduction to Wood Structure and Characteristics. 9 pages. University of Kentucky numbered Extension series, publication FOR-123.

Conners, T.E. 2014. Identifying Wood: A Primer For Everyone. Part 2: First Steps in Identifying Wood. 16 pages. University of Kentucky numbered Extension series, publication FOR-124.

Conners, T.E. 2014. Identifying Wood: A Primer For Everyone. Part 3: How to Tell if a Piece of Wood is a Hardwood or a Softwood. 8 pages. University of Kentucky numbered Extension series, publication FOR-125.

Conners, T.E. 2014. Identifying Wood: A Primer For Everyone. Part 4: Navigation. 7 pages. University of Kentucky numbered Extension series, publication FOR-126.

Conners, T.E. 2014. Identifying Wood: A Primer For Everyone. Part 5: The First Separation of Softwood Species. 13 pages. University of Kentucky numbered Extension series, publication FOR-127.

Conners, T.E. 2014. How to Select and Buck Logs for Railroad Ties. 21 pages. University of Kentucky numbered Extension series, publication FOR-122.

The six publications above (Identifying Wood, Parts 1-5, and How to Select and Buck Logs for Railroad Ties) have also been peer-reviewed for geographic and content relevance for the Southern Regional Extension Forestry Publication Series and will be published.” (Bill Hubbard quote). The content has been peer-reviewed for technical accuracy.

NON-REFEREED ARTICLES AND TECHNICAL PRESENTATIONS

MacGregor, M.A. and T.E. Conners. 1988. MD microstriations in paper. Presented at the 1988 Tappi Engineering Conference, Chicago, Illinois, September 21, 1988.

Burns, J.R., T.E. Conners and J.D. Lindsay. 1989. Measurement of the dynamic behavior of internal sheet structure during wet pressing. Presented at the 1989 Tappi Engineering Conference, Atlanta, Georgia, September 13, 1989. *Also in Quality Assurance: Its Management and Techniques, Tappi Press, Atlanta, GA, 1990.*

Oldham, P.B., J. Wang, T.E. Conners and T.P. Schultz. 1993. Rapid secondary analysis of pulp lignin: A review of NIR and FTIR and preliminary investigation of multidimensional fluorescence spectroscopy. Proceedings of the 1993 Tappi Pulping Conference, Atlanta, Georgia, pp. 649–661.

Conners, T.E. 1993. Wood structure and identification strategies for forensic scientists. Presentation to the Tarrant County, Texas, Medical Examiner’s Office and Medical Examiners from surrounding states.

Conners, T.E. 1994. Wood structure and identification strategies for forensic scientists. Presentation to the Mississippi State Crime Laboratory, February, 1994.

Dubois, M.R., T.E. Conners and W.F. Watson. 1994. Timber management guidelines for linerboard production in North-Central Arkansas. Proceedings of the 1994 Tappi Pulping Conference, Atlanta, Georgia.

Conners, S.B. and T.E. Conners. 1994. A cluster analysis of furniture advertisements in magazines. Presented at the 48th Annual Meeting of the Forest Products Society, Portland, Maine, June, 1994. *In: Abstracts.*

Chambliss, D.C., T.E. Conners and D.D. Truax. 1994. Suitability of softwood boiler ash for inclusion in a rubbish landfill. *In: Proceedings, Environmental Issues Affecting the Forestry and Forest Products Industries of the Eastern United States, USDA Forest*

Service NE Forest Expt Station General Technical Report NE-219:115–118. Baltimore, Maryland, August 24–26, 1994.

Truax, D.D., T.E. Conners, D.C. Chambliss, and A. Apparao. 1995. Suitability of softwood boiler ash for land disposal. 1995 ASCE/CSCE Environmental Engineering Conference, Pittsburgh, PA, July 23–26, 1995.

Oldham, P.B., A. Ibrahim, J. Wang, T.P. Schultz, T. E. Conners and V.F. Kalasinsky. 1994. Characterization of lignin content in wood pulp using Fourier transform Raman spectroscopy. Presented at the International Raman Spectroscopy Conference, Hong Kong. Abstract published *in*: Proceedings.

Seale, R.D. and T.E. Conners. 1995. Creating a solution for an industry-wide problem: The Wood Magic Science Fair. *Tree Talk*, Spring, 1995, pp. 18–20.

Chambliss, D.C., T.E. Conners and D.D. Truax. 1995. Analysis and suitability of softwood boiler ash for inclusion in a rubbish landfill. Presented at the 49th Annual Meeting of the Forest Products Research Society, Portland, OR June 25–28, 1995. *In*: Abstracts.

Conners, S.B. and T.E. Conners. 1995. Direct and inferential effects of environmental certification and country-of-origin in marketing forest products to the environmentally concerned consumer. Presented at the 49th Annual Meeting of the Forest Products Research Society, Portland, OR June 25–28, 1995. *In*: Abstracts.

Conners, S.B., and T.E. Conners. 1995. How green is my lumber? The effect of third-party certification and country of origin on the perceived and inferred environmental friendliness of a non-branded product by consumers. Presented at the 49th Annual Meeting of the Forest Products Research Society, Portland, OR June 25–28, 1995. *In*: Abstracts.

Conners, T.E. and R.D. Seale. 1995. The Wood Magic Science Fair at Mississippi State University. Presented at the 49th Annual Meeting of the Forest Products Research Society, Portland, OR June 25–28, 1995. *In*: Abstracts.

Théberge, J.-P., T.E. Conners, H.M. Barnes and D.D. Nicholas. 1995. Effects of several different treatments on the dimensional stability of wood exposed to liquid and vapor phase water. *In*: Abstracts of the 49th Annual Meeting of the Forest Products Research Society, Portland, OR June 1995.

Truax, D.D., T.E. Conners, D.C. Chambliss, and A. Apparao. 1995. Suitability of softwood boiler ash for land disposal. Presented at the 1995 ASCE/CSCE Environmental Engineering Conference, Pittsburgh, PA, July 23–26, 1995.

Conners, T.E. 1995. The Wood Magic Science Fair compared to Project Learning Tree. Paper presented to 1995 Southeast Regional Project Learning Tree Meeting, Crow's Neck, Mississippi, November 9, 1995.

Conners, T.E. 1996. The 1995–1996 Wood Magic Science Fair. Presented to the Neshoba County Forestry Association Annual Meeting, March 25, 1996.

Conners, T.E. 1996. The Wood Magic Science Fair. Presentation to the Teacher's Conservation Workshop, Gulf Coast Community College, Mississippi, June 18, 1996.

Conners, T.E. 1996. The Wood Magic Science Fair. Mississippi Logger's Association Meeting, Jackson, Mississippi, June 28, 1996.

Conners, T.E. 1996. The Wood Magic Science Fair. Presentation to the Teacher's Conservation Workshop, Crow's Neck, Mississippi, July 19, 1996.

Conners, T.E. 1996. The Wood Magic Science Fair. Presentation to the Carroll County Forestry Association, Vaden, Mississippi, July 29, 1996.

Conners, T.E. and R.D. Seale. 1996. Mississippi State University's Wood Magic Science Fair. Presented at the Education and Communication Applications in Natural Resource Management Conference, Georgia Center for Continuing Education, The University of Georgia, Athens, GA, September 28, 1995. *In: Proceedings*, pp. 49–51.

Conners, T.E. 1998. The Wood Magic Science Fair. Presentation to the Teacher's Conservation Workshop, Perkinston, Mississippi, June 11, 1998.

Conners, T.E. 1998. The Wood Magic Science Fair. Presentation to the Teacher's Conservation Workshop, Senatobia, Mississippi, June 26, 1998.

Banerjee, S. and T.E. Conners. 1998. Low VOC Drying of Lumber and Wood Panel Products. Presentation to AF & PA, October 7, 1998.

Conners, T.E., L.L. Ingram, W. Su, S. Banerjee, A.T. Dalton, M.C. Templeton and S.V. Diehl. 1999. Seasonal Variation in Southern Pine Terpenes: Flakes and Trees. Presented at the 53rd Annual Meeting of the Forest Products Society, Boise, ID June 1999. *In: Abstracts*.

Ra, J.B., H.M. Barnes, and T.E. Conners. 1999. Determination of boron diffusion coefficients in wood. Presented at the 53rd Annual Meeting of the Forest Products Society, Boise, ID June 1999. *In: Abstracts*.

Wan, H., M. Kim and T.E. Conners. 1999. The interaction of phenolic resins with southern pine. Presented at the 53rd Annual Meeting of the Forest Products Society, Boise, ID June 1999. *In: Abstracts*.

Conners, T.E. 1999. The Wood Magic Science Fair. Presentation to the Teacher's Conservation Workshop, Northeast Community College, Booneville, Mississippi, June 25, 1999.

Conners, T.E. 1999. The Wood Magic Science Fair and Its Evaluation. Presentation to the Project Learning Tree Southeast Regional Coordinator's Conference. Plymouth Bluff Environmental Education Center, Columbus, Mississippi. September 16, 1999.

Conners, T.E., H. Yan and S. Banerjee. 2001. Release and measurement of VOC emissions from lumber kilns. Presented at the International Environmental Health and Safety Conference, Charlotte, NC, April 22–25, 2001.

Conners, T.E., R.D. Seale, and A.W. Garrard. 2001. The Roots of the Wood Magic Science Fair™. Presented at the Annual Meeting of the Society of Wood Science and Technology, Baltimore, Maryland, June 24, 2001. *In*: Proceedings, August 2001.

Conners, T.E. and C. Fackler. 2001. What's Going On at the University of Kentucky Wood Utilization Center. Presentation to Kentucky Wood Products Competitiveness Corporation Board of Directors.

Conners, T.E. Dry Kiln Emissions (VOCS). 2001. Invited Presentation to the Ohio Valley Lumber Drying Association, November 2001.

Conners, T.E. 2002. Products Made From Wood. Department of Forestry, University of Kentucky, Fact Sheet FORFS 02-02.

Conners, T.E. 2002. In-Service Presentation to County Agriculture Extension Agents: What Is Forestry?

Conners, T.E. 2002. Developed and assembled Kits for Papermaking (with video instructions), distributed to County Agents by request/sign-out through Agricultural Distribution on the UK campus.

Conners, T.E. 2002. Instructor, Kentucky Forest Leadership Program Camp, Jabez, Kentucky. June 2002.

Conners, T.E., and S. Banerjee. 2002. Low VOC Drying of Wood. US Department of Energy Review Panel meeting, Washington D.C.

Conners, T.E. 2002. Presentation: Forestry and Specialty Forest Products, to Governor's Conference on Agricultural Opportunities.

Conners, T.E. 2002. Presentation about Cabinetmaking, Sand Gap Elementary School, Sand Gap, Kentucky. Developed presentation materials and led discussion about cabinetmaking process from stump to product.

Conners, T.E. Outlook for Forestry and Forest Products. 2002. Presentation to Kentucky County Extension agents, about 15 attending.

Conners, T.E. 2002. Videotape: Papermaking: "Making Your Own Wood Products." (22 minutes). Part of *What Is Forestry: Bringing the Outdoors Inside*. Produced by Agricultural Communications Services, University of Kentucky

Conners, T.E. and J. Ringe. 2003. Invited, introductory presentations about Kentucky hardwoods to Cuban Trade Officials, CEO/Senior Representatives of *Alimport* and *Maprinter* (Cuban import organizations), and selected wood- using companies. January 2003.

Conners, T.E. 2003. A Snapshot View of the KY Forest Products Industries. Department of Forestry, University of Kentucky, Fact Sheet FORFS 03-04.

Conners, T.E. 2003. Installing Wood Posts for Greatest Longevity in Farm or Paddock Fencing. Department of Forestry, University of Kentucky, Fact Sheet FORFS 03-05.

Conners, T.E. 2003. Solar Kiln Worksheet (Microsoft Excel spreadsheet). Department of Forestry, University of Kentucky, Fact Sheet FORFS 03-06.

Conners, T.E. and J.M. Ringe. 2003. 1st Lanzamiento de Maderas Duras de Los Estados Unidos (1st Launching of Hardwoods of the United States). September 17–20, 2003. Havana, Cuba. Principal speakers, by invitation of the Cuban government following our introduction to Alimport officials in January 2003. Sponsored and attended by the Cuban government and its Agencies (Alimport and Maprinter especially, but also the Ministerio del Comercio Exterior, Ministerio de la Relaciones Exteriores, MINVEC (the Ministerio Para la Inversion Extranjera y la Collaboracion Economica), the Oficina del Historiador de la Ciudad de la Habana, and the Ministerio de la Agricultura), Cuban wood industry executives and other representatives. The first presentation introduced U.S. hardwood species with their appearance and colors, densities, machining characteristics and uses to Cuban government agencies and Cuban wood industry executives and representatives. My following presentations introduced the United States National Hardwood Lumber Association Grading Rules and their application and examples, moisture content, board foot measurement, lumber purchase specifications, how to order lumber and so forth. Copies of our presentations were made available both on paper and in electronic format.

Conners, T.E. Outlook for Forestry and Forest Products. 2003. Presentation to Kentucky County Extension agents, two areas, about 30 attending.

Banerjee, S. and T.E. Conners. 2003. Low VOC Drying of Wood. US Department of Energy Review Panel meeting, Washington D.C.

Instructor, Kentucky Forest Leadership Program Camp, Jabez, Kentucky. June 2003.

Conners, T.E. 2003. Cut, Spit and Chew: Hardwood ID 101. **Invited presentation** to the Kentucky Association of Consulting Foresters, Frankfort, KY. November 14, 2003.

Conners, T.E., B.J. Ammerman, B. Nickels, and H. Rockwell. 2004. Reducing Process Variation. A report to the Executive Vice President of Quality Cabinets in charge of Production, March 2004.

Conners, T.E. 2004. Wood and Water: Do They Mix Yet? Invited presentation to the Maple Flooring Manufacturers Association at the 2004 Bi-Annual meeting, Scottsdale, Arizona, March 8, 2004.

Banerjee, S., M. Buchanan, T. E. Conners, J. Yang, L. Otwell and S. Conners. 2004. HAPs Generation and Removal. Presented at the Tappi Spring Technical and International Environmental Conference, Atlanta, GA. May 4, 2004. *In: Proceedings CD* published by Tappi.

Banerjee, S. and T.E. Conners. 2004. VOC/HAPs Generation and Removal. Invited presentation to the Nexfor Corporation, Montreal, Province of Quebec, Canada. July 19, 2004

Conners, T.E., S. Banerjee, and P. Stiglbauer. 2004. VOC Reduction in OSB Mills. Looking at the Flaker, the Dryer, and the Press. Invited presentation to Forintek, the National Forest Products Laboratory of Canada. Montreal, Province of Quebec, Canada. July 20, 2004.

Banerjee, S., J. Radhakrishnan, M. Buchanan, T. E. Conners, K. Pendyala, and J. Cowan. 2004. Use of Ash in HAPs Removal. Presented at the Tappi Spring Technical and International Environmental Conference, Atlanta, GA. May 4, 2004. *In: Proceedings CD* published by Tappi.

Conners, T.E. and J.L. Watt. 2004. Crossties Species Identification Guide. Published by the Railway Tie Association, Fayetteville, GA.

Conners, T.E. and J.M. Ringe. 2004. Lanzamiento de Maderas Duras: Launching of U.S. Hardwood Lumber Sales to Cuba in 2003. Presented at the Forest Products Society Annual Meeting in Grand Rapids, Michigan, June 28, 2004. *In Abstracts.*

Conners, T.E. 2004. Presentation and written report submitted to Mr. Tom Creech, Lexington, KY regarding the results of test to determine the suitability of different wood species and flake thicknesses for absorption of horse urine.

Buckner, C., C. Smith, T.E. Conners, B.J. Ammerman, M. Bush, R. Stephens, J. Latimer, S. Byron and E. Peck. 2004. Total Productive Maintenance: Kentucky Gabbiani Rip Saw. Written and oral presentation to senior management of Quality Cabinets following TPM event.

Conners, T.E. Outlook for Forestry and Forest Products. 2004. Presentation to Kentucky County Extension agents, two areas, about 30 attending.

Conners, T.E. 2005. U.S. and Kentucky Forests: A history of North American forest management and forest policy, including an update on current U.S. and Kentucky forest inventories, forest products industries' contribution to the economy and international trade. Invited presentation to Agricultural Economics 445G at the University of Kentucky, February 24, 2005. 45 students.

Conners, T.E., Banerjee, S. and P. Stiglbauer. 2005. Reducing Fines Generation at Oriented Strandboard Flakers: Knife Angle and Wood Temperature Adjustments. Presented to Louisiana-Pacific principal scientists and other technical staff. (Nashville, TN) March 25, 2005.

Conners, T.E. 2005. The Rich Look of Wood. Presentation for Trends and Traditions: Spring Design Seminar, Princeton, KY, April 2005. 135 participants.

Stiglbauer, P.F., T.E. Conners, and S. Banerjee. 2005. Reduction of fines generation at oriented-strand board flakers by adjusting knife angles as temperature varies. Presented to 2005 Spring National Meeting of American Institute of Chemical Engineers. Atlanta, Georgia, April 11–13. *In: Proceedings.*

Conners, T.E., Banerjee, S. and P. Stiglbauer. 2005. Reducing Fines Generation at Oriented Strandboard Flakers: Knife Angle and Wood Temperature Adjustments. Presented to Huber technical staff and two mill managers (Spring City, TN and Silver City, VA) April 19, 2005.

Conners, T.E., Banerjee, S. and P. Stiglbauer. 2005. Reducing Fines Generation at Oriented Strandboard Flakers: Knife Angle and Wood Temperature Adjustments. Presented to Georgia-Pacific mill supervisors and technical personnel (Atlanta, GA) November 3, 2005.

Conners, T.E., Banerjee, S. and P. Stiglbauer. 2005. Reducing Fines Generation at Oriented Strandboard Flakers: Knife Angle and Wood Temperature Adjustments. Presented to Norbord technical personnel (Atlanta, GA) (also) November 3, 2005.

Stiglbauer, P., T.E. Conners, S. Banerjee, and J. Ringe. 2005. Reducing fines at OSB flakers by adjusting knife angle with wood temperature. Presented at the Annual Meeting of the Forest Products Society, Quebec, Canada. June, 2005.

Conners, T.E. 2005. Agricultural Commodity Trade with Cuba. Invited presentation to the Jackson County Homemakers, McKee, Kentucky. August 4, 2005. 50 participants.

Conners, T.E., P. Stiglbauer, S. Banerjee and J.M. Ringe. 2005. Decreasing flaker fines by changing knife angles at different ambient temperatures. Presented at Ninth European Panel Products Symposium, Llandudno, Wales, U.K. October 5–7. Paper published in Proceedings(CD ROM and softcover publication), pp. 23–30.

Conners, T.E., P. Stiglbauer, and S. Banerjee. 2005. Influence of Knife Angle and Ambient Temperature on Fines Generation From Flakers. Invited presentation to the Norbord Technical Managers Meeting held in Atlanta, Georgia. November 3, 2005. 15 participants.

Conners, T.E. Outlook for Forestry and Forest Products. 2005. Presentation to Kentucky County Extension agents, two areas, about 30 attending.

Conners, T.E. 2005. Wood Structure and Wood Moisture. Invited presentation to the joint meeting of the Ohio Valley Lumber Drying Association, the Appalachian Kiln Club and the Southeastern Dry Kiln Club held at Pipestem State Resort Park, Pipestem, West Virginia. November 2, 2005. 60 participants.

Conners, T.E. 2006. U.S. and Kentucky Forests: A history of North American forest management and forest policy, including an update on current U.S. and Kentucky forest inventories, forest products industries' contribution to the economy and international trade. Invited presentation to Agricultural Economics 445G at the University of Kentucky, February 14, 2006. 25 students.

Conners, T.E. 2006. Report to Felix Taylor, Knotwood Craftsmen, Annville, Kentucky concerning the proportions and amounts of timber available for harvest in Jackson and Clay Counties, Kentucky. Determined proportions of resulting lumber that would have a probable grade of 1 Common and better (by species and by county) to assist with the operating plans for this business. March 2, 2006.

Banerjee, S. and T.E. Conners. 2006. Implementing strategies for drying and pressing wood without emissions controls. U.S. Department of Energy Industrial Technologies Program, Forest Products Peer Review Conference. Atlanta, Georgia, April 5–6, 2006.

Banerjee, S. and T.E. Conners. 2006. Wood savings and energy/VOC reduction in OSB manufacture. Written for distribution by the DOE to oriented strandboard mill personnel.

Thomas, W., T.E. Conners, J. Stringer, and D.B. Hill. 2006. Kentucky Forest Fact Sheet. Department of Forestry, University of Kentucky Fact Sheet, FORFS-53.

Conners, T.E. 2006. The importance of wood in everyday life. Base script for fifteen-minute Wood Magic presentation, written for Kentucky County Agents participating in Forestry In-Service Training, April, 2006. 13 pages.

Conners, T.E. 2006. Log and Lumber Evaluation. Written materials supporting Forestry In-Service Training for Kentucky County Agents, April, 2006. 8 pages.

Conners, T.E. 2006. Logs and Lumber: Evaluation and Training. Written materials and presentation to Knotwood Craftsmen, Annville, Kentucky, May 2006.

Conners, T.E. and J.M. Ringe. 2006. Grading hardwood logs according to USFS standard log grades. Department of Forestry, University of Kentucky Fact Sheet, FORFS 06-02. 20 pages.

Conners, T.E. and J.M. Ringe. 2006. Grading hardwood lumber according to NHLA rules. FORFS 06-03. 10 pages.

Conners, T.E. and J.L. Watt. 2006. Crossties Species Identification Guide, Revised. Published by the Railway Tie Association, Fayetteville, GA.

Banerjee, S. and T. E. Conners. 2006. Dependence of Fines Generation from Flaking Wood on Temperature and Knife Angle. Paper presented to Tenth European Panel Products Symposium, Llandudno, Wales, U.K. October 11–13. *In: Proceedings (Flash drive and softcover publication)*, pp. 147–154.

Conners, T.E. 2006. In-Service Training for County Extension Agents in Forestry and Forest Products. 7 participants, August 2006.

Instructor, Woodland Owner's Short Course, Pennyryle State Forest, Christian County, KY, June 28, 2007. Presentation about Kentucky Wood Products.

Instructor, Woodland Owner's Short Course, Pittman Creek Wood Products, Pulaski County, KY, July 2007. Presentation about Kentucky Wood Products.

Conners, T.E. 2007. In-Service Training for County Extension Agents for Win With Wood. 20 participants. January 2007.

Conners, T.E. 2007. 4-H Senior Forestry Training Manual. Department of Forestry, University of Kentucky Fact Sheet (mostly compilation with some original authorship), FORFS 07-05. 714 pages.

Conners, T.E. 2007. Equilibrium Moisture Content (EMC) of Woody Cellulosic Materials at Cold Temperatures (30°–50°F). Department of Forestry, University of Kentucky Fact Sheet, FORFS 07-06.

Conners, T.E. 2007. U.S. and Kentucky Forests: A history of North American forest management and forest policy, including an update on current U.S. and Kentucky forest inventories, forest products industries' contribution to the economy and international trade. Invited presentation to Agricultural Economics 445G at the University of Kentucky, February 12, 2007. 23 students.

Conners, T.E. 2007. In-Service Training for County Extension Agents for Win With Wood. 20 participants. March 2007.

Conners, T.E. 2007. Wood Magic: The Base Presentation Script, Part I. "The Importance of Wood in Everyday Life". Department of Forestry, University of Kentucky, FORFS 07-07. 17 pages.

Conners, T.E. 2007. Wood Magic: The Base Presentation Script, Part II. “The World of Wood.” Department of Forestry, University of Kentucky, FORFS 07-08. 20 pages.

Conners, T.E. 2007. Wood Magic: The Base Presentation Script, Part III. “Various Species of Trees Look Different, and Different Trees Make Different Types of Wood.” University of Kentucky Cooperative Extension Service, FORFS 07-09. 6 pages.

Conners, T.E. 2007. Wood Magic: The Base Presentation Script, Part IV. “Wood Structure”. Department of Forestry, University of Kentucky, FORFS 07-10. 7 pages.

Conners, T.E. 2007. Wood Magic: The Base Presentation Script, Part V. “The Thing and Bubble Blowers: A Demonstration of Wood Porosity”. Department of Forestry, University of Kentucky, FORFS 07-11. 7 pages.

Conners, T.E. 2007. Wood Magic: Preparing for The Base Presentation. “The Importance of Wood in Everyday Life”. Department of Forestry, University of Kentucky, FORFS 07-12. 10 pages.

Conners, T.E. 2007. How to Cut Railroad Ties. Department of Forestry, University of Kentucky, FORFS 07-17. 10 pages.

Conners, T.E. 2007. Identifying Diffuse Porous Hardwoods (for the Railway Tie Association).

Conners, T.E. 2007. Identifying Ring-Porous Hardwoods (for the Railway Tie Association).

Conners, T.E. 2007. Identifying Coniferous Woods (for the Railway Tie Association).

Conners, T.E. and P. Waggoner. 2007. Woody Biomass: An Alternative Energy Source. Presentation to the Kentucky Association of Conservation Districts. July 17, 2007.

Conners, T.E. and J.M. Ringe. 2007. The UK Optical Fork: An Easy-to-Use Upper Stem Diameter Gauge for Cruising Timber Can Improve Your Profitability. FORFS 07-17. 7 pages.

Conners, T.E. 2008. Wood Energy Possibilities. Kentucky Woodlands Magazine 3(1):10–11.

Conners, T.E. 2008. Presentation to Jr. and Sr. 4-H Forestry in Nelson County about Insect Identification. February, 2008.

Conners, T.E. 2008. U.S. and Kentucky Forests: A history of North American forest management and forest policy, including an update on current U.S. and Kentucky forest inventories, forest products industries’ contribution to the economy and international

trade. Invited presentation to Agricultural Economics 445G at the University of Kentucky, February 15, 2008. 28 students.

Conners, T.E. 2008. Selling Kentucky Lumber to Cuba. For Kentucky Forest Industries Association Newsletter.

Conners, T.E. 2008. Senior 4-H Forestry Insect Identification Training Jeopardy Game.

Conners, T.E. 2008. Senior 4-H Forestry Insect Identification Training PowerPoint.

Conners, T.E. 2008. Report to Jack Reid, Kentucky Central Laboratory Facility (State Criminalistics Laboratory) regarding identification of samples submitted as evidence in murder trial, Madisonville, KY. March 25, 2008.

Conners, T.E. 2008. Our Forest Heritage. Presentation for University of Kentucky Department of Forestry, April, 2008.

Conners, T.E. 2008. Equipment and Description of Wood Bubble Blower Demonstration. Department of Forestry, University of Kentucky, FORFS 08-04.

Conners, T.E. 2008. Demonstrating Papermaking: How An “Expert” Does It! Department of Forestry, University of Kentucky, FORFS 08-05.

Conners, T.E. 2008. Common Concerns About Wood-Based Energy. Kentucky Woodlands Magazine 3(2):6–7.

Society of Wood Science and Technology. 2008. Policy and Critical Issues Committee. Use of woody biomass for bioenergy; a position paper submitted by the Policy and Critical Issues Committee. (Authored by the committee as a whole, to which I made contributions as a committee member).

Conners, T.E. 2008. Comparing Wood and Fossil Fuels For Energy Production. Kentucky Woodlands Magazine 3(3): 16–17.

Conners, T.E. 2008. Instructor, Woodland Owner’s Short Course, Rowan County, KY, September 4, 2008. Presentation about Woody Biomass and Wood Product Markets.

Conners, T.E. 2008. Instructor, Woodland Owner’s Short Course, Hopkins County, KY, September 11, 2008. Presentation about Woody Biomass and Wood Product Markets.

Conners, T.E. 2008. Instructor, Woodland Owner’s Short Course, Marion County, KY, September 23, 2008. (Due to a schedule conflict, presentation was prepared by T. Conners but delivered by a Kentucky Division of Forestry employee). Presentation about Woody Biomass and Wood Product Markets.

Conners, T.E. 2009. Report to Cincinnati Art Museum, Amy Dehan (assistant curator), regarding identification of woods used in one of the Museum’s signature pieces, the

Pitman bed and dresser. This bed had been variously identified as either mahogany or black walnut, and my report provided a primer on wood structure, described my methods of approaching this identification nondestructively, my observations and my conclusions.

Conners, T.E. 2009. U.S. and Kentucky Forests: A history of North American forest management and forest policy, including an update on current U.S. and Kentucky forest inventories, forest products industries' contribution to the economy and international trade. Invited presentation to Agricultural Economics 445G at the University of Kentucky, February 17, 2009. 28 students.

Conners, T.E. 2009. Presentation at the Tri-State Woodland and Wildlife Workshop in Cincinnati, Ohio: Wood Identification for the Homeowner. April 4, 2009. 49 attendees.

Conners, T.E. 2009. The 2002 videotape Papermaking: "Making Your Own Wood Products" (22 minutes) was divided into two segments and placed on the University of Kentucky Forestry Department's YouTube channel. Part of *What Is Forestry: Bringing the Outdoors Inside*. Produced by Agricultural Communications Services, University of Kentucky. 29 views as of May 5, 2009.

Conners, T.E. 2009. Training in Wood Identification at the Cincinnati Art Museum, part 1: Gross Wood Features of Hardwoods and Softwoods. 4 curator and conservator attendees. May 13, 2009.

Conners, T.E. 2009. Training in Wood Identification at the Cincinnati Art Museum, part 2: Using a Microscope to Identify Wood. 4 curator and conservator attendees. July 14, 2009.

Conners, T.E. 2009. Identifying Wood Using A Microscope. FORFS 09-11. 44 pages.

Conners, T.E. 2009. Identifying Diffuse Porous Hardwoods, revised (for the Railway Tie Association).

Conners, T.E. 2009. Identifying Ring-Porous Hardwoods, revised (for the Railway Tie Association).

Conners, T.E. 2009. Identifying Coniferous Woods, revised (for the Railway Tie Association).

Conners, T.E. 2009. Instructor, Woodland Owner's Short Course . Boyd County Extension Office, Kentucky. August 29, 2009. Presentation about portable sawmills and wood quality.

Conners, T.E. 2009. Instructor, Woodland Owner's Short Course . Breckinridge County Extension Office, Kentucky. September 26, 2009. Presentation about portable sawmills and wood quality.

Conners, T.E. 2009. *Invited presentation* to forestry students at Alabama A&M University about softwood identification. (October 18, 2009).

Conners, T.E. 2009. Examining Wood and Paper Forensic Evidence. *Invited presentation* to College of Forestry, Auburn University. October 19, 2009.

Conners, T.E. 2009. *Invited presentation* to forestry students at Alabama A&M University about hardwood identification. (October 20, 2009).

Conners, T.E. 2009. Webinar: Wood Identification. Also prepared wood sample boxes with loupes and razor knives, arranged for shipping and return of boxes to remote county locations where the webinar was held. 6 counties, 40 participants. October 27, 2009.

Conners, T.E. 2009. Development of the Wood Magic Science Fair. Seminar to University of Kentucky Forestry Department. December 2, 2009.

Conners, T.E. and C.S. Ray. 2010. RTA Shares the Crosstie Story at the 2010 Forestry Conclave. *Crossties* 91(2):8.

Conners, T.E. and R. Hrvatin. 2010. The Forest Heritage of Eastern Kentucky. Poster presentation to the University of Kentucky Department of Forestry.

Conners, T.E. 2010. Instructor, Sawmilling Short Course. Gary McInturf's Sawmill, Lawrenceburg, KY. Held in conjunction with the Kentucky Division of Forestry, Larry Lowe, Beth Williams and Ben Lyle, co-instructors. (September 2, 2010). 12 participants. (9/2/10)

Conners, T.E. and J.R. Ringe. 2010. A Case for Improving the Integration of Forestry and Wood Technology. Paper presented at the Annual Convention of the Society of Wood Science and Technology, Geneva, Switzerland, October 14, 2010. *Invited* paper, peer-reviewed prior to acceptance. *In: Proceedings of the International Convention of Society of Wood Science and Technology and United Nations Economic Commission for Europe — Timber Committee* October 11–14, 2010, Geneva, Switzerland.

Conners, T.E. and L. Osborn. 2010. Wood Identification for the General Public. Held at and sponsored by the Cincinnati Art Museum. (10/23/10).

Conners, T.E. 2010. *Invited presentation*. Questioned Document Examination for Paper Properties. West Virginia University, Department of Forensics. (10/28/10).

Conners, T.E. 2010. *Invited presentation*. Seminar on Paper in Forensics. West Virginia University, Department of Forensics. (10/29/10).

Conners, T.E. 2010. Webinar: Wood Identification. Prepared wood sample boxes with loupes and razor knives, arranged for shipping and return of boxes to remote county locations where the webinar was held. 13 counties, 78 participants. November 30, 2010.

Conners, T.E. 2011. Wood Identification Workshop. Salato Wildlife Education Center, Frankfort, KY. Six participants. (4/9/11).

Conners, T.E. 2011. Wood Identification and Wood Moisture-Strength Relations Workshop. Harrodsburg ATC, KY. 18 participants. (4/27/11).

Conners, T.E. and D. McLaren. 2011. Forestry and Youth Development Programs at the University of Kentucky's Department of Forestry. Distributed to county agents in Kentucky. 9 pages.

Conners, T.E. 2011. Wood Identification. Kentucky Woodlands Magazine 6(1): 5–6.
Conners, T.E. 2011. Wood Identification: A Primer for Everyone (Version created especially for program sponsored by the Foundation of the American Institute for Conservation of Historic & Artistic Works). 154 pages.

Conners, T.E. 2011. *Invited presentation* to forestry students at Alabama A&M University about softwood identification. (October 24, 2011).

Conners, T.E. 2011. *Invited presentation* to forestry students at Alabama A&M University about hardwood identification. (October 26, 2011).

Conners, T.E. 2012. Keys For Identifying Some North American Softwoods and Hardwoods. FORFS 12-02. 18 pages.

McConnell, E. and T.E. Conners. 2012. Wood Identification Workshop. Tri-State Forestry Conference, Cincinnati, OH. 35 participants. (3/24/12).

Conners, T.E. 2012. The Central Kentucky Wood Producers' Association: An Example of Market Networking. Presentation to Profitable Operation of Small Sawmills Workshop. Sponsored by WERC (Wood Education and Resource Center) in Princeton, WV; North Carolina State University; and Independent Sawmill and Woodlot Management Magazine. 32 participants. (6/14/12).

Conners, T.E. 2012. Local Wood Products Networks. Presentation to Leadership Conference for Local Wood Products. Sponsored by WERC (Wood Education and Resource Center) in Princeton, WV and North Carolina State University. 30 participants. (8/2/12). *Invited Presentation*.

Conners, T.E. 2012. Youth Natural Resources Day (RCARS), Robinson Forest, KY. Wood Identification Workshops. (9/20/12). About 45 participants.

Conners, T.E. 2012. Using A Laser Engraver to Customize Products For Small Businesses. Presentation to the Central Kentucky Wood Producers' Association. 8 participants. (10/13/12).

Conners, T.E. 2012. *Invited presentation* to forestry students at Alabama A&M University about softwood identification. (11/12/12).

Conners, T.E. 2012. *Invited presentation* to forestry students and faculty at Alabama A&M University about conducting Wood Magic presentations. (11/13/12).

Conners, T.E. 2012. *Invited presentation* to forestry students at Alabama A&M University about hardwood identification. (11/14/12).

Conners, T.E. 2013. Railway Tie Grading. Presentation to Railcats, a University Kentucky club in the Civil Engineering Department, about Railway Tie Grading. 12 participants. (4/2/13). *Invited Presentation*.

Conners, T.E. 2013. Local Wood Products Networks. Presentation to Leadership Conference for Local Wood Products. Presentation to the NAASF, Baltimore, MD. 35 participants. (6/4/13). *Invited Presentation*.

Conners, T.E. 2013. Wood Anatomy and properties. Presentation at Woodcraft, Lexington, KY. (6/21/13). 15 participants.

Conners, T.E. 2013. Physical Properties of Wood: Density and Moisture-Induced Dimensional Changes. Presentation at Woodcraft, Lexington, KY. (7/19/13). 15 participants. *Invited Presentation*.

Conners, T.E. 2013. Identifying American Wood Species. Presentation at Wood Expo, Lexington, Kentucky. (9/21/13). 30 participants. *Invited Presentation*.

Conners, T.E. 2013. Wood Products Producer Networks. Sponsored by WERC (Wood Education and Resource Center) in Princeton, WV and North Carolina State University. 30 participants. (10/24/13). *Invited Presentation*.

Conners, T.E. 2013. Measuring Wood Moisture Content to Improve Woodworking Skills. Presentation at Woodcraft, Lexington, KY. (11/15/13). 10 participants. *Invited Presentation*.

Conners, T.E. 2014. Just tell a story (*Invited Editorial*). Wood and Fiber Science 46(1):1.

Conners, T.E. 2014. Identification and Proper Drying of Wood. (3/22/14). 10 participants.

Conners, T.E. 2014. Successful Small Hardwood Sawmill Marketing Strategies. Presentation to the Northeast Society of American Foresters (NESAF) chapter meeting, Nashua, NH. (3/21/14).

Conners, T.E. 2014. The Need for Large Trees: Update on Rebuilding the Mayflower II. Presentation to the Northeast Society of American Foresters (NESAF) chapter meeting, Nashua, NH. (3/21/14).

UK College of Agriculture, Food and the Environment. 2014. Video: Refitting the Mayflower II with Kentucky wood. <https://www.youtube.com/watch?v=0huZxICeXXU>. 427 views as of 10/15/14. Organized by T.E. Conners (also interviewed in video), videography and interviews by Jeff Franklin, still photography by Steve Patton, and writing for a Summer 2014 UK CAFÉ *The Ag Magazine* article by Carol Spence (“Shiver Me (Old Kentucky) Timbers”, page 4) from UK Agricultural Communication Services.

Conners, T.E. 2014. Physical and Anatomical Properties of Wood. Presentation at Woodcraft, Lexington, KY. (9/20/14). 100 participants. *Invited Presentation*.

Conners, T.E. 2014. Youth Natural Resources Day (RCARS), Robinson Forest, KY. Wood Properties Workshops. (9/25/14). About 100 participants.

SIGNIFICANT SHORT COURSES AND PROFESSIONAL ACTIVITIES

Instructor, IPST Continuing Education Course CEC 620 Paper Fiber Analysis. 1985.

Instructor, IPST Continuing Education Course CEC 694 Pulping and Bleaching. 1986.

Instructor, IPST Continuing Education Course CEC 675 Paper Properties and Their Measurement. 1986.

Instructor, IPST Continuing Education Course CEC 620 Paper Fiber Analysis. 1986.

Instructor, IPST Continuing Education Course CEC 614 Pulp and Paper Technology for the Nontechnical Executive 1986.

Instructor, IPST Continuing Education Course CEC 620 Paper Fiber Analysis. 1987.

Instructor, IPST Continuing Education Course CEC 675 Paper Properties and Their Measurement. 1987.

Instructor, IPST Continuing Education Course CEC 694 Pulping and Bleaching. 1987.

Instructor, IPST Continuing Education Course CEC 614 Pulp and Paper Technology for the Nontechnical Executive 1987.

Instructor, IPST Continuing Education Course CEC 620 Paper Fiber Analysis. 1988.

Instructor, IPST Continuing Education Course CEC 694 Pulping and Bleaching. 1988.

Instructor, IPST Continuing Education Course CEC 675 Paper Properties and Their Measurement. 1988.

Instructor, IPST Continuing Education Course CEC 614 Pulp and Paper Technology for the Nontechnical Executive 1988.

Instructor, IPST Continuing Education Course CEC 622 Advanced Paper Fiber Analysis. 1988.

Instructor, IPST Continuing Education Course CEC 620 Paper Fiber Analysis. 1989.
Instructor, IPST

Continuing Education Course CEC 675 Paper Properties and Their Measurement. 1989.

Instructor, IPST Continuing Education Course CEC 694 Pulping and Bleaching. 1989.

Instructor, IPST Continuing Education Course CEC 614 Pulp and Paper Technology for the Nontechnical Executive 1989.

Instructor, IPST Continuing Education Course CEC 622 Advanced Paper Fiber Analysis. 1989.

Instructor, IPST Continuing Education Course CEC 614 Pulp and Paper Technology for the Nontechnical Executive 1990.

Course Director and Instructor, IPST Special Continuing Education Course in Advanced Microscopy and Photomicrography. 1990.

Course Director and Instructor, IPST Special Continuing Education Course in Principles of Image Analysis. 1990.

Instructor, IPST Continuing Education Course CEC 675 Paper Properties and Their Measurement. 1990.

Instructor, IPST Continuing Education Course CEC 694 Pulping and Bleaching. 1990.
Instructor, IPST

Continuing Education Course CEC 614 Pulp and Paper Technology for the Nontechnical Executive 1991.

Course Director and Instructor, IPST Special Continuing Education Course in Practical Applications of Image Analysis. 1991.

Course Director and Instructor, IPST Special Continuing Education Course in Wood Identification. 1991.

Instructor, IPST Continuing Education Course CEC 675 Paper Properties and Their Measurement. 1991.

Instructor, IPST Continuing Education Course CEC 694 Pulping and Bleaching. 1991.

Instructor, Railway Tie Association Tie Grading Seminar, Mississippi State University, July 18–21, 1999.

Instructor, Railway Tie Association Tie Grading Seminar, Dubois, PA, July 21–22, 2000.

Co-Director and Instructor, Kiln Operator's Short Course. 2001. Held in Baton Rouge, Louisiana in cooperation with Dr. Todd Shupe and Dr. Brian Bond. Three- day course, 18 participants.

Facilitator/Consultant for a group of landowners in Fleming County, Kentucky who attempted to create a value-added, sustainable forestry-based timber cooperative. This group successfully incorporated as a non-profit 501(c)3 corporation headquartered in Flemingsburg, Kentucky and is writing a business plan for a for-profit enterprise based on timber stand improvement, log marketing, and wood energy. Other persons and organizations actively involved include Heath Hoagland of the Kentucky Center for Cooperative Development, E.G. Nadeau of Cooperative Development Services (of Madison, Wisconsin), Warren Gaskill (partner in Rapid Improvement Associates, Black Earth, Wisconsin), Katie Fernholz and Barbara Spears of the Institute for Agriculture and Trade Policy (IATP) (Minneapolis, Minnesota). 2002–2003.

Instructor, Railway Tie Association Tie Grading Seminar, Salem, VA, July 27–29, 2003.

Instructor, Railway Tie Association Tie Grading Seminar, Alexandria, LA, July 25–27, 2004.

Instructor, Railway Tie Association Tie Grading Seminar, Dubois, PA July 17–19, 2005.

Conners, T. E. 2006. Log and Lumber Evaluation for County Agents, also Wood Magic 4-H program training. Forestry In-Service Training for Kentucky County Agents, April, 2006. 17 participants.

Conners, T.E. and J.M. Ringe. 2006. Wood Identification. Workshop held at Derby City Antique Mall, Buechel, Kentucky, May 13, 2006. Last-minute cancellation by sponsors due to low enrollment, but all materials were prepared.

Conners, T. E. 2006. Log and Lumber Grading for Loggers (to gain credits to retain Master Logger Certification). Pine Knot, McCreary County, Kentucky, May 25, 2006. 30 participants.

Instructor, Railway Tie Association Tie Grading Seminar, Russellville, Arkansas, July 15–18, 2006.

Instructor, Industry tours for County Agents, Forestry In-Service Training, August 7–9, 2006. 10 participants.

Instructor, Railway Tie Association Tie Grading Seminar, Terre Haute, IN, July 22–24, 2007.

Instructor, Woodland Owner's Short Course, Lee County Extension Office, KY, August 7, 2007. 11 participants. Presentation about Kentucky Wood Products.

Instructor, Wood identification training and assistance with wood and woody debris submitted as evidence in murder trial, provided to Jack Reid, Kentucky Central Laboratory Facility (State Criminalistics Laboratory), March, 2008.

Instructor, Railway Tie Association Tie Grading Seminar, Montevallo, AL, July 20–22, 2008.

Conners, T. E. 2009. Tie Grading for Loggers (to gain credits to retain Master Logger Certification). Pine Knot, McCreary County, Kentucky, March 19, 2009. 30 participants.

Instructor, Railway Tie Association Tie Grading Seminar, Roanoke, VA, August 2–4, 2009.

Conners, T.E. 2010. Instructor, Railway Tie Association Tie Grading Seminar, Fulton, KY, July 20–22, 2010. 30 participants.

Conners, T.E. 2010. Instructor, Sawmilling Short Course. Gary McInturf's Sawmill, Lawrenceburg, KY. Held in conjunction with the Kentucky Division of Forestry, Larry Lowe, Beth Williams and Ben Lyle, co-instructors. (9/2/10).

Conners, T.E. 2011. Instructor, Railway Tie Association Tie Grading Seminar, Russellville, AR. July 17–19, 2011. 30 participants plus instructors.

Conners, T.E. and L. Osborn. 2011. Instructors. Workshop in Wood Identification for Art Conservators. Held at the Cincinnati Art Museum. Sponsored by the American Institute for Conservation of Historic and Artistic Works. Seven participants. (10/20–22).

Conners, T.E. 2012. Instructor. Wood Identification Workshop. Woodcraft, Louisville, KY. 15 participants. (2/18/12).

Conners, T.E. 2012. Instructor. Wood Identification Workshop. Woodcraft, Cincinnati, OH. 10 participants. (4/7/12).

Conners, T.E. 2012. Instructor, Wood Identification Workshop for FFA students. Hopkinsville, KY. 3 participants. (4/18/12).

Conners, T.E. 2012. Instructor. Wood Identification Workshop. Woodcraft, Lexington, KY. 33 participants. (5/5/12).

Conners, T.E. 2012. Instructor, Railway Tie Association Tie Grading Seminar, Denver, CO. (8/7–9/12). 25 participants plus instructors.

Conners, T.E. 2013. Wood Identification Workshop. Charm, OH. Joint instruction with Eric McConnell, OSU. (12/10/12). 16 participants.

Conners, T.E. 2013. Identifying Wood Species Used in Antique Clocks. Bluegrass Chapter, National Association of Clock and Watch Collectors (NAWCC), Lexington, KY. (1/18/13). 12 participants.

Conners, T.E. 2013. Instructor, Railway Tie Association Tie Grading Seminar, Bossier City, LA and Taylor, AR. (7/27–8/1/13). 26 participants plus instructors.

Conners, T.E. 2013. Wood Identification Workshop. Hamilton, OH. Joint instruction with Eric McConnell, OSU. (10/18/13). 8 participants.

Conners, T.E. 2013. Increasing Membership, Wood and Fiber Science Readership and SWST Stability. Strategy document prepared for and presented to the Executive Board of the Society of Wood Science and Technology. (9/13). 10 pages

Conners, T.E. 2013. Ideas for SWST Growth and Journal Differentiation. Strategy document prepared for and presented to the Executive Board of the Society of Wood Science and Technology. (11/13). 13 pages.

Conners, T.E. 2014. Coordinator and Instructor, Railway Tie Association Tie Grading Seminar, Sutton, WV. (7/ 29–31/14). 27 participants plus instructors.

GENERAL PUBLIC/YOUTH PROGRAMMING **WOOD MAGIC PROGRAMMING**

Co-Inventor & Founder, Wood Magic Science Fair program.

Co-Director, *Wood Magic Science Fair* for elementary school students, 1994–1996. The Wood Magic Science Fair was initiated at the Mississippi State University Forest Products Laboratory in 1994 as a program for groups of up to 100 children and teachers. In 1995 the program was enlarged to accommodate more students, and approximately 7200 third- and fourth-grade children and their chaperones attended the Wood Magic Science Fair held in mid- October during each of the initial two years (1995 and 1996).

Responsibilities included creating program format and content, raising funds, writing about and publicizing the event to elementary school teachers and the forestry and forest products industrial community, overall organization, etc. (all shared with Dr. R. Dan Seale, Co-Director). Until 2002 this was an annual event with about 8000 people attending each year. In 1997 Georgia Pacific Corporation donated a trailer to enable a version of this program to be taken on the road, and the mobile Wood Magic Science Fair program has traveled over much of the southeastern United States. From December 1997 to January 2001 Dr. Dan Seale coordinated the Wood Magic Science Fair and I was Associate Director of this program. Since the program's inception in 1995 through 2002, over 80,000 people participated in this Mississippi program. This program was in hiatus at Mississippi State for a while but it was revived in 2007.

Numerous presentations of the Mississippi State University Wood Magic Science Fair. Time estimates for 1998 and 1999 (the only years that records were kept) were about 25–30 man-days each year. The estimate for the year 2000 was only about 8 days due to severe curtailment of the mobile Wood Magic Science Fair program by Mississippi State University. A total of approximately 80,000 people attended these programs while I was involved with the program.

In 1997 Georgia Pacific Corporation donated a trailer to enable a version of this program to be taken on the road, and the mobile Wood Magic Science Fair program traveled over much of Mississippi. Several trips were taken out of state to help introduce the concept of this program to other states and the industries located therein, including a trip through Kentucky and on to Indiana and Pennsylvania in 1999. Several states have initiated programs (*e.g.*, Virginia, South Carolina, Kentucky and Oregon) and there are plans to implement this program in Georgia, Pennsylvania, Alaska and perhaps other states. I currently conduct Wood Magic programs as part of my Youth Education programming efforts in Kentucky. Virginia Tech has started up a mobile unit and is hosting on-campus events each year. The Virginia Tech website is: <http://woodmagic.forprod.vt.edu/>.

This program received campus-wide, statewide and national accolades. Dan Seale and I jointly won the Mississippi State University College of Forest Resources Service Award for this program in 1996. This program also won two awards for excellence in state-wide competition from the Mississippi Public Educator's Forum (for the stationary program in 1996 and for the mobile program in 1998). In June 2001 the Wood Magic Science Fair organizers (including myself) were awarded the prestigious USDA Award for Superior Service. Seven Kentucky County Extension Agents have been trained to do Wood Magic presentations (at least in part) since 2006, as well as two Kentucky Division of Forestry personnel.

Kentucky Forest Industries Association Wood Expo, Bowling Green, Kentucky. 2001. 200 participants.

Boy Scout Expo, Lexington, Kentucky. 2002. Hands-On Papermaking demonstrations for about 450 Scouts, leaders and parents.

Cub Scouts, Lexington, Kentucky. 2002. Papermaking and Wood Products. Two presentations, 20 people each.

Carter County, Kentucky presentations. 2002. Eighteen 20-minute presentations to 4th grade students, 450 students and teachers.

Fayette County Extension Office, Lexington, Kentucky. 2002. 4-H Program, Hands-On Papermaking. Six presentations, about 15 people each.

Kentucky Forest Industries Association Wood Expo, London, Kentucky. 2002. 500 students of various ages, both public and home-school.

All Commodities Agriculture Field Day. Quicksand, KY (UK Robinson Station). July 17, 2003. 80 participants.

Carter County, Kentucky presentations. 2003. Eighteen 20-minute presentations to 4th grade students, 404 students and teachers.

McCreary County, Kentucky presentations. 2003. Eight presentations to 4th and 5th grade students, 499 students and 30 adults total.

Breathitt County, Kentucky presentations. 2003. Four presentations to 4th through 6th grade students. 127 students total.

All Commodities Agriculture Field Day. Quicksand, KY (UK Robinson Station). July 15, 2004. 50 participants.

Kentucky Forest Industries Association Wood Expo, London, Kentucky. 2004. About 400 students of various ages, both public and home-school.

Harlan County, Kentucky presentations. 2004. 4-H Environmental Camp. 7 presentations per day, four days. 450 elementary school students.

Boy Scouts. 2004. Three presentations to different troops, about 90 participants.

Carter County, Kentucky presentations. 2004. Eighteen 20-minute presentations to 4th grade students, 435 students and teachers.

Hopkins County, Kentucky. Park Day. May 2005. About 100 participants.

Arbor Day at the University of Kentucky Arboretum. May 2005. About 100 participants.

Greenup County, Kentucky. Conservation Field Days. May 2005. 7 presentations per day, four days. 425 participants.

All Commodities Agriculture Field Day. Quicksand, KY (UK Robinson Station). July 17, 2005. 75 participants.

Kentucky Forest Industries Association Wood Expo, London, Kentucky. 2005. About 325 students of various ages, both public and home-school.

Harlan County, Kentucky presentations. 2005. 4-H Environmental Camp. 7 presentations per day, four days. 430 elementary school students.

Carter County, Kentucky presentations. 2005. Eighteen 20-minute presentations to 4th grade students, 455 students and teachers.

Arbor Day at the University of Kentucky Arboretum. May 2006. About 250 participants.

Greenup County, Kentucky. Conservation Field Days. May 2006. 435 participants.

All Commodities Agriculture Field Day. Quicksand, KY (UK Robinson Station). July 18, 2006. 50 participants.

Kentucky Forest Industries Association Wood Expo, Madisonville, Kentucky. 2006. 700 students and 45 teachers attended.

Harlan County, Kentucky presentations. 2006. 4-H Environmental Camp. 7 presentations per day, four days. 415 elementary school students.

Carter County, Kentucky presentations. 2006. Eighteen 20-minute presentations to 4th grade students, 413 students and teachers.

Hopkins County, Kentucky. Park Day. March 2007. About 100 participants.

Salato Wildlife Center, March, 2007. Wood Magic presentation to Brown Bag Lunch Program at Salato Wildlife Center, Frankfort, KY. 10 participants.

Arbor Day at the University of Kentucky Arboretum. May 2007. About 250 participants.
Bell County. 4-H Environmental Camp. Two days, May 2007. 300 students.
All Commodities Agriculture Field Day. Quicksand, KY (UK Robinson Station). July 26, 2007. 90 participants.

Salato Wildlife Center, August 2007. Continuous Wood Magic presentations to general public as a Saturday Feature presenter. 376 contacts.

Harlan County, Kentucky presentations. 2007. 4-H Environmental Camp. 7 presentations per day, four days. 425 elementary school students.

Laurel County, Kentucky presentations. 2007. Environmental Camp. 6 presentations per day, four days. 550 students, 36 adults.

Carter County, Kentucky presentations. 2007. Eighteen 20-minute presentations to 4th grade students, 425 students and 35 teachers.

Fleming County, Kentucky presentations. 2007. Conservation Field Days. 200 students, 13 adults.

Win With Wood. 2007. Presentations to about 90 youth and adults.

Arbor Day at the University of Kentucky Arboretum. May 2008. About 400 participants.
Kentucky Forest Industries Association Wood Expo, Madisonville, Kentucky. 2008. 150 students and 15 adults attended (9/19/08)

All Commodities Agriculture Field Day. Quicksand, KY (UK Robinson Station). September 25, 2008. 100 participants.

Carter County, Kentucky presentations. 2008. Seventeen 20-minute presentations 4th grade students, 500 students and 40 teachers. (10/1–2/08)

Laurel County, Kentucky presentations. 2008. Environmental Camp. 6 presentations per day, four days. 525 students, 33 adults. (9/10–11/08)

Harlan County, Kentucky presentations. 2008. 4-H Environmental Camp. 7 presentations per day, four days. 480 elementary school students, 35 adults. (9/16–18/08)

Win With Wood. 2008. Presentations to about 110 youth and teachers/parents. (10/19/08).

Cassidy Elementary School, Fayette Co., Kentucky. 2008. 6 presentations, 148 students, 8 adults (11/7/08).

Rosa Parks Elementary School, Fayette Co., Kentucky. 2009. Papermaking demonstrations. 50 students, 3 adults. (5/1/09).

Arbor Day at the University of Kentucky Arboretum. April 25, 2009. About 1000 attendees, of which about 200 participated in hands-on activities.

McCreary County Environmental Camp, London, KY. 2009. Four presentations, 80 children and 8 adults. (5/20/09).

McCreary Co. Middle School. 2009. Wood Magic Science Fair presentations with papermaking. Eight classes, 160 students, 4 teachers and aides. (5/26–27/09).

Field Day, Robinson Station, Quicksand, KY. 2009. Wood Magic Science Fair. (6/8/09).
Laurel County, Kentucky presentations. 6 presentations per day, four days. 638 students, 36 chaperones. (9/2-4/09)

Harlan County, Kentucky presentations. 2009. 4-H Environmental Camp. 7 presentations per day, four days. 500 elementary school students, 35 adults. (9/15–17/09).

Kentucky Forest Industries Association Wood Expo, London, Kentucky. 2009. 321 students and 15 adults attended (9/18/09).

Carter County, Kentucky Conservation Field Day presentations. 2009. Seventeen 20-minute presentations to 4th grade students, 500 students and 40 teachers. (9/29–30/09).

Fleming County, Kentucky presentations. 2009. Eight presentations, 20 students plus teachers for each presentation. (10/6/09).

Win With Wood. 2009. Presentations to about 113 youth and teachers/parents. (10/15/09).

Arts and Science Day, Athens-Chilesburg Elementary School. 2010. 150 students plus teachers. February 26, 2010.

Arbor Day at the University of Kentucky Arboretum. May 2010. About 1000 attendees, of which about 250 participated in hands-on activities.

McCreary County 4-H Fair, Feltner 4-H Camp. 2010. Four presentations, 20 students per group plus teachers. May 27, 2010.

Field Day, Robinson Field Station, Quicksand, KY. 2010. Wood Magic Science Fair. (8/21/10).

Laurel County, Kentucky presentations. 6 presentations per day, four days. About 850 students, 50 chaperones. (9/7–10/10)

Harlan County, Kentucky presentations. 2010. 4-H Environmental Camp. 7 presentations per day, four days. 500 elementary school students, 35 adults. (9/14–16/10).

Kentucky Forest Industries Association Wood Expo, London, Kentucky. 2010. About 300 students and 15 adults attended (9/17/10).

Calloway County In-School Presentations. 2010. 750 students and about 65 teachers/aides. (9/22–23/10).

Carter County, Kentucky presentations. 2010. Sixteen 20-minute presentations to 4th grade students, about 500 students and 40 teachers. (9/28–29/10). Field Day, Robinson Forest, KY. 2010. Wood Magic Science Fair. (9/30/10).

Fleming County, Kentucky presentations. 2010. Ten presentations, about 20 students plus teachers for each presentation. (10/7/10).

Arts and Science Day, Athens-Chilesburg Elementary School. 2011. 150 students plus teachers. (2/25/11).

Arbor Day at Louisville, Kentucky YMCA. 2011. About 150 participants. (4/2/2011). Forest Measurements Workshop For Youth. Montgomery County High School. 25 participants. (4/27/11).

Arbor Day at the University of Kentucky Arboretum. 2011. About 1000 attendees, of which about 400 participated in hands-on activities. (4/30/11).

Owensboro Girl Scout Council, Owensboro, KY. 2011. Papermaking and Wood Magic presentation. 30 participants. (5/14/11).

McCreary County 4-H Fair, Feltner 4-H Camp. 2011. Four presentations, 20 students per group plus teachers. 260 participants. (5/26–27/10).

Nelson County, Kentucky. 2011. Wood Magic presentations. 10 participants. (6/28/11). Laurel County, Kentucky presentations. 2011. 6 presentations per day, four days. About 450 students, 12 chaperones. (9/7–9/11).

Harlan County, Kentucky presentations. 4-H Environmental Camp. 2011. 7 presentations per day, four days. 500 elementary school students, 35 adults. (9/13–15/11).

Kentucky Forest Industries Association Wood Expo, London, Kentucky. 2011. About 300 students and 24 adults attended (9/16/11).

Calloway County In-School Presentations. 2011. 200 students and about 20 teachers/aides. (9/23/11).

Carter County Environmental Camp. 2011. Sixteen 20-minute presentations to 4th grade students, about 350 students and 28 teachers. (10/4–5/11).

Fleming County, Kentucky presentations. 2011. Eight presentations, about 160 students and 16 adult participants. (10/12/11).

Cassidy Elementary School, Fayette Co., Kentucky. 2011. 6 presentations, 160 students, 8 adults (11/4/11).

Explorium, Lexington, Kentucky. 2012. Wood Magic presentations. 66 participants. (3/20/12).

Nelson County, Kentucky presentations. 2012. Wood Magic presentation to 4-H youth group and parents. 15 youth, 6 adults. (3/20/12).

Madison County Library, Richmond, Kentucky. Wood Magic presentations. April 10, 2012. 17 participants.

Madison County Library, Berea, Kentucky. Wood Magic presentations. April 10, 2012. 6 participants.

Arbor Day, Shawnee Park, Louisville, Kentucky. Wood Magic presentations. 150 participants. (4/20/12)

Arbor Day, UK Arboretum, Lexington, Kentucky. About 300 participants. (4/28/12).

McCreary County Environmental Camp, Feltner 4-H Camp, London, Kentucky. Wood Magic presentations. 82 participants. May 14, 2012.

Founder's Day, McConnell Springs Park, Lexington, Kentucky. Wood Magic presentations. About 620 participants. May 19, 2012.

Harlan County Poke Sallet Family Fun Days. Harlan, Kentucky. Wood Magic presentations, streetside. May 30, 2012. (1200 participants)

McConnell Springs Ice Cream Social. Lexington, KY. Wood Magic presentations. About 300 people. August 18, 2012.

Laurel County, Kentucky 4-H Edvironmental Camp presentations. 2012. 6 presentations per day, four days. About 800 students, 100 teachers and volunteers. (8/28–

31/12).

Harlan County, Kentucky presentations. 4-H Environmental Camp. 2012. 7 presentations per day, four days. 600 elementary school students, 40 adults. (9/11–13/12).

Carter County Environmental Camp. 2012. Sixteen 20-minute presentations to 4th grade students, about 350 students and 30 teachers. (10/2–3/12).

Leslie County Environmental Camp. 2012. Eighteen 25-minute presentations to 5th and 6th graders, about 300 students and 20 teachers. (10/4-5/12).

The Parklands of Floyd's Fork (Louisville Park System). 2012. Harvest Science Program. About 100 attendees. (10/7/12).

McConnell Springs, LFCUG Park, Lexington, KY. 2014. Little Goblins Festival. About 700 attendees. (10/27/12).

Athens-Chilesboro Elementary School (Lexington, KY). 2013. Arts and Science Day, six presentations. 150 youth participants plus their teachers and aides. (2/22/13).

Russell Cave Elementary School (Lexington, KY). 2013. Family Science Night. About 150 students and family members in total. (2/28/13).

Letcher County Environmental Camp (Whitesburg, KY). 2013. Ten presentations, about 300 youth plus their teachers and aides. (4/9-10/13).

Louisville Arbor Day Program (Louisville, KY). 2013. Ten classes (about 200 students plus their teachers and aides). (4/4/13).

Madison County Environmental Field Day (Richmond, KY). 2013. Eleven presentations to about 175 students plus their teachers and aides. (4/17/13).

Fleming County Environmental Fair (Flemingsburg, KY). 2013. Eight presentations to about 180 students plus their teachers and aides. (4/22/13).

UK Arbor Day (Lexington, KY). 2013. About 400 participants in walk-up presentations aimed at youth and their parents. (4/27/13).

McCreary County Environmental Camp (London, KY). 2013. Four presentations to 80 students plus their teachers and aides. (5/16/13)

McConnell Springs, LFUCG Park, Lexington, KY. Founders' Day. 2013. Walk-up presentations to about 570 members of the public. (5/18/13).

Harlan, Kentucky Family Fun Day, Poke Sallet Festival. 2013. Walk-up presentations to 1200 youth and their parents. (6/5/13).

McConnell Springs, LFUCG Park, Lexington, KY. Ice Cream Social. 2013. Walk-up presentations to about 80 members of the public. (8/17/13).

4-H Eco Edventures Program (London, Laurel County, KY). 2013. 21 presentations to 465 students plus their teachers and aides. (8/30, 9/5–6/13).

Harlan County Environmental Camp (Harlan, KY). 2013. 21 presentations to about 500 students plus their teachers and aides. (9/10–12/13).

Carter County Environmental Camp (Camp Webb, Grayson, KY). 2013. Fourteen presentations to 310 students plus their teachers and aides. (9/30-10/1/13).

Wood Expo, Lexington, KY. 2013. Walk-up presentations. About 400 participants. (9/20/13).

Louisville Arbor Day Program (Louisville, KY). 2014. Eight presentations, fifteen classes (about 300 students plus their teachers and aides). (4/11/14).

Madison County 4-H Environmental Field Day. (Madison County Fairgrounds, Richmond, KY). Ten presentations, 245 students plus 22 teachers and chaperones. (4/15/14).

Yates Elementary School, Lexington, KY. Family Science Night. 2014. Walk-up presentations to about 300 participants (students and parents). (4/24/14).

Athens-Chilesburg Elementary School, Lexington, KY. Arts and Science Day. Six presentations to about 165 students and 20 teachers and aides. (4/25/14).

UK Arbor Day (Lexington, KY). 2014. Walk-up presentations to about 400 participants. (4/26/14).

Northwest Ohio Woodland Workshop, Bowling Green, OH. 2014. Wood Magic demonstration and presentations to about 100 walk-up adult participants. (5/17/14).

Deep Springs Elementary School, Lexington, KY. Science Review Day. 2014. 88 participants. (5/19/14).

McCreary County Environmental Camp, Feltner 4-H Camp, London, KY. 2014. Three presentations, 82 participants. (5/23/14).

Greenup County Conservation Program. 2014. 13 presentations, 405 participants. (5/27/14).

Harlan, Kentucky Family Fun Day, Poke Sallet Festival. 2014. Walk-up presentations to 1300 youth and their parents. (6/4/13).

Louisville Science Center, Louisville, KY. 2014. Four presentations, 101 participants. (7/14/14).

H2O Expo, Lexington, KY. 2014. Walk-up presentations to about 100 participants.

4-H Eco Edventures Program (London, Laurel County, KY). 2014. 28 presentations to 605 students plus their teachers and aides. (8/28–29, 9/4–5/14).

Harlan County Environmental Camp (Harlan, KY). 2014. 19 presentations to about 400 students plus their teachers and aides. (9/9–11/14).

Scott County Environmental Camp. 2014. 9 presentations, 218 participants. (9/12/14).
Fleming County Environmental Field Days. 2014. 8 presentations, 192 participants. (9/17/14).

Washington County School Environmental Programs. 2014. 4 presentations, 250 youth and adult participants. (9/19/14).

Fayette County Environmental Camp, North Central 4-H Camp, Carlisle, KY. 2014. 4 presentations, 108 participants. (9/23/14).

Fleming County Environmental Field Days. 2014. 7 presentations, 166 participants. (9/24/14).

Mountain Ag Youth Day, Robinson Forest, KY. 2014. Four presentations, 106 participants. (9/25/14).

Scott County Environmental Camp. 2014. 6 presentations, 162 participants. (9/26/14).
Fayette County Environmental Camp, North Central 4-H Camp, Carlisle, KY. 2014. 4 presentations, 60 participants. (9/29/14).

Carter County Environmental Camp (Camp Webb, Grayson, KY). 2014. 9 presentations, 222 participants. (9/30/14).

McConnell Springs, LFCUG Park, Lexington, KY. 2014. Little Goblins Festival. About 200 attendees. (10/18/14).

JUNIOR AND SENIOR 4-H AND FFA PROGRAMMING

Junior 4-H Forestry Field Days. 2002. Dawson Springs 4-H Camp. 60 participants.

Junior 4-H Forestry Field Days. 2004. Two locations (Mammoth Cave and Dawson Springs 4-H Camp). 125 students.

Junior 4-H Forestry Field Days. 2005. Two locations (Mammoth Cave and Cave Run). 110 students.

Junior 4-H Forestry Field Days. 2007. Three locations (Dawson Springs 4-H Camp, Mammoth Cave and Cave Run) 122 participants. Compass and Pacing. I also coordinated scheduling.

Junior 4-H Forestry Field Days. 2008. Four locations (Feltner 4-H Camp, Dawson Springs 4-H Camp, Mammoth Cave and Cave Run), 160 participants. Compass and Pacing.

Junior 4-H Forestry Field Days. 2009. Three locations (Land Between the Lakes, Mammoth Cave, Williamsburg and Carter Caves), 77 participants. Compass and Pacing.

Senior 4-H Forestry Field Day, Statewide Competition. 2010. Thirty-five participants from four different counties in Kentucky. This was the first time this event has been held; Dr. Deborah Hill was co-organizer. The winners went to the National Competition held at Jackson's Mill, WV. The competition was held at the UK Arboretum, Lexington, KY, May 26, 2010.

Junior 4-H Forestry Field Days. 2010. Three locations (Land Between the Lakes (9/20), Mammoth Cave (10/20), Williamsburg (10/21)), About 75 participants. Compass and Pacing, Tree Measurements, Tree Identification.

Senior 4-H Forestry State-wide Contest. 20 participants. UK Arboretum, Lexington, Kentucky. (3/5/11).

Junior 4-H Forestry Field Days. 2011. Four locations (Land Between the Lakes (9/22), Carter County (9/25), Mammoth Cave (10/6), Williamsburg (9/18)). Compass and Pacing, Tree Measurements, Tree Identification. About 190 participants.

Senior 4-H Forestry Field Days. 2011. Four locations (Land Between the Lakes (9/22), Carter County (9/25), Mammoth Cave (10/6), Williamsburg (9/18)). Compass and Pacing, Tree Measurements, Tree Identification and Quiz Bowl. About 15 participants.

Junior 4-H Forestry Field Days. 2012. Four locations (Land Between the Lakes (9/6), Carter County (9/10), Mammoth Cave (9/25), Williamsburg (9/18)), About 190 participants. Compass and Pacing, Tree Measurements, Tree Identification.

Senior 4-H Forestry Field Days. 2012. Four locations (Land Between the Lakes (9/6), Carter County (9/10), Mammoth Cave (9/25), Williamsburg (10/21)). Compass and Pacing, Tree Measurements, Tree Identification and Quiz Bowl. About 15 participants.

Senior 4-H Forestry State-wide Contest. 20 participants. UK Arboretum, Lexington, Kentucky. (3/26/12).

Kentucky FFA State Competition. 2012. University of Kentucky, Lexington, KY. 30 participants. (4/12/12).

National 4-H Forestry Contest. 2013. Jackson's Mill, WV. 68 students from 15 states. (7/24/12).

Junior 4-H Forestry Field Days. Spring, 2013. Madison County. 12 youth participants, 5 adults. (5/17/13).

Junior 4-H Forestry Field Days. Fall, 2013. Five locations: Carter County (9/23), Harlan (10/11), Murray State University Arboretum (10/14), Barren River State Park (10/15), Central KY Ag/Expo Center (Casey County) (11/19)). One hundred ninety-nine participants. Compass and Pacing, Tree Measurements, Tree Identification.

Senior 4-H Forestry Field Days. 2013. One location: Murray State University Arboretum (10/14). Nine participants. Compass and Pacing, Tree Measurements, Tree Identification and Quiz Bowl.

Senior 4-H Forestry State-wide Contest. 20 participants. Dawson Springs 4-H Camp, Dawson Springs, Kentucky. (4/14/14).

Senior 4-H Forestry State-wide Contest. 30 participants. Jenny Wiley State Resort Park, Prestonsburg, Kentucky. (4/17/14).

Junior 4-H Forestry Field Days. Fall, 2014. Five locations: Harlan (7/21), Mammoth Cave (9/15), Land Between the Lakes (9/16), Carter Caves (9/18), Casey County (9/22 and 10/1). Compass and Pacing, Tree Measurements, Tree Identification. 346 participants.

Senior 4-H Forestry Field Days. Fall, 2014. One location, twice: Casey County (9/22/14 10/1/14). 12 participants.

TRAINING PROGRAMS FOR JUNIOR AND SENIOR 4-H FORESTRY

Sr. 4-H Forestry Program Coordinator and Trainer, 2006 to date.

Conners, T.E. 2007. In-Service Training for County Extension Agents for Senior 4-H Forestry. 2 participants. Held at Quicksand, KY, March 15, 2007.

Conners, T.E. 2007. In-Service Training for County Extension Agents for Senior 4-H Forestry. 5 participants. Held at Feltner 4-H Camp, London, KY, March 21, 2007.

Conners, T.E. 2007. In-Service Training for County Extension Agents for Senior 4-H Forestry. 1 participant. Held at Dawson Springs 4-H Camp, Dawson Springs, KY, March 28, 2007.

Conners, T.E. 2007. Training Nelson County Senior 4-H students about compass and pacing and tree identification. April, 2007.

Conners, T.E. 2008. Presentation to Jr. and Sr. 4-H Forestry in Nelson County about Insect Identification. February, 2008.

Conners. 2009. Senior Forestry 4-H In-Service Training to agents and youth. 14 participants. Princeton, Kentucky, April 28, 2009.

Conners, 2009. Senior Forestry 4-H In-Service Training to agents and youth. 11 participants. Mammoth Cave National Park, Kentucky, April 29, 2009.

Conners, 2009. Senior Forestry 4-H In-Service Training to agents and youth. 10 participants. Quicksand, Kentucky, April 30, 2009.

Conners, 2009. Senior Forestry 4-H In-Service Training to agents. 2 participants. Mt. Sterling, Kentucky, May 11, 2009.

Senior 4-H Forestry Field Days. 2009. Carter Caves. Comprehensive training in insect id, tree id, forest evaluation, topographic maps reading, etc. 6 participants.

Conners, T.E. 2011. Senior Forestry 4-H In-Service Training to agents and youth/Clark county. Six participants (5 youth, 1 agent). July 11, 2011.

Conners, T.E. 2011. Senior Forestry 4-H In-Service Training to agents/Fleming County. One participant. September 26, 2011.

Conners, T.E. 2013. Carter County Extension Office. Three youth participants. (October 4, 2013).

PEDAGOGY

ACADEMIC COURSES AND RESPONSIBILITIES

- I. At The Institute of Paper Chemistry (Institute of Paper Science & Technology):**
The Institute of Paper Chemistry (renamed the Institute of Paper Science and Technology in 1989) is an industry-funded, fully-accredited graduate school for the pulp and paper industry.

Graduate-Level Courses

A170 Wood and Fiber Biology. 1985–1991, annually.

A272 Wood and Fiber Identification. 1986–1991, annually.

A276 Microtechnique. 1987-1990, annually.

A369 Topics in Mathematics (Finite Element Method). 1989.

I served as major advisor for nine M.S. students and three Ph.D. students (co-advisor for one of these Ph.D. students). I was a committee member for five other Ph.D. candidates and 10 M.S. students.

M.S. Candidates Advised:

- o Daniel Bunker. Effects of Delignification on Fiber Structure
- o Scott Fruhwirth. A Comparative Study of Organosolv-Pulped Tension Wood and Normal Wood Fibers in the Papermaking Process

- o Garth Kolterjahn. The Load-Elongation Characteristics of Wood Fibers Under Controlled Relative Humidity Conditions
- o Gebran Hamman. Comparison of Somatic and Zygotic Cell Embryos
- o Patricia Exarhos. Electron Microscopy Study of Ultrastructure of Picea abies Plants Obtained via Somatic Embryogenesis
- o Michael Plouff. Analysis of Brominated Loblolly Pine by STEM-DES (joint with Dr. Earl Malcolm)
- o Michael Rice. Influence of Chipping, Refining, and Measurement Techniques on Wood Fiber Length Population Determinations
- o Lois Forde. Phenylalanine Ammonia-Lyase: Studies and Maximum Production (joint with Dr. Ronald Dinus)
- o Joseph Morra. Influence of Wood Cell Morphology on CTMP Pulp Properties (joint with Dr. Alan Rudie)

Ph.D. Candidates Advised:

- o Daniel Bunker. The Effect of Drying Strategy on Paper Coating Structure
- o Ingegerd Uhlin. The Influence of Hemicelluloses on the Structure of Bacterial Cellulose (joint with Dr. Rajai Atalla)
- o James Bond. Raman Microprobe Studies of Loblolly Pine Cell Walls (joint with Dr. Rajai Atalla)

Ph.D. Committee Memberships (non-Advisor):

- o Mike Goulet. The Effect of Pulping, Bleaching, and Refining Processes on the Electrokinetic Properties of Wood Fibers
- o Michael Friese. An Experimental Study of Adsorbed Polymer Configurations Using FTIR-CIR Spectroscopy
- o James Burns. Investigation of the Constrained Expansion Phase of Wet Pressing
- o Rene Kapik. A Study of Plant Growth Regulators During Zygotic Embryogenesis in Loblolly Pine
- o Michael Wood. Examination of Genetic Structures in Pinus elliotti Populations Using the Polymerase Chain Reaction

Significant Administrative Responsibilities:

- **Group Leader, Microscopy & Fiber Analysis** (known as the Wood and Fiber Science Group when it was part of the Forest Biology Division at IPC). Headed a service-oriented group in the Research Services Division at IPST. Coordinated, set goals and supervised team of four to five B.S.-level light and electron microscopists, fiber analysts and technicians. Communicated through oral and written reports with industrial clients of the Research Services Division, students, staff, and supervisors. Budgeting, supervisory and planning responsibilities. This was a staff position which was held concurrently with my faculty position and responsibilities.
- **Editor**, Institutional Self-Study Report for Accreditation by the Southern Association of Colleges and Schools, 1990–91.

- **Member of Self-Study Committees** for Accreditation by the North Central Association (1988) and by the Southern Association of Colleges and Schools, 1990–91. (The Institute of Paper Chemistry moved from Appleton, Wisconsin to Atlanta, Georgia in 1989, changing both its name and its accrediting body when it did so, necessitating the dual accreditation).
- **Chairman of the Admissions Committee**
 - Led prospective graduate student screening for the Institute of Paper Science and Technology.
 - Planned and directed a recruitment campaign to annually attract qualified prospective student applicants, including strategy development and the authoring of recruiting materials.
 - Leading co-author of 1989 Academic Catalog (biannual), participated in revisions for later years. Leading co-author for 1988, 1989, 1990 and 1991–92 IPST recruiting literature.

2. At Mississippi State University:

Undergraduate Courses

FP 1103 Wood Technology and Products (Forest Products Overview Course,)

FP 3123 Physical Properties of Wood

FP 4014/6014 Physical Properties of Wood (4 credit hours, Joint undergraduate/graduate class)

FP3213 Wood Structure and Identification

FP 4014/6014 Wood Structure and Identification (4 credit hours, Joint undergraduate/graduate class)

FO 1101, Forest Resources Survey, 1991–1996. Annual lectures

Graduate Courses

FP 8153 Advanced Wood Physics (biannually from

1993)FP 8213 Advanced Wood Mechanics (biannually from 1994)

FP 8143 Ultrastructure of Wood and Wood Fibers (Initiated by myself and taught for the first time Fall, 1996)

FP 6990 Special Problems (Wood Vibration) (1998)

In 1996, I was a committee member for two Ph.D. students, two M.S. students, and a co-advisor for one Ph.D. student. In 1998-1999 I was a committee member for two Ph.D. students. From 1999 to 2001, I was the major advisor for one M.S. student and a committee member for two others.

M.S. Student Advised:

- Jean-Pascal Théberge. Effects of different treatments on the dimensional stability of wood exposed to liquid water and water vapor.

M.S. Student Committees (non-Advisor):

- Joe Morra (continuing from IPST). Influence of Wood Cell Morphology on CTMP Pulp Properties (joint with Dr. Alan Rudie)

- o Li Gan. Strength performance of dowel joints constructed with southern yellow pine plywood
- o Ashlie Thompson Dalton. Volatile organic compounds emitted during the drying of southern pine lumber
- o Jerome Cooper. The influence of drying temperature, density, frequency, and moisture content on the dielectric constant of southern yellow pine
- o Franklin Quin. Temperature differences between knots and clear wood in heated southern yellow pine lumber and veneer
- o Chuck Williams. Economic feasibility of producing kenaf composite panels in the Delta region of Mississippi

Ph.D. Students Advised:

- o Rubin Shmulsky. Factors which affect volatile compound emissions from drying loblolly pine lumber

Ph.D. Student Committee Member:

- o Jong-Bum Ra. Diffusion of boron in wood.
- o Hui Wan. Stabilization of strandboard by impregnating low molecular weight phenol formaldehyde resins and butanetetracarboxylic acid .
- o Mark Dubois. Timber management and wood procurement guidelines for linerboard production in North-Central Arkansas.
- o Alistair Twaddle. The effect of chip length, wood density and ring orientation on chip formation variability.
- o Monique Belli. Influence of cambial shear strength on bark removal for hickory species and the effect of hickory bark on pulp quality.
- o Ashlie Thompson. Effect of location within the tree and season on terpene distribution in loblolly pine and impact on volatile organic compound emissions from drying lumber.

3. At the University of Kentucky:

Undergraduate Courses

FOR 379. Harvest and Utilization of Wood. I have co-taught this course with Dr. Jim Ringe during two weeks of Forestry Summer Camp 2002–2011, and during the Spring Field Semester 2012 to date. This course includes lumber grading, log grading, and tree grading exercises; chainsaw safety and demonstration, with student practice available; sawmilling; railroad tie grading; and an extensive exercise in wood manufacturing, where students make small tables and assess their utilization of the raw material and costs. 2 credits.

Student Evaluations

Year	Value of the Course	Quality of Teaching
2009	3.6	3.7
2010	4.0	4.0
2011	3.9	4.0
2011	2.9	3.1* (Anomalous. Course Items Mean = 3.5; Instructor Items Mean = 3.6; Learning Outcomes Mean = 3.4.)

FOR 150, Computer Applications in Natural Resource Professions. This was a new course, designed by myself and taught for the first time ever in the Spring of 2010 under the designation GEN 109. There were 15 students. Students learned communication skills using Microsoft Word, Excel and PowerPoint; they learned how to perform basic multimedia editing of digital materials for presentations; they made presentations and create posters that they presented. 2 credits.

Student Evaluations: 2010, Overall quality of teaching 3.5/4

FOR 599, Independent Work In Forestry. Spring semester, 2012. Taught to two undergraduate students as separate independent study courses (two credits for one student, three credits for the other), both students improved their knowledge of microscopic wood structures that differentiate species. They also learned how to properly use ordinary light microscopes and stereozoom microscopes to take evenly-lit, properly-focused micrographs, and they learned about types of optical distortions present in microscope optics and how to correct for them, either by deliberately choosing optical components or through the use of software. Each student independently prepared a portfolio of photographs for various species, with the goal to achieve micrographs of satisfactory quality to be used for instructional purposes or even publication. Finally, each student had some hands-on individual instruction in the use of Photoshop to adjust photograph sharpness, cropping, etc., and to the Camera Raw plug-in for Photoshop so they could demonstrate for themselves the benefits of creating their own JPG format images from the RAW format files they acquired in their laboratory work. Not formally evaluated.

FOR 599, Independent Work In Forestry. Spring semester, 2013. Three credits. Taught to one undergraduate student. Student learned use microscopic wood structures to differentiate species, also learned how to properly use ordinary light microscopes and stereozoom microscopes to take evenly-lit, properly-focused micrographs. Student further learned about types of optical distortions present in microscope optics and how to correct for them, either by deliberately choosing optical components or through the use of software. Finally, each student had some hands-on individual instruction in the use of Photoshop to adjust photograph sharpness, cropping, etc., and to the Camera Raw plug-in for Photoshop so they could demonstrate for themselves the benefits of creating their own JPG format images from the RAW format files they acquired in their laboratory work. Student prepared a portfolio of photographs for various species. Not formally evaluated. (Anthony Kenney)

FOR 599, Independent Work In Forestry. Spring semester, 2014. Three credits. Taught to one undergraduate student. The student learned how to prepare North American and Brazilian wood specimens for microscopy using the

microtome, microtome maintenance and knife sharpening, and transmitted and reflected light microphotography. The student also learned how to make basic adjustments to digital photographic images using Photoshop. Finally, the student was initiated into the study of UV-fluorescence of wood extracts measured with a spectrofluorometer. Not formally evaluated. (Marillia Hellmeister).

Lectures in other courses:

- Twice annually, teach segment about Forest Products for FOR 100 (Introduction to Forestry); usually, three hours of lectures to two classes (2002 to date)
- One lecture annually about international trade to FOR 602 (Renewable Natural Resources in a Global Perspective) (2003–2009).
- One lecture annually to FOR 300 (Forest Measurements) about log and lumber grading (2003–2008).
- One lecture annually for Agricultural Economics AEC 445G (Introduction to Resource and Environmental Economics) (2002–2010).
- Occasional lectures in FOR 480 about communication and writing skills.
- Lecture for Rebekah Epps's FCS 399 Experiential Learning Career and Tech Edu class in Community and Leadership Development about making Extension presentations. (9/2014).

Graduate Courses

- One seminar for students in the College of Law (Law 890 Evidence) about Wood and Paper Analysis and Forensic Examination (2007)

M.S. Committee Member:

- o Kalyan Phani Viswanad Tangirala, a graduate student in Electrical Engineering. Kalyan's project was to design and build a prototype EMC sensor according to the description and techniques proposed in my Invention Disclosure of 2004. His thesis was entitled: Development and validation of a special purpose sensor and processor system to calculate equilibrium moisture content of wood. Degree completed, 2005.
- o Ryan Hrvatin, Master's in Historic Preservation (College of Architecture). Ryan studied the commercial origins of historic architecture in Lexington, Kentucky. His thesis was entitled: Anything from a barn to a mansion: The vertically integrated lumber companies of Lexington, Kentucky. 2009 to June, 2010, completed.

Ph.D. Student Advised:

- o Paul Stiglbauer. Fines reduction at oriented strandboard flakers. Co-advisor with Dr. Richard Warner, BAE (Forestry does not have a Ph.D. option). Degree completed, 2008.

Ph.D. Defense Committee (Outside Examiner):

- o Cynthia Finneseth. April 2010. Evaluation and enhancement of seed lot quality in eastern gamagrass (*Tripsacum dactyloides* (L.) L.). Dept. of Plant and Soil Science.
- o Maira Pecegueiro Do Amaral. May 2012. Evaluation of Algae Concentration in Manure Based Media. Dept. of Biotech and Agricultural Engineering.

DESCRIPTION OF INDUSTRIAL EXPERIENCE

INTEGRATED PAPER SERVICES

- Co-Founder of the company

Integrated Paper Services (Appleton, Wisconsin) was founded in 1989 to provide technical support services to the Wisconsin pulp and paper industry following the decision of the Institute of Paper Chemistry to move to Atlanta.

- o Together with three others, I was a co-founder of this company.
- o I helped to write a business plan for this business as a start-up with about 25 employees. This business plan was used as the basis for discussions with local and state legislators and area industry representatives to secure funding and funding guarantees from the paper industry and from the State of Wisconsin.
- o I assisted with the search for a CEO and, with the others, solicited his involvement in the company.
- o I assisted with the incorporation of the company and helped with the search for a suitable commercial location.

I believed the business would be more successful the first year without having to pay my salary so I stayed with the Institute of Paper Science and Technology and moved to Atlanta; the business survived after struggling through its first few years and is presently successful.

KIMBERLY-CLARK

- Research Manager (830 Hay points)**

Administrative Responsibilities and Accomplishments:

Led and managed a technically, culturally, and ethnically diverse group of Ph.D.-level scientists and affiliated technicians in the corporate Fiber Technology Research and Development sector of Kimberly-Clark Corporation, a Fortune 100 company:

- o Directed technical and personal/team objectives to match corporate and scientific objectives, administered fiscal controls for a multi-million dollar research and personnel budget, ensured personnel development, conducted periodic evaluations, organized team members to meet technical and competitive challenges, applied multidisciplinary background and coached all team members as needed, recommended promotions to senior management, etc.

- o Planned staffing requirements and staff development in anticipation of new technical developments or objectives and to better fulfill current business needs. Identified, recruited and hired (primarily Ph.D.) staff and other support team members.
- o Interacted with all levels of management of various business sectors to ensure maximum impact of Fiber Technology team contributions towards technical and related business objectives (long- and short-range).
- o Planned, pursued and led involvement of external contacts in Kimberly-Clark research efforts for mutual benefits and competitive advantages; negotiated and managed Confidentiality Agreements and Joint Development Agreements with other companies and universities subject to mutual legal oversight controls.

CONTINUING EDUCATION PROGRAMS/WORKSHOPS ATTENDED:
(Non-conference)

Attendee, Workshop on Academic Advising conducted by the American College Testing Program, February, 1996.

Attendee, Kimberly-Clark Interviewing Training, October, 1996

Attendee, Kimberly-Clark Import-Export Workshop, February, 1997

Attendee, Kimberly-Clark Mentor Training Workshop, July, 1997

Attendee, Kimberly-Clark Immigration and Employment Workshop, August, 1997

Participant, Course in “Leadership Foundations” taught by the Center for Creative Leadership, September 15 – 18, 1997

Attendee, Introduction to ArcView GIS software, Starkville, MS. May, 2001

Participant, Numerous meetings of Forestry Collaborative held in Black River Falls, WI to develop and communicate strategies for business success for value-added processing in forestry cooperatives. 2001–2002.

Attendee, RAD-Tech meeting, Indianapolis, Indiana. 2002. Attended seminars about UV-curing of finishes for the wood products industry.

Attendee, Pallet Phytosanitary Project Instruction, April 2002.

Attendee, Steam System Awareness Training (Efficient Use of Steam) given by Plant Support and Evaluations, Inc., Green Bay, WI. January 30, 2003.

Attendee, Lean Manufacturing Introduction, TechSolve, Cincinnati, Ohio. February, 2003.

Attendee, Lean Manufacturing Short Course, Department of Wood Science and Forest Products, Virginia Tech, Blacksburg, VA. May 5–6, 2003.

Participant, Lean Manufacturing Simulation, Center for Robotics and Manufacturing Systems, University of Kentucky, Lexington, KY May 19, 2003.

Attendee, International Lean Manufacturing Conference and Technical Problem Challenge, Center for Robotics and Manufacturing Systems, University of Kentucky, Lexington, KY May 20–21, 2003.

Attendee, Lean Manufacturing Certification I: Principles and Practices of Lean Manufacturing. University of Kentucky Center for Robotics and Manufacturing. July 8–10, 2003.

Attendee, Lean Manufacturing Certification II: Lean Operations Management. University of Kentucky Center for Manufacturing. November 4–6, 2003.

Attendee, Lean Manufacturing Certification III: Organizational Learning for Lean Manufacturing. University of Kentucky Center for Manufacturing. November 9–11, 2003.

Attendee, Lean Manufacturing Certification IV: Lean Manufacturing Engineering for the Shop Floor. University of Kentucky Center for Manufacturing. November 1–3, 2004.

Visited Seamans’s Timber Company, Calera, Alabama, May 2008 for on-site update on current railroad tie grading standards and practices.

Participant, National Extension Programs Development and Planning for Forest- and Rangeland-Based Bioenergy Extension Programs meeting, Zion, Illinois. June 2008.

Participant, Wood Energy in the Northeast – a Workshop. Held at The Pennsylvania State University, October 8–9, 2011.

BOOKS AND INTELLECTUAL PROPERTY AUTHORED

Conners, T.E. 1991. Wood Physics: An Undergraduate Level Textbook. Used in instruction of FP 3123 at Mississippi State University, 167 pp.

Conners, T.E. 1993. Wood Physics: A Graduate Level Textbook. Used in instruction of FP 8153 at Mississippi State University, 260 pp.

Conners, T.E. 1993–1994. What’s Possible With Wood Identification. Materials to complement presentations titled, “Wood Structure and Identification

Strategies for Forensic Scientists” to the Tarrant County, Texas Medical Examiner’s Office and the Mississippi Crime Laboratory in Jackson, MS. 25 pp.

Conners, T.E. and S. Banerjee, eds. 1995. Surface Analysis of Paper. CRC Press, Boca Raton. 346 pages.

de Silveira, G., P. Forsberg, and T.E. Conners. 1995. Scanning Electron Microscopy: A Tool for the Analysis of Wood Pulp Fibers and Paper. *In: Surface Analysis of Paper*. Conners, T.E. and S. Banerjee, eds. CRC Press, Boca Raton. 346 pp.

de Silveira, G. and T.E. Conners. 1995. Energy-Dispersive X-Ray Spectroscopic Analysis. *In: Surface Analysis of Paper*. Conners, T.E. and S. Banerjee, eds. CRC Press, Boca Raton. 346 pp.

Arnold, T.B., T. E. Conners, and G.L. Dyer. 1995. Using the Photon Tunneling Microscope to View Paper Surfaces. *In: Surface Analysis of Paper*. Conners, T.E. and S. Banerjee, eds. CRC Press, Boca Raton. 346 pp.

Conners, S.B. and T.E. Conners. 1997. Direct and inferential effects of environmental certification and country-of-origin in marketing forest products to the environmentally concerned consumer. *In: Structural Changes Within the Global Forestry Sector*, pp. 91–97. I. Eastin and E. Hansen, eds.; Forest Products Society, Madison, Wisconsin.

Conners, T.E. 1998. Wood ID on the Internet. Perhaps the first materials on the topic placed on the internet (placed on MSU webserver).

Conners, T.E. 2001. Wood: Ultrastructure. *In: Buschow, K.H.J., Cahn, R.W., Flemings, M.C., Ilshner, B., Kramer, E.J., Mahajan, S. (eds.) Encyclopedia of Materials: Science and Technology*. Elsevier Science, Oxford, Vol. 10, pp. 9751–9.

INVENTION DISCLOSURES

Invention disclosure related to on-line monitoring of kraft pulping filed October, 1993.

Invention disclosure related to on-line monitoring of wood and wood products for defects and uniformity filed October, 1994.

Invention disclosure related to a method for accelerating the drying rate and improving the treatability of refractory wood filed April, 1998.

Invention disclosure related to the use of fungi such as *Ophiostoma piliferum* (an albino blue stain fungus) to degrade extractives in resinous gymnosperms (thereby diminishing VOC content) filed May, 1998.

Invention disclosure and preliminary patent related to the development of a microprocessor-based device to measure and monitor equilibrium moisture content. The invention disclosure was filed December, 2003, and the University of Kentucky decided to “pursue appropriate protection” in January 2004. A graduate student, Kalyan Phani Viswanad Tangirala, used this invention as the basis for his thesis, and he made a prototype instrument. In June, 2004 the University obtained a preliminary patent and determined to seek a sponsor to fund the final patent with licensing rights to the invention. Subsequently it was learned that a company in Germany has a similar device available on the market (although it is not promoted in the United States). The availability of this device precludes the University from obtaining a valid patent.

EXAMPLES OF PROFESSIONAL ACTIVITIES AND NOTABLE PUBLIC SERVICE

North American Editor, International Wood Products Journal (Peer-reviewed journal) (formerly the Journal of the Institute of Wood Science), 2009 to date. This journal is published by Maney on behalf of the Wood Technology Society of the Institute of Materials, Minerals and Mining, whose aim is to advance and encourage the scientific, technical, practical and general knowledge of timber and wood based products, Maney Publishing, Great Britain. The journal has a particular interest in the following aspects of wood engineering and technology: 1) properties of wood; 2) testing and characterization; 3) drying; 4) preservation, including insect and fungal response; 5) processing and machining; 6) structural applications, including design and construction; 7) products and applications; and 8) recycling.

Executive Board Member, the Society for Wood Science and Technology. 2012-2014. Chairman of Strategic Planning Committee, 2012-1014.

Panelist, USDA-NIFA. 2014. Reviewed and rated proposals for competitive funding by NIFA.

Forensic advisor. I examined evidence in a murder investigation at the Mississippi State Crime Laboratory. 1998. At the request of Mr. Danny Smith, Assistant District Attorney for Pike County, Mississippi, I examined evidence to determine if wood fibers were present that might prove how the murder was committed. I subsequently wrote a report about my findings and communicated these in writing and verbally with Mr. Smith. The accused was convicted, but not due to my work in this case as the fiber evidence was inconclusive.

Numerous inquiries from County Extension Agents have been handled. Examples include:

- o I was asked to identify the wood in 52 tobacco sticks for a museum about tobacco heritage in Kentucky. (Requests for wood identification are common.)
- o I was asked to determine whether smoke from burning cherry wood is toxic (initiated after cherry trees were determined to be a host to a caterpillar involved in Mare Reproductive Loss Syndrome).
- o I was asked to assist a horse farm with determining the cause of rot in some newly-installed wooden paddock fence posts.
- o I worked on a project involving problems with encapsulated sapwood in eastern Redcedar (its cause and its effect on wood quality and the resulting difference in value to landowners compared to wood without the encapsulated sapwood).
- o Numerous requests by Agents for youth programming.

Grants were awarded from the U.S. Department of Energy to study how to reduce the production of volatile organic compounds during the drying of wood flakes prior to their incorporation in the oriented strandboard wood composite. (A sequence of grants dating back to the 1990s). The emissions would normally have required expensive environmental control systems. A practical, low-cost and easily-implemented method of emissions control was the result of this research.

- o I transferred the results of my research from this grant to all of the oriented strandboard producers in North America through personal contacts with mills and corporate research centers. Many of these contacts were in-person, on-site visits at mills or technical centers to make presentations about the research results.
- o I and my colleagues made presentations about this research to attendees of major North American conferences and published the results in refereed articles and other media.
- o I made presentations about this research and its significance in two successive years at a major conference in Europe devoted to the Panel Products industries, and attended primarily by European and Asian panel products producers.
- o The impact of this work was approximately \$35,000,000 for the first year of implementation by mills in North America, and \$15,000,000 for each year thereafter. This estimate was computed by a representative of a producer company based on saving \$500,000 (per U.S. mill) per regenerative thermal oxidative unit (RTO) (no longer needed based on research) as well as per mill combined savings and additional revenue of \$225,000 annually. There are 40 oriented strandboard mills in the U.S. and 25 in Canada (about 110 worldwide).

Railway Tie Association, Tie Grading Instructor. 1999 to date. I am one of two principal Instructors for the Railway Tie Association Tie Grading Seminar. This training is held in a different location every year and reaches participants

from all over North America. Typically there are 20 to 30 participants each year. In addition to my tie grading workshop instruction:

- o I introduced tie grading to forestry students at UK Forestry Summer Camp; according to the Railway Tie Association, this program is unique in North America.
- o I introduced tie procurement and grading as a profession to student participants in the Annual Southeastern Forestry Conclave events (2006 to 2011).
- o Through my work as a member of the Education Committee of the Railway Tie Association (RTA), I disseminate information about railway ties and the railway tie industry to university forestry students.
- o As part of the RTA Education Committee, I also evaluate and recommend two annual scholarship awards to Forestry students from the RTA.
- o I taught tie grading as part of a log and lumber grading workshop to loggers as part of a Continuing Education Workshop (to maintain their Master Logger Certification) in 2006.
- o I included information about tie grading and the value of tie logs in training programs for county agents as part of their in-service training in 2006.
- o I've written publications about how to evaluate and cut logs into railway ties and also about how to produce and evaluate railway ties for service. Some of these are being used by the RTA in their annual Tie Grading Seminar. Others have been formatted as PDF files and have been placed on both the UK and the RTA websites as training materials for loggers, sawmills and tie graders.

Advisor for John Cotten, Director of Division of Value-Added Wood Promotion for the Commonwealth of Kentucky. 2002. Assisted with information about pulp and paper company organization, executive contacts and technical aspects of pulp and paper production.

I made two trips to Havana, Cuba in 2003 at the express invitation of the Cuban government and their government-controlled import companies (Alimport and its subsidiary, Maprinter). The purpose of the trips was to investigate the potential for sales of Kentucky hardwoods to Cuba, and to facilitate its sale and use.¹

During the first trip (January 2003) I met with various Cuban government agencies and their representatives to learn about the Cuban

¹ Cuba buys goods through these "Empresas," and smaller concerns place orders for goods through them. Trade with United States companies is complicated due to the long-standing U.S. blockade, but agricultural commodities are approved for trade. Cuba wishes to get the blockade dropped, and by purchasing goods from different parts of the U.S. they wish to open a dialog with influential U.S. citizens and congressmen. Therefore, selling goods to Cuba is fraught with political overtones. To sell goods in Cuba one must not only work within the Cuban government's objectives, but one must also convince them that the goods we have to sell are of sufficient quality that they should purchase them using their short supply of hard currency.

people and government, their buying objectives and purchasing intentions.

- o Government agencies I spoke with include: Alimport and Maprinter, also the Ministerio del Comercio Exterior, Ministerio de la Relaciones Exteriores, MINVEC (the Ministerio Para la Inversion Extranjera y la Colaboracion Economica), the Oficina del Historiador de la Ciudad de la Habana, and the Ministerio de la Agricultura.
- o During my second trip (September 2003), I made presentations (with Dr. James Ringe's assistance) to introduce U.S. hardwood species with their appearance and colors, densities, machining characteristics and uses to Cuban government agencies and Cuban wood industry executives and representatives
- o Cuba subsequently sought to purchase some hardwood lumber, but at disadvantageous terms to the producer and no sale took place at that time.
- o It was subsequently learned that Cuba's real intentions were to use commodity purchases as leverage to change U.S. citizen travel restrictions.
- o In November 2004, the Cuban government made new overtures for hardwood lumber purchase and negotiated with a supplier. No sale was ultimately made due to a shortage of hard currency by the Cuban government; a secondary consideration was the political motivations of the Cuban government in making the sale, and this hindered serious purchasing intentions by Cuban wood-using operations.

Facilitator for a group of landowners in Fleming County, Kentucky who attempted to create a value-added, sustainable forestry-based timber cooperative. 2002–2003. This group successfully incorporated as a non-profit 501(c)3 corporation headquartered in Flemingsburg, Kentucky and wrote a business plan for a for-profit enterprise based on timber stand improvement, log marketing, and wood energy. Other persons and organizations actively involved included Heath Hoagland of the Kentucky Center for Cooperative Development, E.G. Nadeau of Cooperative Development Services (of Madison, Wisconsin), Warren Gaskill (partner in Rapid Improvement Associates, Black Earth, Wisconsin), and Katie Fernholz and Barbara Spears of the Institute for Agriculture and Trade Policy (IATP) (Minneapolis, Minnesota). Efforts were ultimately unsuccessful due to tax constraints.

Member, Board of Directors, Kentucky Wood Products Competitiveness Corporation. Appointed (by the Governor of the Commonwealth of Kentucky) to the Board in 2002. Corporation was unfunded by the 2003 Kentucky Legislature and ceased activities in April 2004.

Reviewer/Corrector for two book chapters (Softwood Structure and Hardwood Structure) *in*: Forest Products and Wood Science: An Introduction. 4th edition. 2003. Bowyer, J., R. Shmulsky, and J. Haygreen.

Advisor for start-up dry kiln and flooring manufacturing facility (Walter Alexander), Winchester, Kentucky, October 2003–November 2004. Mr. Alexander built his dry kiln based on a commercial dry kiln design and his first load of wood was baldcypress from a Heinz pickle vat. The wood had an unusual moisture content variability ranging in some cases from 18% to 80% from one side of a board to the other. Advised regarding kiln schedules and temperatures, setup of air-drying yard, and provided marketing advice.

Advisor for Quality Cabinets, Mount Sterling, Kentucky (in collaboration with Bobby Ammerman of University of Kentucky and Quality Cabinet employees). January 2004–March 2004. Quality Cabinets requested assistance with determining costs to their plant of defective cabinet doors from their Texas supplier. Impact was approximately \$870,000. A subsequent project helped them write and maintain Standard Work Procedures to minimize manufacturing defects. The company's goal was to reduce defects by 2.5%.

Kaizen Event Team Member for the Frame Department, Quality Cabinets, Mount Sterling, Kentucky. April 12–16, 2004. The Team reduced frame throughput time from 70 minutes to 17 minutes, reduced inventory by 99.7%, reduced required floor space by 28% and reduced the full-time equivalent crew by 14% (2 people in a 21-person team).

Total Productive Maintenance event Team Member, Quality Cabinets, Mount Sterling, Kentucky, June 21–25, 2004. With other Team Members, performed a preventative maintenance overhaul and thorough examination of a computer-driven panel rip saw that is critical to the plant's operability. Determined that it could be overhauled instead of being replaced (cost estimate was about \$50,000 instead of \$500,000). Increased the 5S scoring by 170%, reduced book rip machine cycle time by 17%, reduced bunk load time by 83%, developed repair and rebuild checklist for accuracy and runtime improvements.

Wrote Standard Operating Procedures for Frame Department and for Rip saw operation, Quality Cabinets, Mount Sterling, Kentucky, 2004.

Numerous requests fulfilled for wood identification; everything from wood used to construct log cabins to wood used inside the Old Governor's mansion in Frankfort, Kentucky, to identifying wood reclaimed from old tobacco warehouses being recycled into flooring. Ongoing.

Member, Board of Directors, Ohio Valley Lumber Drying Association. 2002–2004.

Examined evidence pertaining to a Murder Appeal/Trial in Madisonville, Kentucky. My examination of wood evidence was requested by the Public Defender. I appeared as an expert witness on December 8, 2004. (Work conducted from December 2003–December 2004).

Advisor, Three Chimneys Horse Farm. 2004. I was asked to determine why horses were chewing some selected wooden fence posts down to the heartwood; this involved a chemical analysis of the wood preservative compounds used and their concentration in selected posts.

Advisor to Dr. R. D. Seale, Forest Products Laboratory, Mississippi State University, 2005, for TIMTEK project. TIMTEK is a patented process for crushing small diameter wood (in this case, southern pine peeler cores) and rebonding the wood into large structural beams. I assisted with adhesive application and troubleshooting as well as microscopy to determine adhesive effectiveness.

Reviewer/Consultant to Louisiana Board of Regents, 2005. Reviewed proposal to Louisiana Board of Regents Pilot Funding for New Research, Louisiana Program to Stimulate Experimental Research (EPSCoR).

Forensic advisor. I examined wood chip, fiber and video evidence on behalf of Dr. Roberta Harding (UK law professor acting as pro bono attorney) concerning an investigation into a murder in Lexington, Kentucky. October–December 2005.

Member, Board of Directors, University of Kentucky/Lexington Fayette Urban County Government Arboretum Children's Garden. May 2006 to date.

Expert witness (wood anatomy) for land boundary dispute, Pikeville, KY March 2006. Deposed by attorneys for Baird & Baird, and Combs and Combs (both of Pikeville) on November 9, 2006.

Member, Board of Directors of Knotwood Craftsmen, Annville, Kentucky, 2005–2007. Helped write business plan and assisted with representing this company to the Kentucky Agriculture Development Board to get this company a forgivable loan in the amount of \$642,000 to start their wood-based business. Assisted search for additional funding.

Advisor to Specialty Manufacturer. 2006. I worked with a company in Kentucky making wood-lined armored steel rooms for the U.S. Armed Forces to resolve problems with rot and mold within the sealed walls (subsequent to manufacture) due to the lumber used. I performed calculations to show the maximum permissible moisture content range for rooms exposed to extremes of arctic conditions, Middle East conditions, and high humidity, coastal conditions. The company wrote a letter stating that this saved them at least \$250,000 per year.

Presenter and writer about woody biomass, both in print and in public. 2007 to date.

Advisor, Hillerich and Bradsby (“Louisville Slugger”), 2007 to 2013, on several related ongoing projects.

- o I’ve given programming on wood anatomy as it relates to wood strength and stiffness.
- o I introduced stress wave timer technology for quality control for professional ballplayer bat billets, and I arranged for a “loaner” stress wave timer so they could test the equipment in their production facilities and quality control facilities.
- o I assisted with statistical evaluation of test results. As a result of my assistance, Hillerich & Bradsby purchased their own stress wave timer equipment. They are currently running tests with this device to evaluate bat billets from different locations.
- o I have also analyzed data to recommend alternative species to hard maple (a problem species because of its fracture characteristics).
- o I’ve made presentations regarding wood drying and the impact of different methods and temperatures on wood strength. I’ve made recommendations for kiln drying schedules and drying methods.
- o I’ve made recommendations regarding impact strength and billet selection procedures.

Advisor to members of the Kentucky chapter of the National Kitchen and Bath Association (NKBA) to train them regarding moisture content issues in cabinet installations (2007 to 2011). Sometimes information sessions have developed from requests to help solve problems. As examples:

- o I worked to troubleshoot a wood moisture-related \$1 million cabinet installation of Chinese-sourced cabinets in Louisville for a major cabinet supplier and his customer, one of the best-known cabinet installers in Kentucky.
- o In collaboration with Kentucky NKBA members, I’m developing larger-group training programs about several issues: moisture monitoring and control, the significance of these issues to quality installations and sales/installation profitability.
- o I have provided low-cost humidity and temperature monitoring devices to several NKBA members for site evaluation measurements during installation.

Forensic advisor and trainer. 2008. I examined wood evidence and trained one forensic examiner in wood examination and identification at the Kentucky Central Laboratory Facility (State Criminalistics Laboratory) regarding identification of samples submitted as evidence in murder trial, Madisonville, KY.

I’ve had several separate requests for information about the absorbency of wood shavings for animal bedding – both for horses and hamsters! In the Summer of 2008, in collaboration with Dr. Jeffrey Bewley, a Dairy Extension Specialist at the

University of Kentucky, these absorbency studies were extended to serve the needs of progressive dairy farmers in Kentucky for cow bedding.

Instigator and Organizer, Regional Wood Industry Extension Development. 2006 to date.

- o I initiated a two-day meeting for state and federal wood products Extension-type professionals in the Fall of 2006. Fifteen attendees participated from states ranging from Ohio to Louisiana.
- o I initiated an email listserv connection to let similarly-minded professionals in the Southeast interact with each other and consult each other's expertise.
- o At my suggestion, in the Summer of 2008 this list was expanded to serve a nation-wide group of similar professionals.

Founding member, Core Leadership Team for eXtension project, Forest-Based Biomass. Team Leader for FAQ portion and Ask the Expert portions of the Community of Practice. 2009 to date.

Public Service, Science Fair Judge. Liberty Elementary School, Lexington, KY. January 15, 2009.

Public Service, Cincinnati Art Museum. Identified wood in Pitman bed and dresser (one of the Museum's signature display pieces) as black walnut; had been controversially identified as being either mahogany or black walnut by other museums during its long public ownership and display history. I wrote a report for the Museum files, February 2009, addressed to Amy Dehan, Assistant Curator.

Forensic advisor. I examined wood evidence on behalf of Larry Osborn (WVU) and the West Virginia State Police concerning an investigation into a murder. July, 2009.

Reviewer, Professional Journals: Forest Products Journal, Holzforschung, Wood and Fiber Science, Journal of Pulp and Paper Science, Tappi Journal, Food Structure, Scanning Microscopy, Journal of Forensic Sciences, Progress in Paper Recycling, Environmental Science and Technology, Applied Surface Science, Industrial and Engineering Chemistry Research, Bioresource Technology, International Wood Products Journal.

USDA Competitive Grants program reviewer (2003 and 2013).

Public Service, Science Fair Judge. Liberty Elementary School, Lexington, KY. Annual, 2010 to date.

Other examples of wood identification services:

- Gave invited presentation to Auburn University about wood and paper forensics
- Worked with West Virginia specialist to verify results of wood identification of sample used in murder investigation

AWARDS AND HONORARY SOCIETIES

RESEARCH AWARDS:

- ***George G. Marra Award of Excellence***, 1989. This was presented by the Society for Wood Science and Technology for the best paper published in the journal Wood and Fiber Science in 1988, based upon criteria of research quality and writing clarity.
- ***Best Paper Award***, 1993. Awarded by Tappi at the Tappi Engineering Conference. Paper presented at the 1992 Engineering Conference (“Dynamic measurements of stratified consolidation in a press nip”) was chosen from over 100 papers based on factors such as “newness, breadth of interest, non-commercialism of the material (*i.e.*, as opposed to a vendor’s presentation), and potential impact on the pulp and paper engineering community.
- ***Wood Award, 2nd Place***, 1999. A paper I co-authored with Jong-Bum Ra and Dr. H.M. Barnes, “Determination of boron diffusion coefficients in wood,” won the 2nd place in the Annual Wood Award competition sponsored by the Forest Products Society.
- ***Research Recognized by the American Forest and Paper Association***, 2001. My research project “Radiofrequency-induced VOC pre-extraction from softwood lumber” was chosen to be highlighted by the American Forest and Paper Association (AF & PA) as an example of successful research for the 4th Biennial Industrial Energy Efficiency Symposium and Exposition sponsored by the Department of Energy Office of Industrial Technologies (*a.k.a.* the OIT Exposition) held in Washington, D.C., February 19–22, 2001.

SERVICE RECOGNITION:

- ***Mississippi State University College of Forest Resources Service Award***, 1996. This award was given for “Demonstrated planning, organization, and implementation of innovative programs designed to educate the public in a non-university setting.” (In other words, this was given for the Wood Magic Science Fair.)
- ***Mississippi Public Educator’s Forum Award***, 1996. This is a state-wide, competitive award program. The award was accepted on behalf of the Forest Products Laboratory for the Wood Magic Science Fair.
- ***Mississippi Public Educator’s Forum Award***, 1998. This is a state-wide, competitive award program. The award was accepted on behalf of the Forest Products Laboratory for the Wood Magic Science Fair Mobile Program.
- ***USDA Award for Superior Service, 2001***. This award was given “for an innovative program which teaches the importance and use of wood as a renewable raw material in our lives within a science fair format” (*i.e.*, The Wood Magic Science Fair), awarded by the US Secretary of Agriculture in a ceremony in Washington, D.C., June

2001.

- ***USDA Group Honor Award for Excellence, 2001.*** Presented by the US Secretary of Agriculture for the Wood Magic Science Fair, June 2001.
- ***USDA Cooperative State Research, Education and Extension Service Certificate of Appreciation, 2001.*** Presented by the Administrator of the USDA Cooperative State Research, Education, and Extension Service (CREES) for the Wood Magic Science Fair, June 2001.
- ***NAE4-H Specialty Award, 2014.*** Award for Excellence in Natural Resources Programming, SPA13-0314. Kim Whitson (Laurel County 4-H Agent, London, KY) winner, T.E. Conners, Collaborator.

TEACHING RECOGNITION:

- ***Nominated for the School of Forest Resources Teaching Award,*** Mississippi State University, 1995

HONORARY SOCIETIES:

- ***Society of Xi Sigma Pi,*** the Forestry Honorary Society
- ***Phi Sigma,*** the Biology Honorary Society

PROFESSIONAL SOCIETIES, ACTIVITIES, OFFICES HELD:

- Member, Forest Products Society (FPS) (1977 to date.)
- Member, Society of Wood Science and Technology (SWST) (1974 to date.)
 - Member, Policy and Critical issues Committee, 2008 to date
- Railway Tie Association (RTA) (2002 to date)
 - Member, Education Committee (2003 to date)
 - Member, Strategic Planning Committee (2005 to 2006)
- Member, Technical Association of the Pulp and Paper Industry (TAPPI) (1985–2001)
- Member, Microscopy Society of America (MSA) (1985–1995)
- Member, TAPPI Coating Fundamentals Committee (1985–2001)
- Member, TAPPI Pulp Properties Committee (1985–1997)

- Chair-Elect, Forest Products Society Mid-South Section, 1995–1996
- Section Chair, Forest Products Society Mid-South Section, 1996
- Chairman, SWST Education Committee 1994–1995
- Chairman, Pulp and Paper TIG, Forest Products Society, 1994–1996
- Vice-Chairman, Wood Physics TIG, Forest Products Society 1994–1995

- Ex-officio member, SWST Accreditation Committee, 1994–1995

Member, ASTM Committee D06, D06.40 and D06.50; Terminology, Paper and Paperboard Task Groups on Recycled Fibers, Effects of Aging (Task completed)

Associate Forester (equivalent to Vice President/Treasurer) of the National Office of Xi Sigma Pi, the National Forestry Honorary Society 6/92–6/94

Kimberly-Clark representative to ESPRA (Empire State Paper Research Association), 9/96–12/97

Co-Advisor, Mississippi State University Student Chapter of the Society of Xi Sigma Pi 9/94–9/96

Member, Faculty Awards Selection Committee, to select winners of the 1998 Mississippi State University Alumni Association Service Award.

Advisor, Forestry and Wildlife Club, University of Kentucky, 2003–date. Take students to National SAF meetings (2009) and Southeast Forestry Conclave competitions (2007, 2008, 2010, 2011, 2012, 2013, 2014).

Member, County Review Team for Knott, Harlan and Bell Counties (Fall, 2006 and early 2007)

Member, College of Agriculture Faculty Council, 2007–2009.

Chairman, College of Agriculture Faculty Council, 2008–2009.

Member, University of Kentucky Senate 2009–2014 (two-year term plus three year term).

Editorial Board Member, International Wood Products Journal. A new journal published by Maney Publishing, 2009–date.

SWST Critical Issues Committee, 2010–2011.

SWST, Director of the Society. Elected office, 2012–2014.

Chairman, SWST Strategic Planning Committee, 2013–2014.

RECENT GRANTS AND CONTRACTS

Department of Energy award, 2003–2006. Implementing Strategies for Drying and Pressing Wood Without Emissions. Co-PI with Dr. Sujit Banerjee, Institute of Paper Science and Technology (a part of Georgia Tech as of July 1, 2003), Atlanta, Georgia. Total project budget of \$840,000 (initial award was for \$1.1 million dollars but due to budget constraints this amount was reduced).

Southern Forest Research Partnership, 2008. \$17,000 awarded for Biomass Education. Proposal was co-authored by Dr. Jeffrey Stringer. 1/1/08–8/1/08.

Railway Tie Association Travel grant to attend the 2008 Annual Meeting in Savannah, GA (10/26–31/08)

USDA Forest Service. 2009. \$80,000 awarded for “Long-lived wood products: Carbon and competitive advantages for hardwood mills.” Co-PI with J. Stringer, UK Forestry 6/09–6/12.

Marco Antonio Contreras
Assistant Professor of Forest
Management

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Phone: (406) 257-5666 • Fax: (859) 323-1031

Website: <http://www.ca.uky.edu/forestry/contreras.php>

EDUCATION

- 2010 Ph.D. in Forestry (Forest Operations Planning) College of Forestry and Conservation University of Montana, Missoula, MT, USA.
- 2006 M.S. in Forestry (Forest Transportation Planning); College of Forestry and Conservation; University of Montana, Missoula, MT, USA.
- 2003 B.S. in Forest Sciences (Harvesting and Management); Facultad de Ciencias Forestales; Universidad de Talca, Talca, Región del Maule, Chile

FIELD OF INTEREST

Forest operations planning, transportation planning, road network design, combinatorial optimization, algorithm design and analysis, decision support systems, GIS applications.

ACADEMIC APPOINTMENTS

- Jul. 2011 – present Assistant Professor of Forest Management
Department of Forestry, College of Agriculture
University of Kentucky, USA
- Dec. 2010 – Jun. 2011 Postdoctoral Researcher
Department of Forest Management – USDA Forest Service (RMRS)
University of Montana, USA
- Jan. 2004 – Nov. 2010 Graduate Research Assistant
Department of Forest Management
University of Montana, USA

TEACHING EXPERIENCE

University of Kentucky – Principal Instructor

- Spring 2015- 2012 FOR 357 Forest Inventory and Measurements II
- Fall 2013- 2012 FOR 330 GIS and Spatial Analysis
- Fall 2014-2012 FOR 425 Forest Management

University of Montana – Teacher Assistant

Spring 2009, Fall 2008 FOR 250 GIS Practicum
Spring 2008, 2006 FOR 303 Introduction to Geographic Information
Systems
Fall 2007, 2006 FOR 480 Project Design and Analysis
Summers 2006, 2005, 2004 FOR 200 Natural Resources Measurement Camp
Spring 2005 FOR 481 Forest Planning

Universidad de Talca – Teacher Assistant

Fall 2002 FE 543 Forest
Transportation Spring 2002 FE 541
Harvesting Systems Spring 2000 FE 382
Mensuration II
Fall 2000 FE 381
Mensuration I Fall 1998 FE 102
Chemistry

PROFESSIONAL EXPERIENCE

May 2003 – Nov. 2003 Thinning operations supervisor
Forestal San Sebastian, Cauquenes, Chile.
Duties: Supervising clearing and commercial thinning operations,
monitoring tree removal levels, residual damage, and production
activities.

Jan. 2003 – April 2003 Forest planning intern
Forestal CELCO, Constitución, Chile.
Duties: Locating log-landing locations for ground-based logging
operations, monitoring forest inventory practices.

PERTINENT SKILLS

- Simulation and modeling, spatial analysis
- Computer programming: C, VB, Matlab
- Statistical packages: R, SPLUS
- GIS: ESRI (ArcMap, ArcInfo), LiDAR

AWARDS

2010 IUFRO Student Award for Excellence in Forest Sciences
IUFRO XXIII World Congress, Seoul, South Korea

2005 Student Communication Award
Council of Forest Engineering (COFE), USA

2003 Funding Program for Bachelor's Thesis
Provincial Government–Universidad de Talca, Chile

LANGUAGES

Spanish and English

FUNDED RESEARCH PROJECTS

1. Lacki, M.J., Stringer, J.W., Lhotka, J.M., Dodd, L.E., **Contreras, M.** 2014. Effect of silvicultural treatments on vertical stand structure in forested ecosystems of the Appalachian Mountain Region: Implications for foraging and roosting behavior of *Myotis* bats during the staging, maternity, and swarming seasons. Forestland Group LLC. \$150,000. 2014-2016. Co- Principal Investigator.
2. Stringer, J.W., **Contreras, M.** 2014. Developing a web-based application to generate automated access routes from timber harvesting sites to emergency personnel locations. Central Appalachian Regional Education & Research Center (CARERC), University of Kentucky. \$9,638. 03/2014 – 06/2014. Principal Investigator.
3. **Contreras, M.** 2013. Evaluating the use of light detection and ranging (LiDAR) information to improve forest management decisions. McIntire-Stennis (KAES13-03). \$90,492. 2013-2018. \$90,492. Principal Investigator.
4. **Contreras, M.** 2011. OptFuels: Optimizing fuel treatment location at the landscape level. US Forest Service, Rocky Mountain Research Station (RMRS) and the University of Montana. \$30,000. 2011-2012. Principal Investigator.

PUBLICATIONS*Peer-reviewed publications:*

1. Lin, P., Zhang, J., **Contreras, M.** 2015. Automatically configuring ACO using multilevel ParamILS to solve transportation planning with underlying weighted networks. *Swarm and Evolutionary Computation* 20:48-57.
2. Nepal, S., **Contreras, M.**, Lhotka, J.M., Stainback, G.A. 2014. A spatially explicit model to identify suitable sites to establish dedicated woody energy crops. *Biomass and Bioenergy* 71:245-255.
3. Lin, P., Zhang, J., **Contreras, M.** 2014. Applying Pareto ant colony optimization to solve bi- objective forest transportation planning problems. *In Proceedings: The 15th Institute of Electrical and Electronics Engineers (IEEE) International Conference on Information Reuse and Integration (IRI)*. Sand Francisco, CA, USA.
4. Vallejos-Barra, O., Daniluk-Mosquera, G., Moras, G., Ponce-Donoso, M., **Contreras, M.** 2014. Above-ground carbon absorption in young *Eucalyptus globulus* plantations in Uruguay. *Scientia Forestalis* v.42, n.101, p.9-19.

5. Chung, W., Jones, G, Krueger, K., Bramel, J., **Contreras, M.** 2013. Optimizing fuel treatments over time and space. *International Journal of Wildland Fire* 22(8):1118-1133.
6. **Contreras, M.**, Chung, W. 2013. Developing a computerized approach for optimizing tree removal to efficiently reduce crown fire potential. *Forest Ecology and Management* 289(1):219-233.
7. **Contreras, M.**, Aracena, P., Chung, W. 2012. Improving accuracy in earthwork volume estimation for proposed forest roads using a high-resolution digital elevation model. *Croatian Journal of Forest Engineering* 33(1):125-142.
8. **Contreras, M.**, Parsons, R., Chung, W. 2012. Modeling tree-level fuel connectivity to evaluate the effectiveness of thinning treatments for reducing crown fire potential. *Forest Ecology and Management* 264(2):134-149.
9. **Contreras, M.**, Affleck, D., Chung, W. 2011. Evaluating tree competition indices as predictors of basal area increment in western Montana forests. *Forest Ecology and Management* 262(12):1939-1949.
10. **Contreras, M.**, Chung, W. 2011. A modeling approach to estimating skidding costs for individual trees for thinning operations. *Western Journal of Applied Forestry* 26(3):133-146.
11. **Contreras, M.**, Chung, W., Jones, G. 2008. Applying ant colony optimization meta-heuristic to solve forest transportation planning problems with side constraints. *Canadian Journal of Forest Research* 38(11):2896-2910.
12. **Contreras, M.**, Chung, W. 2007. A computer approach to finding an optimal log landing location and analyzing influencing factors for ground-based timber harvesting. *Canadian Journal of Forest Research* 37(2):276-292.

Book Chapters:

1. Chung, W., **Contreras, M.** 2011. Forest transportation planning under multiple goals using ant colony optimization. *In Ant Colony Optimization - Methods and Applications*, Avi Ostfeld (Ed.), ISBN: 978-953-307-157-2, InTech, Available from: <http://www.intechopen.com/articles/show/title/forest-transportation-planning-under-multiple-goals-using-ant-colony-optimization>

Non peer-reviewed publications (conference proceedings):

1. Parrot, D.L., **Contreras, M.** 2014. Comparison of operator-designed and computer-generated skid-trail networks. In Proceedings: “Global Harvesting Technology” of the Council of Forest Engineering (COFE). 37th Annual Meeting. Moline, IL, USA.
2. Nepal, S., **Contreras, M.**, 2013. A GIS-based approach to identify suitable locations for bioenergy plantations in northern Kentucky. *In proceedings: “Forest Operations for a Changing Landscape”* of the Council of Forest Engineering (COFE). 36th Annual Meeting. Missoula, MT, USA.
3. Lin, P., **Contreras, M.**, Zhang, J., Chung, W. 2013. Applying ant colony optimization to solve constrained forest transportation planning problems. *In*

- proceedings*: “Forest Operations for a Changing Landscape” of the Council of Forest Engineering (COFE). 36th Annual Meeting. Missoula, MT, USA.
4. **Contreras, M.**, Chung, W. 2010. Optimizing tree-level removal to efficiently minimize crown fire hazard. Abstract *In* Forests for the Future: Sustaining Society and the Environment. Parrotta, J.A. and M.A. Carr (Eds). The International Forestry Review 12(5):312. XXIII IUFRO World Congress. 23-28 August 2010, Seoul, Korea.
 5. Aracena, P., **Contreras, M.**, Chung, W. 2010. Optimizing multiple log landing locations for ground-based timber harvesting. Abstract *In* Forests for the Future: Sustaining Society and the Environment. Parrotta, J.A. and M.A. Carr (Eds). The International Forestry Review 12(5):312. XXIII IUFRO World Congress. 23-28 August 2010, Seoul, Korea.
 6. **Contreras, M.**, Chung, W. 2009. Designing skid-trail networks to minimize skidding cost and soil disturbances. *In proceedings*: “Environmentally Sound Forest Operations” of the Council of Forest Engineering (COFE). 32th Annual Meeting. Kings Beach (Lake Tahoe), California, USA.
 7. Chung, W., Aracena, P, **Contreras, M.** 2008. Optimization Techniques for forest transportation planning under multiple goals. Abstract in 2008 INFORMS (Institute For Operations Research and the Management Sciences) Annual Meeting, Washington, DC, October 12-15, 2008
 8. Chung, W., **Contreras, M.** 2008. Techniques for transportation planning under multiple goals. *In Proceedings of IUFRO All-D3-Conference: Pathways to Environmentally Sound Technologies for Natural Resource Use*, June 15-20, 2008, Sapporo, Japan.
 9. **Contreras, M.**, Chung, W. 2006. Ant colony optimization meta-heuristic applied to solve forest transportation planning problems. In proceeding: “Working Globally – Sharing Forest Engineering Challenges and Technologies around the World” of the Council of Forest Engineering (COFE). 29th Annual Meeting. Coeur d’Alene, Idaho, USA.
 10. **Contreras, M.**, Chung, W. 2005. A computerized method to find the optimal location of a centralized log landing and evaluate its influencing factors. In proceedings: “Soil, Water and Timber Management: Forest Engineering Solutions in Response to Forest Regulations” of the Council of Forest Engineering (COFE). 28th Annual Meeting. Fortuna, California, USA.

Presentations and Posters:

1. Staats, W., **Contreras, M.** 2014. LiDAR-derived forest canopy metrics and their influence on spatial distribution of plethodontid salamander populations. Presented at the 24th IUFRO World Congress and SAF national convention, October 5 – 11, 2014, Salt Lake City, USA.
2. **Contreras, M.**, Chung, W. 2014. Optimizing the selection of individual trees in thinning treatments to reduce crown fire potential. Presented at the 24th IUFRO World Congress and SAF national convention, October 5 – 11, 2014, Salt Lake City, USA.

3. **Contreras, M.**, Parrott, D., Stringer, J.W. 2014 Quantifying potential benefits of implementing computer generated skid trail networks. Presented at the 24th IUFRO World Congress and SAF national convention, October 5 – 11, 2014, Salt Lake City, USA.
4. Lin, P., Zhang, J., **Contreras, M.** 2014. Applying Pareto ant colony optimization to solve bi- objective forest transportation planning problems. Presented at the 15th IEEE International Conference on Information Reuse and Integration (IRI). August 13-15, Sand Francisco, CA, USA.
5. **Contreras, M.** 2014. Announcement of the 2015 annual meeting of the Council on Forest Engineering in Lexington, Kentucky. Presented at the Council of Forest Engineering (COFE). 37th Annual Meeting. June 22-25, 2014, Moline, IL, USA.
6. Parrot, D.L., **Contreras, M.** 2014. Comparison of operator-designed and computer-generated skid-trail networks. Presented at the Council of Forest Engineering (COFE). 37th Annual Meeting. June 22-25, 2014, Moline, IL, USA.
7. Nepal, S., **Contreras, M.**, 2013. A GIS-based approach to identify suitable locations for bioenergy plantations in northern Kentucky. Presented at the Council of Forest Engineering (COFE). 36th Annual Meeting. July 7-10, 2013, Missoula, MT, USA.
8. Lin, P., **Contreras, M.**, Zhang, J., Chung, W. 2013. Applying ant colony optimization to solve constrained forest transportation planning problems. Presented at the Council of Forest Engineering (COFE). 36th Annual Meeting. July 7-10, 2013, Missoula, MT, USA.
9. **Contreras, M.** 2012. Uso de datos LiDAR en la planificación de operaciones forestales [Use of LiDAR information in forest operations planning]. Presented at the International Seminar: “Environmental considerations in the planning of timber harvesting in Chile”, College of Forest Sciences, Universidad de Talca. August 8th Talca, Chile.
10. **Contreras, M.**, W. Chung, G. Jones, K. Krueger. 2012. A modeling approach to identify the appropriate size of fuel treatments. Poster presented at the Society of American Foresters 2012 National Convention, October 24-28, 2012, Spokane, WA.
11. Chung, W., **M. Contreras.** 2011. An approach to optimize individual cut-tree selection to efficiently reduce crown fire potential within a stand. Presented at a special seminar at the University of Ryukyus, April 26th, 2011, Okinawa, Japan.
12. **Contreras, M.**, W. Chung. 2011. Optimizing individual cut-tree selection to efficiently reduce crown fire potential within a stand. Presented at the 14th Symposium for Systems Analysis in Forest Resources. March 8 – 11, 2011, Maitencillo, Chile.
13. **Contreras, M.**, W. Chung. 2010. Optimizing tree-removal to efficiently minimize crown fire hazard. Presented at the 23rd IUFRO World Congress, August 23 – 28, 2010. Seoul, South Korea.
14. Aracena, P., **M. Contreras**, W. Chung. 2010. Optimizing multiple log landing locations for ground-based timber harvesting. Poster presented at the 23rd IUFRO World Congress, August 23 – 28, 2010. Seoul, South Korea.

15. **Contreras, M., W. Chung.** 2009. Designing skid-trail networks to minimize skidding cost and soil disturbances. Presented at the Council of Forest Engineering (COFE) 32th Annual Meeting. Kings Beach (Lake Tahoe), California, USA.
16. **Chung, W., M. Contreras.** 2008. Techniques for transportation planning under multiple goals. Presented at IUFRO All-D3-Conference: Pathways to Environmentally Sound Technologies for Natural Resource Use, June 15-20, 2008, Sapporo, Japan.
17. **Contreras, M., W. Chung.** 2006. Using ant colony optimization metaheuristic in forest transportation planning. Presented at the Council on Forest Engineering (COFE) 29th Annual Meeting. July 30-Aug. 2, Coeur d'Alene, ID.
18. **Contreras, M., W. Chung.** 2005. A computerized method to find the optimal location of a centralized log landing and evaluate its influencing factors. Presented at the Council on Forest Engineering (COFE) 28th Annual Meeting. July 11-14, Fortuna, CA.
19. **Contreras, M., W. Chung.** 2005. An application of ant colony optimization metaheuristic to solve forest transportation planning problems with side constraints. Poster presented at the Council on Forest Engineering (COFE) 28th Annual Meeting. July 11-14, Fortuna, CA.

PROFESSIONAL MEMBERSHIPS

- SAF – Society of American Foresters
- COFE – Council of Forest Engineering
- INFORMS – Institute for Operations Research and Management Sciences
- SIAM – Society of Applied and Industrial Mathematics

PROFESSIONAL SERVICES

National and International Service

- Chairman of the Council on Forest Engineering (COFE) (June 2014 - present)
- Deputy coordinator, Division 3.01.01 – Road Networks and Transportation, International Union of Forest Research Organizations (IUFRO), (June 2014 - present)

Scholarly Review

Forest Science
 Remote Sensing
 Southern Journal of Applied
 Forestry Croatian Journal of
 Forest Engineering Journal of
 Mountain Science
 Earth Interactions Journal

John J. Cox

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e-mail: jjcox@uky.edu

EMPLOYMENT

Present Position: **Assistant Professor of Wildlife Ecology and Conservation Biology**
(7/2013-present)

Institution: **University of Kentucky Department of Forestry**

Duties: Conduct wildlife/conservation-related research (70% appointment); teach wildlife and conservation biology-related courses (30% appointment).

Position: **Adjunct Assistant Professor of Wildlife and Conservation Biology**
(10/2006-6/2013); **Research Scientist III** (2009-2013); Research Scientist II
(2006-09); Research Scientist I (2004-2006); Research Coordinator and Site
Manager, University of Kentucky Griffith Woods Natural Area (2005-09)

Institution: **University of Kentucky Department of Forestry**

Duties: Conduct wildlife/conservation-related research, procure research funding, committee service, mentor undergraduate and graduate students. As overload or volunteer, teach conservation biology and other wildlife and conservation-oriented courses. As research coordinator and site manager of Griffith Woods, coordinate research and other activities, site infrastructure and vehicle maintenance, remove exotic species, reintroduce native species, conduct academic and public outreach.

Position: Research Assistant-Doctoral Graduate Student (4/99-12/03)

Institution: **University of Kentucky Department of Forestry**

Duties: Conduct research on radio-collared white-tailed deer, elk, and coyotes

Position: **Wildlife Technician** (8/1998-4/1999)

Organization: **Kentucky Department of Fish and Wildlife Resources**
#1 Sportsman's Lane. Frankfort, KY 40601

Duties: Trapped and translocated ruffed grouse and white-tailed deer in Kentucky.

Assisted elk

biologist during elk recapture efforts and refitting of radio-collars

Position: **Research Assistant** (7/1997-7/1998)

Institution: University of Cincinnati, Department of Molecular and Cellular Physiology,
Cardiovascular Center, Cincinnati, OH

Duties: Molecular biology research on vitamin D steroid receptor pathways

Position: **Graduate Assistant** (8/1995-5/1997)

Institution: Morehead State University, Dept. Biological and Environmental Sciences

Duties: G.A. for Biology 171L, Ecology 461, Limnology 535, Animal Physiology 450L

EDUCATION

Degree: **Ph.D., Animal Sciences**, 12/2003

Location: **University of Kentucky** (1999-2003)

Dissertation: Community dynamics among reintroduced elk, white-tailed deer, and coyotes in southeastern Kentucky.

Location: **University of Cincinnati** (7/1997-7/1998), University of Cincinnati Dept. Molecular and Cellular Physiology doctoral program, Cincinnati, OH 45220

Research: Trans-activation of vitamin D steroid receptors; no degree.

Degree: **M.S., Biology**, 8/1997

Location: **Morehead State University** (1995-1997)

Thesis: Detection of hybridization events between the coyote, *Canis latrans*, and the domestic dog, *Canis familiaris*, in Kentucky using two polymorphic microsatellite loci and cranial morphometric analysis.

Degree: **B.S., Major Biology/Minor Chemistry**, 8/1995

Location: **Morehead State University** (1988, 1990-1995)

Degree: Commonwealth Diploma, 1990

Location: West Carter High School

CURRENT RESEARCH (Advisor or co-advisor for 13 students at UK; 8 M.S., 5 Ph.D.)

- Survival, cause-specific mortality, and social dynamics of cow elk (w/ Dr. Phil Crowley); Ms. Brittany Slabach (Ph.D. student, Biology)
- Resource selection, survival, and cause-specific mortality of bull elk in southeastern Kentucky (2010-present w/ Dr. Kristina Brunjes); Mr. John Hast (Ph.D. candidate, Animal and Food Science).
- Survival and cause-specific mortality of white-tailed deer in southeastern Kentucky (2013-present w/ Dr. Kristina Brunjes); Mr. Caleb Haymes and Mr. Joe McDermott (M.S. graduate students).
- Disease profile of a recently reintroduced elk in southeastern Kentucky (2010-present, w/ Dr. Aaron Hecht, Dr. Kristina Brunjes); Ms. Alejandra Betancourt (M.S. student, Forestry), Mr. John Hast (Ph.D. candidate, Animal and Food Science)
- Characterization of elk body condition and its relationship to capture, handling, and translocation (2011-present); Mr. Aaron Hildreth (M.S. student, Forestry)
- Population ecology of black bears in eastern Kentucky (2008-present); Mr. Sean Murphy (Ph.D. candidate, Animal and Food Science w/ Mr. Steven Dobey)
- Prevalence of toxoplasmosis in black bears of Kentucky and southcentral Florida (2010-present); Mr. Sean Murphy (Ph.D. candidate, Animal and

Food Science w/ Mr. Steven Dobey)

- Road ecology, resource selection, and demographics of a threatened black bear subpopulation in south-central Florida (2008-present); Mr. Wade Ulrey, research scientist
- Comparative evaluation of select mesocarnivore population monitoring techniques in Kentucky (2008-present; w/ Dr. Matt Dzialak); Mr. Bryan Tom (M.S. student, Forestry)
- Ecology of the timber rattlesnake on reclaimed surface mines in Appalachia (w/ Dr. Chris Barton, Dr. Steven Price); Mr. Tom Maigret (M.S. student, Forestry)
- Distribution and relative abundance of the common raven in southeastern Kentucky; Recolonization dynamics of ravens in Appalachia (2008-present; w/ Dr. Matt Dzialak); Mr. Josh Felch (M.S. student, Forestry)
- Effects of herbivory, competition, and fire on select trees of the Inner Bluegrass (2008-present; w/ Dr. John Lhotka and Dr. Scott Gleeson); Mr. Jim Shaffer (M.S. student UK Biology)
- Effects of timber harvest on salamanders in a mixed-mesophytic forest (2005-present; w/ Dr. Chris Barton and Dr. Jeffery Larkin); Mr. Tom Maigret (M.S. student, Forestry)
- Effects of timber harvest on breeding bird communities in a mixed-mesophytic forest (2005-present; w/ Dr. Jeffery Larkin and Dr. Chris Barton)
- Prevalence of chytrid fungus on select salamander species in southeastern Kentucky; (2012-present; w/ Dr. Stephen Price and Dr. Chris Barton); Ms. Sarah Hamilton (M.S. student, Forestry).
- Tick species composition and relative abundance on elk in southeastern Kentucky (undergrad NRES internship, Jansen Cunningham)
- Evaluation of elk as potential vectors of invasive plant species in eastern Kentucky forests; Ms. Patricia Regard (M.S. student, Forestry)

GRANTS

Extramural Grants Awarded

- “Survival, cause-specific mortality, and natality of white-tailed deer in southeast Kentucky.” \$282,400. July 2013-June 2015. Kentucky Dept. Fish and Wildlife Resources.
- “Does logging and surface mining increase the vulnerability of stream-associated salamanders to chytrid fungus infection?” 2013. \$5,000. Kentucky Water Resources Research Institute.
- “Assessing ecological connectivity and genetic structuring of Southcentral Florida black bears.” \$25,000. Disney Worldwide Conservation Fund. 2013.
- “Cow elk survival, cause-specific mortality, natality, and neonate recruitment in southeastern Kentucky” July 2013-June 2015. \$54,000. Rocky Mountain Elk Foundation.
- “Resource selection, survival, and cause-specific mortality of bull elk in southeastern Kentucky. July 2013-June 2014. \$55,000. Kentucky Dept. Fish and Wildlife Resources
- “Population growth and expansion of black bears in Kentucky.” July 2013-

June 2014. \$93,000. Kentucky Dept. Fish and Wildlife Resources.

- “Survival and cause-specific mortality of cow elk in southeastern Kentucky.” Nov. 2012-14. \$17,879. Rocky Mountain Elk Foundation.
- “Southcentral Florida black bear conservation.” \$25,000. Disney Worldwide Conservation Fund. Sept 2011.
- “Characterization of disease risk in a recently established elk population in Kentucky: implications for herd management and regional metapopulation dynamics. 2012-13. \$63,000. Rocky Mountain Elk Foundation.
- “Population growth and expansion of black bears in Kentucky.” July 2011-June 2013. \$180,000. Kentucky Dept. Fish and Wildlife Resources.
- “Resource selection, survival, and cause-specific mortality of bull elk in southeastern Kentucky.” Sept 2010-Sept 2012. \$29,500. Rocky Mountain Elk Foundation. Note these funds were administered thru KDFWR only.
- “Population dynamics and movement ecology of the black bear in eastern Kentucky.” July 2010-June 2011. \$90,000. Kentucky Dept. Fish and Wildlife Resources.
- “Resource selection, survival, and cause-specific mortality of bull elk in southeastern Kentucky. July 2010-June 2015. \$287,500. Kentucky Dept. Fish and Wildlife Resources (check amounts)
- “Population estimation and genetic diversity of black bear in Highlands and Glades Counties Florida.” \$120,000. Florida Fish and Wildlife Conservation Commission.” May 2010-June 2013.
- “Dispersal and population expansion of the black bear in eastern Kentucky.” July 2009-June 2010. \$107,000. Kentucky Dept. Fish and Wildlife Resources (KDFWR).
- “Gray fox ecology and monitoring in Kentucky.” \$66,000. USDA CSREES. October 2008-September 2011. Co-Principal Investigator with M. Dzialak.
- “Harnessing cell phone technology to track the black bear in eastern Kentucky. \$59,732. USDA CSREES. October 2008-September 2011. Co-Principal

Investigator

with S. Fei and D. Maehr.

- “Calf survival, meningeal worm impacts, dispersal, and population expansion in an eastern Kentucky elk herd.” July 2008-June 2009. \$70,000. KDFWR. Co-

Principal

Investigator with D. Maehr.

- “Dispersal and population expansion of the black bear in eastern Kentucky.” July 2008-June 2009. \$98,000. KDFWR. Co-Principal Investigator with D. Maehr.
- “Ecological monitoring initiative at Griffith Woods.” \$66,262. USDA Hatch. October 2007-June 2008. Co-Principal Investigator with C. Barton and M. Lacki.
- “The common raven in cliff habitat: detectability and occupancy.” \$60,000. USFWS,

- Dzialak.
- KDFWR STWG. July 2007-June 2008. Co-Principal Investigator with M.
 - “Bluegrass Invasive Species Partnership Initiative.” \$30,000. NFWF. January 2006-December 2007. Co-Principal Investigator with B. Thomas and J. Campbell.
 - “Bluegrass Savanna-Woodland Restoration.” \$41,500. Kentucky Land Heritage Conservation Fund Board. July 2007-June 2008. Co-Principal Investigator with P. Crowley.
 - “Evaluation of infrared technologies for estimating black bear and elk populations in Kentucky.” \$39,913. USDA CSREES; \$45,000, Turner Foundation; \$10,000, Rocky Mountain Elk Foundation. October 2006-September 2009. Co-Principal Investigator with K. Alexy, D. Unger, D. Maehr, and J. Larkin.
 - “Effects of elk on soil nutrients and vegetation in southeastern Kentucky.” \$10,500 Rocky Mountain Elk Foundation. July 2003-June 2005. Co-Principal Investigator with D. Maehr, C. Rhoades, and J. Larkin.
 - “Elk calf ecology in Kentucky.” \$27,400. Earthwatch Institute May-October 2002-2003; \$8,500, Durfee Foundation (June 2002). Co-Principal Investigator with D. Maehr and J. Larkin

Intramural Grants Awarded

- “Wildlife and Conservation Biology Courses.” \$6,000. Teaching Innovation Incentive Fund. University of KY Dept. of Agriculture and Food Science. 2013-14.
- “Detecting hybridization events in wild Kentucky canids.” \$1,260. Roger W. Barbour Fund for Vertebrate and Field Research, Morehead State University. 1996.

Extramural Grants Submitted (Not funded)

- Bears behaving badly: does toxoplasmosis infection increase neophilic behavior? 1/14. \$30,000, Kentucky Science and Engineering Foundation

TEACHING

University of Kentucky (2001-present; *indicates overload or teaching outside official duties)

- 2009 Class, University Academy of Teaching and Learning Scholars
- Forestry 101: (3 hrs) Introduction to Wildlife Conservation (Fall 2014)
- Forestry 101*: (3 hrs) Introduction to Wildlife Conservation (Fall 2005-10) correspondence course
- Forestry 230/315*: (3 hrs) Conservation Biology (Spring 2008-10; Fall 2010-14; co-instructor/guest lecturer 2003-07)

- Forestry 356: Principles of Forest Wildlife Management (1 hr) (Spring 2012-14)
- Forestry 599*: (3 hrs) Environmentalism: Survey of a Sociopolitical Movement (Spring 2003, Fall 2004)
- Forestry 599*: (3 hrs) Independent Work in Forestry (Spring 2008-present)
- Forestry 599*: (3 hrs) The Chihuahuan Desert: Ecology, Conservation Policy and Practice (Spring 2011)
- Forestry 599*: (3 hrs) Florida's Ecosystems: Ecology, Conservation Policy and Practice (Spring 2012)
- Forestry 599*: (3 hrs) Greater Yellowstone Ecosystem: Ecology, Conservation Policy and Practice (Spring 2013)
- Forestry 602: (3 hrs) Renewable Natural Resource Issues in a Global Perspective; (Fall 2009; co-instructor; topic: Apex predators: ecological keystones, conservation flagships)
- Forestry 770*: (1 hr) Wild Canid Ecology, Management, and Conservation (Fall 2006, 08, 10, 12, 14)
- Forestry 770*: (1 hr) Wild Felid Ecology, Management, and Conservation (Fall 2011)
- Forestry 770*: (1hr) Ecology and Management of North American Ungulates (Spring 2012)
- Forestry 770*: (1hr) Ecology and Management of Neotropical Migrant Songbirds (Spring 2013)
- Natural Resource Conservation 301*: (3 hrs.) Conservation Research and Management (Spring 2003; co-instructor w/ J. Larkin)
- Natural Resource and Environmental Science 320*: Natural Resources and Environmental Analysis (3 hrs.): Field teaching one day (5/14).
- Natural Resource Conservation 395* (3 hrs.) Independent Study (2012-14)
- Natural Resource Conservation 399*: (3 hrs.) Internship (Spring-Summer 2010-14)
- Biology 395*: Independent Research (3 hrs.) (Spring 2010-12)
- Summer Environmental Writing Program*, summer 2003-04, 06
- Earthwatch Research Program*, 8-weeks each, summers 2001-02
- Durfee Foundation High School Student Challenge Awards Program*, 2-weeks, summer 2002
- Invited lectures in: Advanced Conservation Biology, Natural Resource Conservation, Wildlife Management Techniques, Ecolunch seminar series, Carnivore Conservation and Ecology seminar, Biogeography, Wildlife Habitat Analysis, Ethics in Forestry, Conservation Biology (Indiana University of Pennsylvania 11/07, 11/09; Indiana University 4/09; Alice Lloyd College 4/09)
- Supervised over two dozen undergraduate volunteers in conducting research or invasive species removal
- Field guide for students from historically African-American colleges, Summer 2003

SERVICE

- Adjunct Assistant Professor of Wildlife Biology at Eastern Kentucky University (2010-present)
- Graduate Faculty appointment in UK Animal and Food Sciences (2010-present)
- Invited reviewer, Texas Academy of Science Grant Research Proposals (2014)
- Invited symposium panel member, “Brucellosis Science Workshop”, Yellowstone National Park, (2/25-2/28 2013)
- Invited panel member, “Florida Ecological Greenways Network” review and revision team, University of Florida, (2011-13).
- Invited symposium panel member, “Global Climate Change and the Emergence of Infectious Diseases”, University of Kentucky (12/2012).
- Invited panel member (mammal expert), Big Cypress National Preserve scientific panel on oil exploration impacts (2009-10)
- Board of editors for the journal Southeastern Naturalist (2012-present)
- The Wildlife Society Publication Awards Committee (2009-11)
- Site contact, UK Canoe Creek and Griffith Woods natural areas (2009-12)
- Department of Forestry Strategic Planning Committee (2006-present)
- Department of Forestry Chair Search Committee (2009-10)
- Department of Forestry Stream Ecologist Search Committee (2011-12)
- Department of Forestry Undergraduate Program Committee (2010-present)
- Department of Forestry Graduate Student Committee (2010-12)
- Department of Forestry Research Committee (2010-present)
- Department of Forestry T.P. Cooper Landscape Committee (2011-present)
- Griffith Woods Management and Advisory Committee (2005-2009)
- College of Agriculture Precision Resource Management Committee (2007-2009)
- Efroymsen Planning Committee, Griffith Woods (2005)
- Invited wildlife presentations and school trips at three KY grade schools
- 36 manuscripts reviewed from the following journals and books: Animal Conservation, Wildlife Society Bulletin, Wildlife Monographs, Wildlife Biology in Practice, Journal of Wildlife Management, Journal of Mammalogy, American Midland Naturalist, Restoration Ecology, Southeastern Naturalist, Journal of Soil Science and Environmental Management, Proceedings of the Central Hardwood Forest Conference, Bats in Forests: Conservation and Management (book), Essentials of Conservation Biology 6th Edition (book).

GRADUATE STUDENT ADVISING AND COMMITTEE SERVICE

- Summary Graduate Student Committees (9/2006-present = 42; *Advisor/Co-advisor = 26): Present students at UK(13): M.S. students (8): Alexandra Betancourt*, Trish Regard*, Aaron Hildreth*, Sarah Hamilton*, Josh Felch*, Joe McDermott*, Caleb Haymes*, Pavan Podapati*, Mickey Agha, Brenee Muncy, Christian Oldham, Kel Rayens, Zeb Weese, Allie Slusher; Ph.D. students (5): John Hast*, Sean Murphy*, Brittany Slabach*, Tom

Maigret*, Jim Shaffer*; Past students at UK(20): M.S. students: Tom Maigret*, Bryan Tom*, Wade Ulrey, John Hast*, Joe Guthrie*, Ben Augustine*, Shane Tedder*, Rebekah Jensen*, Sara Cilles, Willie Bowling*, Lauren Dahl*, Andrew Whittle*, Ph.D. students: Ben Augustine*, John Treanor*, Sara Martin, Nate Klar, Patricia Hartman, Erin Barding, Hannah Harris, Bridget Sousa; Past students at Eastern KY University(1): Andrea Shipman; Past students at Indiana Univ. of PA(2): Jason Kougher, Dylan Schneider

- Outside Committee Member Doctoral Students (1): Jessique Ghezzi

Graduate Student Theses, Dissertations, and Non-Thesis Graduate Research Projects (as Advisor or Coadvisor):

- Tom Maigret. 2013. Effects of streamside management zone timber harvest on salamander communities in Robinson Forest. M.S. Thesis. UK Forestry
- James Shaffer. 2013. Factors influencing the establishment and survival of native hardwood tree seedlings of the Kentucky Inner Bluegrass blue ash-oak savanna-woodland. M.S. Thesis. UK Biology.
- Joseph Guthrie. 2012. Modeling movement behavior and road crossing in the black bear of south-central Florida. M.S. Thesis. UK Forestry
- Bryan Tom. 2012. A comparison of non-invasive survey methods for monitoring mesocarnivore populations in Kentucky. M.S. Thesis. UK Forestry
- Andrea Shipley. 2012. Space use and habitat selection by bobcats in southeast Kentucky. M.S. Thesis. Eastern KY University Biology.
- John Treanor. 2012. The biology and management of brucellosis in Yellowstone bison. Ph.D. Dissertation. UK Biology.
- Shane Tedder. 2011. Black bears and giant palm weevils: an intraguild mutualism. Non-thesis research project (published in peer review journal).
- Sean Murphy. 2011. Status of a reintroduced black bear population in the Big South Fork Area of Kentucky.
- Ben Augustine. 2010. GPS bias in resource selection studies: a case study using black bears in southeastern Kentucky. M.S. Thesis. UK Forestry
- John Hast. 2010. Genetic diversity, structure, and recolonization patterns of Kentucky black bears. M.S. Thesis. UK Forestry
- Willie Bowling. 2009. Maternal antibody transfer and meningeal worm infection rates in Kentucky elk. M.S. Thesis. UK Forestry
- Rebekah Jensen. 2009. The effects of roads on space use and movements of black bears in eastern Kentucky. M.S. Thesis. UK Forestry
- Andrew Whittle. 2009. Florida panther and black bear: a road and urban avoidance/utilization analysis and impacts of land use and climate change on large carnivore habitat in Florida. M.S. Thesis. UK Forestry
- Lauren Dahl. 2008. Using forward-looking infrared radiography to estimate elk density and distribution in eastern Kentucky. M.S. Thesis. UK Forestry

UNDERGRADUATE ADVISING and MENTORING

- NRES 399 Evie Kester (2014), Jansen Cunningham (2013), Sam Sosa

(2012), Caleb

Switzer (2010), Megan English (2009)

- NRES 395 Rebecca Schwager (2014), Stratton Hatfield (2013), Kylie Schmidt (2012)

MANAGEMENT (as project manager of Griffith Woods natural area, Harrison County, KY)

- Coordinated research and ecological restoration efforts among several agencies, institutions, and local volunteer group
- Created technical documents and reports
- Managed accounts and expenditures
- Supervised an exotic plant species removal crew and resident grad student
- Participated in multi-agency meetings that evaluated research proposals
- Participated in a multi-partner task force that created a site management plan
- Represented the UK College of Agriculture in service on the Griffith Woods Management and Advisory Committee
- Conducted multiple management activities (e.g. mowing, exotic plant removal, biotic inventories)
- Supervised over three dozen technicians, numerous volunteers, and one post-doctoral scholar; 2 local high school students mentored on wildlife internship projects
- Assisted with transition of property management to KDFWR

PUBLICATIONS (48)

Peer-Refereed Journal Articles (33)

Maigret, T.A., **J.J. Cox**, D.R. Schneider, C.D. Barton, S.J. Price, and J.L. Larkin. 2014. Effects of streamside management zone timber harvest on salamander populations in ephemeral streams of southeastern Kentucky. *Forest Ecology and Management*. In press.

Maigret, T.A., and **J.J. Cox**. 2014. A review of best management practices and the mitigation of stream-breeding salamanders in the eastern deciduous forest. *Proceedings of the 21st Central Hardwood Forest Conference*. In press.

Ehlman, S., **J.J. Cox**, and P.H. Crowley. 2013. Evaporative water loss model of white-nose syndrome in the hibernating little brown myotis (*Myotis lucifugus*). *Journal of Mammalogy* 94:572-583.

Unger, D.E., **J.J. Cox**, H. Harris, J.L. Larkin, B. Augustine, S. Dobey, J. Hast, R. Jensen, S. Murphy, J. Plaxico, and D.S. Maehr. 2013. A brief history and current status of the black bear in Kentucky. *Northeastern Naturalist* 20(2):289-308.

Chambers, D.L., W.A. Ulrey, J.M. Guthrie, O.C.H. Kwok, **J.J. Cox**, D.S. Maehr, and J.P. Dupey. 2012. Seroprevalence of *Toxoplasmosis gondii* in free-ranging black bears in Florida. *Journal of Parasitology* 98:674-675.

Tedder, S., **J.J. Cox**, P.H. Crowley, and D.S. Maehr. 2012. Black bears, palms, and giant palm weevils: an intraguild mutualism. *The Open Ecology Journal* 5:18-24.

Crowley, P.H., and **J.J. Cox**. 2011. Intraguild mutualism. *Trends in Ecology and Evolution* 12:627-633.

Treanor, J., C. Germentia, P.H. Crowley, **J.J. Cox**, P.J. White, R. Wallen, and D. Blanton. 2011. Estimating probabilities of active brucellosis infection in Yellowstone bison through quantitative serology and tissue culture. *Journal of Applied Ecology* 48:1324-1332.

Augustine, B., P.H. Crowley, and **J.J. Cox**. 2011. A mechanistic model of GPS collar fix acquisition. *Ecological Modeling* 222:3615-3625.

Fei, S., **J.J. Cox**, and A. Whittle. 2011. A perfect storm threatens recovery of the Florida panther. *Frontiers in Ecology and the Environment* 9(6):317-318.

Cox, J.J. 2011. Tales of a repatriated megaherbivore: challenges and opportunities for management of reintroduced elk in Appalachia. Proceedings of the 17th Central Hardwood Forest Conference:632-642. General Technical Report P-78. U.S. Forest Service, Northern Research Station.

Treanor, J., J. Johnson, R. Wallen, S. Cilles, P. Crowley, **J.J. Cox**, D.S. Maehr, P.J. White, and G. Plumb. 2010. Vaccination strategies for managing brucellosis in Yellowstone bison. *Vaccine* 28F:F64-72.

Olsson, P.M.O., **J.J. Cox**, J.L. Larkin, P. Widen, and A. Olofsson. 2010. Space and habitat use of non-migrating moose in coastal southwestern Sweden. *European Journal of Wildlife Research*. DOI 10.1007/s10344-010-0418-5

Larkin, J.L., D.S. Maehr, J. J. Krupa, **J.J. Cox**, K.A. Alexy, D. Unger, and C. Barton. 2008. Response of small mammals to 3 post-coal mining reclamation treatments. *Southeastern Naturalist* 7:401-412.

Cox, J.J., and P.S. Crowley. 2007. The Bluegrass restoration program at Griffith Woods. (Invited) *Restoration Ecology* 25:72-73.

Olsson, P.M.O., **J.J. Cox**, J.L. Larkin, D.S. Maehr, P. Widen, M.W. Wichrowski. 2007. Movement and activity patterns of translocated elk (*Cervus elaphus nelson*) on an active coal mine in Kentucky. *Wildlife Biology in Practice* 3:1-8.

Cox, J.J., J.L. Larkin, and D.S. Maehr. 2006. Florida panther habitat use: new approach to an old problem. *Journal of Wildlife Management* 70:1778-1785.

Maehr, D.S., P.S. Crowley, **J.J. Cox**, M.J. Lacki, J.L. Larkin, T.S. Hoctor, L.D. Harris, and P.M. Hall. 2006. Of Florida panthers and haruspices: genetic intervention in the Florida panther. *Animal Conservation* 9:127-132.

Dzialak, M.R., M.J. Lacki, K.M. Carter, K. Huie, and **J.J. Cox**. 2006. A critical assessment of hacking as a raptor reintroduction technique. *Wildlife Society Bulletin* 34:542-547.

Schneider, J., D.S. Maehr, K.A. Alexy, **J.J. Cox**, J.L. Larkin, and B.C. Reeder. 2006. Food habits of reintroduced elk in southeastern Kentucky. *Southeastern Naturalist* 5:535-546.

Seward, N.W., D.S. Maehr, J. Gassett, **J.J. Cox**, and J.L. Larkin. 2005. Field searches versus vaginal-implant transmitters for locating elk calves. *Wildlife Society Bulletin* 33:751-756.

Wichrowski, M.W., D.S. Maehr, J.L. Larkin, **J.J. Cox**, and M. Olsson. 2005. Activity and movements of reintroduced elk in southeastern Kentucky. *Southeastern Naturalist* 4:365-374.

Cox, J.J., and D.S. Maehr. 2005. Surface mining and wildlife resources: addition and subtraction on the Cumberland Plateau. *Transactions of the North American Wildlife and Natural Resources Conference* 69:234-250.

Larkin, J.L., **J.J. Cox**, M. W. Wichrowski, M.R. Dzialak, and D.S. Maehr. 2004. Release site fidelity of reintroduced elk in Kentucky. *Restoration Ecology* 12:97-105.

Maehr, D.S., J.L. Larkin, and **J.J. Cox**. 2004. Shopping centers as panther habitat: inferring animal locations from models. *Ecology and Society* 9(2): 9. [online] URL: <http://www.ecologyandsociety.org/vol9/iss2/art9>

Larkin, J.L., D.S. Maehr, **J.J. Cox**, D.C. Bolin, and M.W. Wichrowski. 2003. Demographic characteristics of a reintroduced elk population. *Journal of Wildlife Management* 67:467-476.

Cox, J.J., N.W. Seward, J.L. Larkin, and D.S. Maehr. 2003. Common raven nests in eastern Kentucky. *Southeastern Naturalist* 2:99-104.

Larkin, J.L., K. J. Alexy, D. Bolin, D.S. Maehr, **J.J. Cox**, M.W. Wichrowski, and N.W. Seward. 2003. Incidence of meningeal worm in a reintroduced elk herd in Kentucky. *Journal of Wildlife Diseases* 39:588-592.

Maehr, D.S., J.L. Larkin, K.J. Alexy, R.J. Warren, N.W. Seward, J.W. Day, T. Toman, **J.J. Cox**, and M.A. Orlando. 2002. Graduate education should not count more toward TWS certification. *Wildlife Society Bulletin* 30:979-982.

Larkin, J.L., D.S. Maehr, **J.J. Cox**, and C. Logsdon. 2002. Reproductive performance of yearling male elk (*Cervus elaphus nelsoni*) in a reintroduced population in southeastern Kentucky. *Southeastern Naturalist* 1:279-286.

Cox, J.J., D.S. Maehr, and J.L. Larkin. 2002. The biogeography of faunal place names in the United States. *Conservation Biology* 16:1143-1150.

Larkin, J.L., D.S. Maehr, **J.J. Cox**, M. W. Wichrowski, and R.D. Crank. 2002. Factors affecting reproduction and population growth in a restored elk population. *Wildlife Biology* 8:49-54.

Cox, J.J., L. Meade, D. Yancy, and D.S. Maehr. 2001. Taxonomic status of wild *Canis* in Kentucky. *Proceedings of the Annual Conference of the Southeastern Fish and Wildlife Agencies* 55:408-417.

Non-refereed Journal Articles (5)

Stringer, J., **J.J. Cox**, and B. Thomas. 2008. Invasive species hit list: bush honeysuckle. *Kentucky Woodlands Magazine* 3(3) 13-15.

Cox, J.J. 2007. Black vulture fledges young in historic Griffith Tavern. *Kentucky Warbler* 83:36-37.

Seward, N.W., **J.J. Cox**, J.H. Brown, and J.L. Larkin. 2005. Use of elk hair as nesting material by the eastern phoebe. *Kentucky Warbler* 81:33.

Cox, J.J., and J.L. Larkin. 2004. Monitoring the state-endangered common raven (*Corvus corax*) in southeastern Kentucky. (Invited) *Endangered Species Bulletin* 21:109-112.

Cox, J.J., R.D. Crank, and D.S. Maehr. 2000. Bald eagle scavenges a white-tailed

deer carcass at Redbird Wildlife Management Area. *Kentucky Warbler* 76:51-52.

Book (1)

White Jr., D., **J.J. Cox**, and J.L. Larkin (eds.). *In progress*. Ecology and management of elk in eastern North America.

Book Chapters (4)

Maehr, D.S., **J.J. Cox**, and J.L. Larkin. 2006. North American Elk, or Wapiti, *Cervus Elaphus*. Pages 293-314. *In*, M. Trani, W.M. Ford, and B.R. Chapman (eds.). *The land manager's guide to mammals of the South*. USDA Forest Service, Atlanta, GA and The Nature Conservancy, Durham, NC. 546 pp.

Maehr, D.S., M.A. Orlando, and **J.J. Cox**. 2005. Large carnivores, herbivores, and omnivores in South Florida: An evolutionary approach to conserving landscapes and biodiversity. Pages 293-314. *In*, J. Ray, J. Berger, and K. Redford (eds.), *Large carnivores and biodiversity: does saving one conserve the other?* Island Press, Washington, D.C.

Maehr, D.S., **J.J. Cox**, and J.L. Larkin. 2002. Landscape history: linking conservation approaches for large mammals. Pages 321-340. *In*, J.A. Bissonette and I. Storch (Eds.). *Landscape ecology and resource management: linking theory with practice*. Island Press, Washington D.C.

Larkin, J.L., D.S. Maehr, L. Cornicelli, **J.J. Cox**, and R. Grimes. 2001. Returning elk to Appalachia: foiling Murphy's Law. Pages 101-117, *In*, D.S. Maehr, R. Noss, and J.L. Larkin (editors). *Large mammal restoration: ecological and sociological challenges in the 21st century*. Island Press, Washington D.C.

Book Review (1)

Cox, J.J. 2013. Book review: *Reintroduction biology: integrating science and management*. *Journal of Wildlife Management* 77(5):1079-1080.

Federal Technical Reports (3)

Aune, K., **J.J. Cox**, V. Ezenwa, A. Jolles, T. Kreeger, M. Miller, P. Nara, and S. Olsen. 2013. *Brucellosis science review workshop panelist's report*. Yellowstone National Park, Mammoth Hot Springs, WY. 20 pp.

Davis III, S.E., K. Hines, W. Conner, **J.J. Cox**, D. Gawlik, J. Jackson, J. Jones, F.M. Wilhelm, and J. Richards. 2010. *Oil and gas impacts in the Big Cypress Ecosystem: an analysis of impacts associated with proposed activities in the Nobles Grade area*. The Everglades Foundation. 269 pp.

Larkin, J.L., J. Treanor, **J.J. Cox**, D.S. Maehr, and G. Plumb. 2003. A comprehensive rapid-assessment approach for research agenda: elk (*Cervus*

elaphus) at Yellowstone National Park. Technical Report, Yellowstone National Park, Mammoth Hot Springs, Wyoming. 177 pp.

Extension Publications (1)

Cox, J.J. 2014. Ten-thousand or bust: elk research in Kentucky. Kentucky Woodlands Magazine. 9(1):10-11.

Manuscripts in review

Treanor, J.T., C. Geremia, M.A. Ballou, D.H. Keisler, **J.J. Cox**, P.H. Crowley, and P.J. White. 2014. Maintenance of brucellosis in Yellowstone bison: linking seasonal food resources, host-pathogen interaction, and life-history trade-offs. *Journal of Animal Ecology*.

Murphy, S.M., **J.J. Cox**, J.D. Clark, J.T. Hast, B. Augustine, M. Strunk, D. Gibbs, and S. Dobey. 2014. Demographic and genetic characteristics of a reintroduced black bear population in the Central Appalachians. *Journal of Wildlife Management*.

Dahl, L., **J.J. Cox**, K.J. Alexy, W. Bowling, D.S. Maehr, D. Unger, and J.L. Larkin. Use of forward looking infrared surveys to estimate elk populations in Kentucky. To be submitted to *Wildlife Society Bulletin*.

In preparation

Unger, D.E., **J.J. Cox**, J.L. Larkin, and D.S. Maehr. Den site characteristics and denning chronology of a recolonizing black bear population in southeastern Kentucky. To be submitted to *Wildlife Biology*.

Schneider, D., J.L. Larkin, C. Barton, J. Duchamp and **J.J. Cox**. Salamander communities inhabiting ephemeral streams in a mixed-mesophytic forest of southern Appalachia. To be submitted to *Northeastern Naturalist*.

Whittle, A., S. Fei, **J.J. Cox**, and D.S. Maehr. Sea level rise and urbanization impacts on Florida panther and black bear. To be submitted to *Animal Conservation*.

Hast, J.T., **J.J. Cox**, D. Weisrock, S. Fei, S. Dobey, J. Plaxico, and C. Ryan. Genetic diversity and structuring of a recolonizing black bear population in eastern Kentucky. To be submitted to *Biological Conservation*.

Bowling, W., **J.J. Cox**, K.J. Alexy, L. Dahl, M. Lacki, and D.S. Maehr. Transplacental transmission of *Parastrongyloides tenuis* antibodies in elk. To be submitted to *Journal of Wildlife Diseases*.

Short Stories:

To Cross a Fence. Inscape, Fall, 1994

Poems:

Respiration at El Paso. Inscape, Spring, 1995
Peoples Island 513. Inscape, Fall, 1995
i mammal. Inscape, Fall, 1995
Sago Ugalde, Inscape, Spring, 1995
Serengeti. Inscape, Fall, 1996

Photography:

Wildlife, landscape, and graphic art photography; works found in several magazines (e.g. Zoogoer, Harpers, Gun and Garden, KY Woodlands), a few books (e.g. Lost Mountain, Living in the Appalachian Forest), and national graphic arts project <http://www.stateart.net/States/KY/>.

PUBLISHED ABSTRACTS and CONFERENCE PRESENTATIONS

(*indicates award-winning presentations, ^aindicates advised undergraduate student primary author, ^bindicates advised graduate student primary author)

^bHildreth, A., **J.J. Cox**, J.T. Hast, B. Slabach. 2014. Effects of capture metrics on blood serum profiles of elk in Kentucky. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.

^bShaffer, J.D., S.K. Gleeson, **J.J. Cox**, and J.M. Lhotka. 2014. Mammalian herbivory on fourteen experimentally planted native hardwood tree seedlings of the Kentucky Bluegrass savanna-woodland community. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.

^bFelch, J., and **J.J. Cox**. 2014. The common raven in cliff habitat of the southern Appalachians: detectability and occupancy. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.

^bSlabach, B., J.T. Hast, K. Brunjes, P.H. Crowley, and **J.J. Cox**. 2014. Selective take, group dynamics, and managed species: individual and group level patterns in a gregarious megaherbivore. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.

^bHast, J.T., **J.J. Cox**, K. Brunjes, R.D. Crank, W.E. Bowling, and G. Jenkins. 2014. Survival and cause-specific mortality of bull elk in southeastern Kentucky. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.

^bHamilton, S., **J.J. Cox**, A. Drayer, J.M. Richards, and J.J. Treanor. 2014. An investigation of chytrid fungus infection in plethodontid salamander communities of logged, surface mined and intact forests of eastern Kentucky. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.

^bBetancourt, A., **J.J. Cox**, B. Tom, E. Lyons, and M. Nielsen. 2014. Efficacy of injectable ivermectin on gastrointestinal helminthes in captive wild elk. The Wildlife Society 21st Annual Conference. Oct. 25-30, Pittsburg, PA.

^bSlabach, B.S., J.T. Hast, P.H. Crowley, G. Jenkins, W. Bowling, D. Crank, K. Brunjes, and **J.J. Cox**. 2014. Cause-Specific Mortality, Group Dynamics, and VITs: Three Approaches to Cow Elk Management in Kentucky. 19th Annual Eastern Elk Management Workshop, April 27-30, Breaks Interstate Park, VA.

^{*b}Maigret, T., **J.J. Cox**, D. Schneider, C.D. Barton, S.J. Price, and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. The Annual Meeting of the Association of Southeastern Biologists, April 3-4, Spartanburg, SC.

^aCunningham, J., and **J.J. Cox**. 2014. Tick species and their potential effects within the elk population of eastern Kentucky. National Conference on Undergraduate Research. April 3-5, Lexington, KY.

^aSchwager, R., A. Betancourt, **J.J. Cox**, E. Lyons, M. Nielsen. 2014. Parasite prevalence in Kentucky elk as determined by fecal egg counts. Feb. 27, Posters-at-the-Capitol, Frankfort, KY

^bMaigret, T., **J.J. Cox**, D. Schneider, C.D. Barton, S.J. Price, and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. The Wildlife Society, Kentucky Chapter State Conference. Feb 20-21, Barren River State Park, KY.

^bMaigret, T.A., **J.J. Cox**. 2014. A review of best management practices and the mitigation of stream-breeding salamanders in the eastern deciduous forest. 19th Annual Central Hardwoods Conference. March 11, Carbondale, IL, USA.

^bMaigret, T.A., **J.J. Cox**, D.R. Schneider, C.D. Barton, S.J. Price, and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. Southeast Partners in Amphibian and Reptile Conservation Annual Meeting. Feb 13-14, Lake Cumberland, KY, USA.

^bShaffer, J.D., S.K. Gleeson, **J.J. Cox**, and J.L. Lhotka. 2014. The effects of mammalian herbivory on the growth of native hardwood tree seedlings of the Kentucky Bluegrass blue ash-oak savanna-woodland. The Wildlife Society, Kentucky Chapter State Conference. Feb 20-21. Barren River State Park, KY.

^{*b}Shaffer, J.D., S.K. Gleeson, **J.J. Cox**, and J.L. Lhotka. 2014. The effects of mammalian herbivory on the growth of native hardwood tree seedlings of the Kentucky Bluegrass blue ash-oak savanna-woodland. American Society of Plant Biologists Annual Meeting, March 29-30, Lexington, KY.

^{*b}Hast, J.T., **J.J. Cox**, K. Brunjes, W. Bowling, D. Crank, and G. Jenkins. 2014. Survival and cause-specific mortality of bull elk in southeastern Kentucky. The Wildlife Society, Kentucky Chapter State Conference. Feb 20-21, Barren River State Park, KY.

^bSlabach, B., **J.J. Cox**, and P.H. Crowley. 2014. Partnering standard wildlife monitoring

and traditional behavioral techniques: understanding group dynamics in managed species. The Wildlife Society, Kentucky Chapter State Conference. Feb 20-21, Barren River State Park, KY.

^bBetancourt, A., **J.J. Cox**, B.M. Tom, E.T. Lyons, and M.K. Nielsen. 2014. Efficacy of injectable ivermectin on gastrointestinal helminths in captive wild elk (*Cervus canadensis*). The Wildlife Society, Kentucky Chapter State Conference. Feb 20-21, Barren River State Park, KY.

Cox, J.J. 2013. The road to recovery? A century of elk management and conservation in the eastern United States. The Wildlife Society 20th Annual Conference. Oct. 6-10, Milwaukee, WI.

Hast, J.T. ^b, **J.J. Cox**, K. Brunjes, G. Jenkins, D. Crank, and W. Bowling. 2013. Survival and cause-specific mortality of bull elk in southeastern Kentucky. The Wildlife Society 20th Annual Conference. Oct. 6-10. Milwaukee, WI.

Kristensen, T.V., E.E. Puckett, J.T. Hast^b, C. Carpenter, J.L. Sajecki, J.L. Belant, J. Beringer, M. Means, **J.J. Cox**, R.A. Van Den Bussche, L.S. Eggert, D. White, Jr., and K.G. Smith. 2013. Black bear (*Ursus americanus*) dispersal in expanding populations. Twenty-second Conference of the International Association for Bear Research and Management, Sept 15-20, Provo, UT.

^bShaffer, J.D., S.K. Gleeson, **J.J. Cox**, and J.L. Lhotka. 2013. Factors influencing the establishment and survival of native hardwood tree seedlings of the Kentucky Inner Bluegrass blue ash-oak savanna-woodland. 98th Ecological Society of America Annual Conference. August 4-9, Minneapolis, MN.

^bBetancourt, A., B. Tom, M.K. Nielsen, and **J.J. Cox**. 2013. Efficacy of injectable ivermectin on gastrointestinal helminths in captive wild elk (*Cervus elaphus*). 2013. 58th Annual Meeting The American Association of Veterinary Parasitologists July 20-23, Chicago, IL.

^aHatfield, R.S., and **J.J. Cox**. 2013. Population dynamics of the African lion (*Panthera leo*) within the Maasai Mara region of southern Kenya. The National Conference on Undergraduate Research. April 11-13, LaCrosse, WI.

^aHatfield, R.S., and **J.J. Cox**. 2013. Population dynamics of the African lion (*Panthera leo*) within the Maasai Mara region of southern Kenya. Posters-at-the-Capitol. Feb. 21, Frankfort, KY.

^bMaigret, T.A., **J.J. Cox**, S.J. Price, and C. Barton. 2013. Population ecology and habitat preferences of timber rattlesnakes in an increasingly fragmented landscape of southeast Kentucky. Southeast Partners in Amphibian and Reptile Conservation Annual Meeting, Feb. 21-24, McCormick, SC.

^bHildreth, A. M., J. T. Hast, B. L. Slabach, A. Betancourt, **J. J. Cox**, K. Brunjes, W. Bowling, D. Crank, and G. Jenkins. 2013. Can body condition and select physiological indicators predict survival of elk post-translocation? April 28-30. 18th Annual Eastern Elk Management Workshop, Cable, WI.

^bTreanor, J.T., C. Germania, P.H. Crowley, **J.J. Cox**, P.J. White, R.L. Wallen, and D.W. Blanton. 2012. Estimating probabilities of active brucellosis infection in Yellowstone bison through quantitative serology and tissue culture. The Wildlife Society 19th Annual Conference. Oct. 13-17. Portland, OR.

^bShaffer, J.D., S.K. Gleeson, **J.J. Cox**, and J.M. Lhotka. 2012. The influence of grass competition and herbivory on native hardwood seedling establishment in the Inner Bluegrass of Kentucky. Ecological Society of America Annual Conference. August 5-10. Portland, OR.

^bHast, J.T., **J.J. Cox**, S. Fei, D. Weisrock, S. Dobey, and J. Plaxico. 2012. Genetic diversity, structure, and recolonization patterns of black bears in eastern Kentucky. The Wildlife Society, Kentucky Chapter State Conference. Feb 23-24, Dale Hollow Lake State Park, KY.

*Maigret, T., C. Barton, **J.J. Cox**, J.L. Larkin, and D. Schneider. 2012. Impacts of different silvicultural treatments on salamander communities in Robinson Forest, Breathitt County, Kentucky. Feb 23-24, Dale Hollow Lake State Park, KY.

*Murphy, S.M., **J.J. Cox**, J.T. Hast, and S. Fei. 2012. Using non-invasive hair sampling to estimate the size and density of a reintroduced black bear population in south-central Kentucky. The Wildlife Society, Kentucky Chapter State Conference. Feb 23-24, Dale Hollow Lake State Park, KY.

Betancourt, A., E.T. Lyons, M.K. Neilsen, and **J.J. Cox**. Helminths gone wild: conditional responses leading to harmful parasitization of cervids. The Wildlife Society, Kentucky Chapter State Conference. Feb 23-24, Dale Hollow Lake State Park, KY.

Cox, J.J. 2012. Black bears return to Western Appalachia: challenges and opportunities. Tri-state wildlife and woodland program. Cincinnati, OH. March 24.

^aEhlmann, S., **J.J. Cox**, and P.H. Crowley. 2011. Movement and arousal decisions by healthy and diseased cave-dwelling bats during hibernation. Comparative Decision-Making Conference. May 13-15. Lexington, KY.

Barton, C.D., J.W. Stringer, E.L. Witt, M.A. Cherry, S.A. Grubbs, **J.J. Cox**, D.W. Bowker, J. Larkin, B. Lee and R.K. Kolka. 2011. Water quality and yield: effect of riparian zone width and disturbance. Southern Forest Research Partnership, Inc.: Forestry Research in the South. August.

Tom, B.M., and **J.J. Cox**. 2011. A comparison of noninvasive genetic survey methods for monitoring mesocarnivore populations in Kentucky. The Wildlife Society 18th Annual Conference. Nov. 5-10. Waikoloa, HI.

Hast, J.T., B.A. Augustine, **J.J. Cox**, S.M. Murphy, S. Dobey, and J. Plaxico. 2011. Reproductive ecology and of a recolonizing black bear population in Kentucky. The Wildlife Society 18th Annual Conference. Nov. 5-10. Waikoloa, HI.

*Murphy, S.M., **J.J. Cox**, J.T. Hast, and S. Fei. 2011. Using non-invasive hair sampling to estimate the size and density of a reintroduced black bear population in south-central Kentucky. The Wildlife Society 18th Annual Conference. Nov. 5-10. Waikoloa, HI.

Guthrie, J.G., **J.J. Cox**, and W.A. Ulrey. 2011. Modeling road-crossing behavior for the southcentral Florida black bear. The Wildlife Society 18th Annual Conference. Nov. 5-10. Waikoloa, HI.

Felch, J., **J.J. Cox**, and M. Dzialak. 2011. The Common Raven in cliff habitat: detectability and occupancy. The Wildlife Society, Kentucky Chapter State Conference. February 24-25. Lake Cumberland State Park, KY.

Murphy, S.M., **J.J. Cox**, J.T. Hast, B. Augustine, and S. Fei. 2011. South-central Kentucky black bear population parameters. The Wildlife Society, Kentucky Chapter State Conference. February 24-25. Lake Cumberland State Park, KY.

Cox, J.J. 2010. Tales of a repatriated megaherbivore: challenges and opportunities for management of reintroduced elk in Appalachia. Proceedings of the 17th Central Hardwood Forest Conference. April 5-7. Lexington, KY.

Hast, J.T., **J.J. Cox**, S. Fei, D. Weisrock, S. Dobey, and J. Plaxico. 2010. Genetic diversity, structure, and recolonization patterns of black bears in eastern Kentucky Proceedings of the 17th Central Hardwood Forest Conference. April 5-7. Lexington, KY.

Augustine, B.A., P.H. Crowley, **J.J. Cox**, and D.S. Maehr. 2010. Understanding controllable sources of fix proportion bias in GPS telemetry. The Wildlife Society, Kentucky Chapter State Conference. February 18-19. Mammoth Cave, KY.

*Hast, J.T., **J.J. Cox**, S. Fei, D. Weisrock, S. Dobey, and J. Plaxico. 2010. Genetic diversity, structure, and recolonization patterns of black bears in eastern Kentucky. The Wildlife Society, Kentucky Chapter State Conference. February 18-19. Mammoth Cave, KY.

Felch, J., **J.J. Cox**, and M. Dzialak. 2010. The Common Raven in cliff habitat: detectability and occupancy. The Wildlife Society 17th Annual Conference. Oct. 2-6. Snowbird, UT.

Murphy, S.M., **J.J. Cox**, J.T. Hast, B. Augustine, and S. Fei. 2010. Beyond the founders? Using non-invasive hair sampling to estimate the size, density, and genetics of a black bear

population in south-central Kentucky. The Wildlife Society 17th Annual Conference. Oct. 2-6. Snowbird, UT.

Cox, J.J., L. Dahl, K. Alexy, D. Unger, W. Bowling, D. Maehr, and J. Larkin. 2009. Irruptive growth of reintroduced elk in Kentucky: looming management and conservation challenges. Society for Conservation Biology 23rd Annual Conference. July 10-16. Beijing, China.

Cox, J.J. 2009. Elk reintroduction in Kentucky: challenges and opportunities in the 21st Century. (Invited) Alice Lloyd College, Hindman, KY. Apr.22, 2009.

Cox, J.J. 2009. Donuts and dart rifles, coal mines and cabbage palms: challenges and opportunities in studying the black bear in Kentucky and Florida. American Association of Laboratory Animal Science, Louisville, KY. May 16, 2009.

Cox, J.J. 2009. Elk reintroduction in Kentucky: mission accomplished. Now what? (Invited) Indiana University Southeast. New Albany, IN. Apr. 15, 2009.

Whittle, A., S. Fei, and **J.J. Cox**. 2008. Global climate change and its effects on large carnivore habitat in Florida. The Wildlife Society 15th Annual Conference. Miami, FL.

Dahl, L.M., **J.J. Cox**, K.J. Alexy, J.E. Duchamp, D.S. Maehr, D.E. Unger, W.E. Bowling, J.L. Larkin. 2008. Using FLIR to assess abundance and distribution of elk in eastern Kentucky. The Wildlife Society 15th Annual Conference. Nov. 8-12. Miami, FL.

Bowling, W., D.S. Maehr, **J.J. Cox**, L.M. Dahl, and K. Alexy. 2008. Movements, home range characteristics, and demographics of elk in eastern Kentucky. The Wildlife Society 15th Annual Conference. Nov. 8-12. Miami, FL.

Whittle, A., S. Fei, and **J.J. Cox**. 2008. Black bear and Florida panther habitat and the effects of climate change. In proceedings of OFWIM Annual Meeting and Conference: Using innovative technology to move from planning to implementation. Albuquerque, NM.

Whittle, A., S. Fei, and **J.J. Cox**. 2008. Global climate change and its effects on large carnivore habitat in Florida. In proceedings of Florida's Wildlife: On the Frontline of Climate Change. Orlando, FL.

Cox, J.J. 2007. Wildlife reintroductions: a perturbed state of affairs. (Invited) The Wildlife Society 14th Annual Conference. Sept. 22-26. Tucson, AZ.

Cox, J.J. 2007. Inconvenient truths? (Invited) Environmental challenges for the 21st century: Appalachian and Minority, Science, Technology, Engineering, & Math Majors, June 11. Lexington, KY.

Cox, J.J., D.S. Maehr, Z. Danks, N.W. Seward, and K. Alexy. 2007. Coyote-elk relations in southeastern Kentucky (Invited). Southeastern Furbearers Workshop, May 9-12. Cadiz, KY.

Maehr, D.S., D.E. Unger, H.B. Harris, W.A. Ulrey, R. Jensen, J.M. Guthrie, V. Frary, J.L. Larkin, A.N. Schuhmann, L.M. Dahl, **J.J. Cox**, and J.H. Harrelson. 2007. University of Kentucky Black Bear Research Summary. Eastern Black Bear Workshop, Sheperdstown, WV. April.

Cox, J.J., D.S. Maehr, Z. Danks, N.W. Seward, and K. Alexy. 2006. Coyote-elk relations in southeastern Kentucky. The Wildlife Society 13th Annual Conference. Sept. 23-27, 2007. Anchorage, Alaska.

Maehr, D.S., **J.J. Cox**, and J.L. Larkin. 2005. Florida panther habitat use: a new approach to a management dilemma. 12th Annual Conference of The Wildlife Society. Madison, WI. September 25-29.

Cox, J.J. 2005. Where do we go from here? The Griffith Woods restoration project. (Invited) Annual Conference of the Kentucky Academy of Science. Nov. 10, 2005. Eastern Kentucky University, Richmond.

Cox, J.J., D.S. Maehr, and J.L. Larkin. 2005. A Euclidean distance-based habitat use analysis of the endangered Florida panther. Society for Conservation Biology 19th Annual Conference. July 15-19. University of Brasilia, Brazil.

Maehr, D.S., **J.J. Cox**, J.L. Larkin, P.H. Crowley, J. Treanor, T.S. Hctor, and J.L. Gittleman. 2005. Do life histories and landscape predict colonization success in large mammals? Ninth International Mammalogical Congress, Sapporo, Japan. August.

Ter Beest, J.M., D.S. Maehr, C.D. Barton, J.L. Larkin, and **J.J. Cox**. 2005. Effects of a restored elk population on soils, vegetation, and water quality in eastern Kentucky. 12th Annual Conference of The Wildlife Society. Madison, WI. September 25-29.

Seward, N.W., D.S. Maehr, **J.J. Cox**, and J.L. Larkin. 2003. Mortality and survival of elk calves in eastern Kentucky. 10th Annual Conference of The Wildlife Society. Burlington, VT. September 6-10.

Larkin, J.L., D.S. Maehr, J. Treanor, **J.J. Cox**, H. Loring, and G. Plumb. 2003. A comprehensive rapid-assessment for research agenda development: a case study for elk in Yellowstone National Park. 7th Biennial Scientific Conference on the Greater Yellowstone Ecosystem. Mammoth Hot Springs, WY October 6-8.

Maehr, D.S., **J.J. Cox**, and J.L. Larkin. 2003. Landscape history: dictating the conservation approach for large mammals. 9th Annual Conference of The Wildlife Society. Burlington, VT. September 6-10.

Seward, N.W., **J.J. Cox**, J. Gassett, D.S. Maehr, and J.L. Larkin. 2002. Field searches are superior to vaginal-implant transmitters for locating elk calves. 7th Annual Eastern Elk Management Workshop. Killarney, Ontario. May. 4-8.

Cox, J.J., D.S. Maehr, and J.L. Larkin. 2002. Send them to the Redbird: elk reintroduction and perturbation analysis in the Daniel Boone National Forest. The Wildlife Society 9th Annual Conference. Sept. 23-28. Bismarck, ND.

Cox, J.J., D.S. Maehr, and J.L. Larkin. 2002. The biogeography of faunal place names in the United States. Society for Conservation Biology 16th Annual Conference. July 14-July 18. University of Kent, Canterbury, England.

Larkin, J.L., D.S. Maehr, **J.J. Cox**, M.W. Wichrowski, N.W. Seward, D. Crank, and C. Logsdon. 2002. Restored elk in Kentucky: past trends and future threats to long-term viability. 7th Annual Eastern Elk Managers Workshop, Killarney, Ontario. May 4-8.

Cox, J.J., J.L. Larkin, D.S. Maehr, and M.W. Wichrowski. 2001. Colonizing patterns of a restored elk population in eastern Kentucky. Society for Conservation Biology 15th Annual Conference. July 29-Aug. 1. University of Hawaii, Hilo, HI.

Cox, J.J., D.S. Maehr, and J.L. Larkin. 2001. Kentucky mountain elk. Earthwatch Institute Annual Conference. Nov.13-16. Tufts University, Boston, MA

Cox, J.J., D.S. Maehr, and J.L. Larkin. 2001. Distribution, density, and historical range fidelity of select place names in the United States. The Wildlife Society 8th Annual Conference. Sept. 25-29. Reno, NV.

Cox, J.J., L. Meade, D. Yancy, and D.S. Maehr. 2001. Taxonomic status of wild Canis in Kentucky. 55th Annual Conference of the Southeastern Fish and Wildlife Agencies. Oct 13-17. Louisville, KY.

Wichrowski, M., J.L. Larkin, D.S. Maehr, and **J.J. Cox**. 2001. Colonization patterns of a restored elk population in Appalachia. The Wildlife Society 8th Annual Conference. Sept. 25-29. Reno, NV.

Larkin, J.L., D.S. Maehr, **J.J. Cox**, and M.W. Wichrowski. 2001. Demographic characteristics of a restored elk population. The Wildlife Society 8th Annual Conference. Sept. 25-29. Reno, NV.

Larkin, J.L., D.S. Maehr, **J.J. Cox**, R.D. Crank, M.W. Wichrowski, and E.G. Springborn. 2000. Elk restoration in Kentucky: Current findings and future direction. The Wildlife Society 7th Annual Conference, Nashville, TN. September 12-16.

Larkin, J.L., D.S. Maehr, **J.J. Cox**, and M.W. Wichrowski. 2001. Demographic characteristics of a restored elk population. Society for Conservation Biology 15th Annual Conference. July 29-Aug. 1. University of Hawaii, Hilo, HI.

Larkin, J.L., D.S. Maehr, and **J.J. Cox**. 2000. Elk restoration in Appalachia: Ecological imperative or sociological vanity? Society for Conservation Biology 14th Annual Meeting, Missoula, MT. June 9-12.

Cox, J.J., D.S. Maehr, and J.L. Larkin. 2000. Eastern elk restoration: do age and Allee effects determine growth rates? The Wildlife Society 7th Annual Conference. Sept. 12-16. Nashville, TN.

Cox, J.J., and David S. Maehr. 2000. Impacts of reintroduced elk on white-tailed deer and coyotes. Kentucky Natural History Society. September. Buckhorn Lake State Park, Chavies, KY.

Cox, J.J., D.S. Maehr, and J.L. Larkin. 2000. Kentucky mountain elk. Earthwatch Institute Annual Conference. Nov.15-18. Harvard University, Cambridge, MA

Cox, J.J., D.S. Maehr, and J.L. Larkin. 2000. Eastern elk restoration: do age and Allee effects determine growth rates? Society for Conservation Biology 14th Annual Conference June 9-12. University of Montana, Missoula, MT.

Wichrowski, M.W., D.S. Maehr, J.L. Larkin, **J.J. Cox**, R.D. Crank, E.G. Springborn, M.S. Smith, M. Olsson, and P. Giardot. 2000. Daily and seasonal activity and movement patterns of translocated elk in eastern Kentucky. The Wildlife Society 7th Annual Conference. Sept. 12-16. Nashville, TN.

Cox, J.J., C. Tuerk, and L. Meade. 1997. Detection of hybridization events between the coyote, *Canis latrans*, and the domestic dog, *Canis familiaris*, in Kentucky using two polymorphic microsatellite loci and cranial morphometric analysis. Midwest Ecology and Evolution Conference. April. University of Louisville, Louisville, KY.

SYMPOSIA ORGANIZED

Cox, J.J., D. White, Jr., and J.L. Larkin. 2013. "Elk ecology, conservation, and management in eastern North America: opportunities and challenges in the 21st century." The Wildlife Society 20th Annual Conference. Milwaukee, WI. 10/2013.

Larkin, J., **J.J. Cox**, and J. Larkin. "Restoration of wildlife and their habitats." The Wildlife Society 9th Annual Conference. Bismarck, ND. 9/2002.

POPULAR MEDIA

America The Wild. National Geographic Wild Channel. Sept 2013. Featured research on Florida black bear project.

KY Afield TV Series: June 2013. <http://www.youtube.com/watch?v=xxtJPMRxx2w>

Spence, C. 2013. Friends not foes (timber rattlesnake study). The Magazine: University of Kentucky College of Agriculture. Spring.
http://www.ca.uky.edu/agcomm/magazine/2013/Spring13/friends_not_foes.html

Baker, D. 2012. Elk round-up. Kentucky Afield Magazine. Spring.

KY Afield TV Series: March 2012. Bull elk research project.
<http://www.youtube.com/watch?v=ZF0isXlGha8&feature=plcp>

Spence, C. 2011. The bear facts. The Magazine: University of Kentucky College of Agriculture. Fall. <http://www.ca.uky.edu/agcomm/magazine/2011/FALL-2011/Articles/index.htm>

White, M. 2011. Bear essentials. Audubon 113:28-32.

Jenkins, M. 2011. The Headwaters. Nature Conservancy. Issue 2:44-53.

Risch, D. 2010. Andrea the elk spotter. Highlights Magazine. November 2010.

KY Afield TV Series: March 2010. Black bear research and denning.
<http://www.youtube.com/watch?v=dzz9LZ554NM>

Spence, C. 2009. Elk return to Kentucky. The Magazine: University of Kentucky College of Agriculture. Spring. <http://www.ca.uky.edu/agcomm/Magazine/2009/SPRING-2009/Articles/ElksReturntoKentucky.html>

CNN: September 2009 http://articles.cnn.com/2009-09-07/tech/florida.tracking.bears_1_bears-researchers-doughnuts?s=PM:TECH

Spence, C. 2005. Restoring an early landscape. The Magazine: University of Kentucky College of Agriculture 6:23.

SCIENTIFIC MEETINGS ATTENDED

- The Wildlife Society 21st Annual Conference. 10/14. Pittsburg, PA.
- The Wildlife Society 20th Annual Conference. 10/13. Milwaukee, WI
- The Wildlife Society 19th Annual Conference. 10/12. Portland, OR
- The Wildlife Society 17th Annual Conference. 10/10. Snowbird, UT.
- The Wildlife Society 15th Annual Conference. 11/08. Miami, FL.
- The Wildlife Society 14th Annual Conference. 9/07. Tucson, AZ
- The Wildlife Society 13th Annual Conference. 9/06. Anchorage, AK
- The Wildlife Society 12th Annual Conference. 9/05. Madison, WI.
- The Wildlife Society 10th Annual Conference. 9/03. Burlington, VT.
- The Wildlife Society 9th Annual Conference. 9/02. Bismarck, ND.
- The Wildlife Society 8th Annual Conference. 9/01. Reno, NV.
- The Wildlife Society 7th Annual Conference. 9/00. Nashville, TN
- The Wildlife Society 6th Annual Conference. 9/99. Austin, TX.
- The Wildlife Society Annual KY State Chapter Meeting 2/14. Barren Lake, KY
- The Wildlife Society Annual KY State Chapter Meeting 2/12. Dale Hollow Lake, KY
- The Wildlife Society Annual KY State Chapter Meeting 2/11. Lake Cumberland, KY
- The Wildlife Society Annual KY State Chapter Meeting 2/10. Mammoth Cave,

KY

- Society for Conservation Biology 23rd Annual Conference. 7/09. Beijing, China.
- Society for Conservation Biology 19th Annual Conference. 7/05. Brasilia, Brazil.
- Society for Conservation Biology 16th Annual Conference. 7/02. Cambridge, England.
- Society for Conservation Biology 15th Annual Conference. 7/01. Hilo, HI.
- Society for Conservation Biology 14th Annual Conference. 6/00. Missoula, MT.
- Society for Conservation Biology 13th Annual Conference. 6/99. College Park, MD.
- Annual Conference of the Kentucky Academy of Science. 11/05. Richmond, KY
- Annual Conference of the Kentucky Academy of Science. 11/98. Louisville, KY.
- Annual Conference of the Kentucky Academy of Science. 11/97. Morehead, KY.
- 9th International Mammalogical Congress. 8/05. Sapporo, Japan.
- Southeastern Furbearers Workshop. 5/07. Cadiz, KY.
- 9th Annual Eastern Elk Workshop. 3/04. Knoxville, TN
- 14th Annual Eastern Elk Workshop. 4/10. Knoxville, TN
- 7th Annual Eastern Elk Workshop. 4/03. Knoxville, TN
- 55th Annual Conference Southeastern Fish & Wildlife Agencies. 10/01. Louisville, KY.
- Earthwatch Institute Annual Conference. 11/01. Maynard, MA.
- Earthwatch Institute Annual Conference. 11/00. Cambridge, MA.
- Midwest Ecology and Evolution Conference. 4/97. Louisville, KY.

MEMBERSHIPS (Scientific, Professional, and Honor Societies)

- Society for Conservation Biology (1999-present)
- The Wildlife Society, National and Kentucky Chapters (1999-present)
- Kentucky Ornithological Society (2004-present)
- Kentucky Society of Natural History (2004-present)
- Kentucky Native Plant Society (2007-present)
- The Audubon Society (1999-present)
- The Wildlife and Environmental Society of Malawi (2009-present)
- The Aldo Leopold Foundation (2012-present)

CERTIFICATION and CONTINUING EDUCATION

- Certified Wildlife Biologist, The Wildlife Society (3/2007-present)
- DEA licensed Class II and lower controlled substances (8/2008-present)
- UK CELT Workshop: Cheating: curbing, catching, and consequences (2/27/14)
- UK CELT Workshop: Enhancing student success (9/3/13)
- Non-invasive techniques in genetics for wildlife conservation; Smithsonian-Mason Global Conservation Studies Program, Front Royal, VA, (5/19-5/25/2012) (3 hr graduate course)
- Statistics for ecology and conservation biology; Smithsonian-Mason Global Conservation Studies Program, Front Royal, VA, (2/7-2/18/2011) (6 hr graduate course)
- Chemical immobilization of animals (2 day course); Safe-capture International,

Inc. Fort Campbell, KY (11/22-23/2011)

- Detection and occupancy studies of wildlife; 1 day workshop course (The Wildlife Society Annual Meeting, Miami, FL; 11/8/2008)
- S-130, S-190 Fire training (1/2007)

AWARDS, SCHOLARSHIPS, HONORS,

- University of Kentucky 2002-2003 Gamma Sigma Delta College of Agriculture Outstanding Doctoral Student (3/2003)
- University of Kentucky (2002-2003) Dissertation Fellowship \$16,000/year + tuition
- University of Kentucky (2000-2002) Target of Opportunity Scholarship \$4,000/year
- University of Kentucky (1999-2002) Research Assistantship \$15,000/year
- Morehead State University (1995-1997) Graduate Assistantship \$5000/year
- Morehead State University (1990-1994) Regents Scholarship \$1500/year
- Morehead State University (1990-1994) Alumni Scholarship \$500/year

INTERNATIONAL TRAVEL

- Soviet Union, People to People Youth Science Exchange, Field Biology, July-August 1990
- China, Lihuashan Nature Reserve and Gobi Desert, July 2009
- Malawi, Africa. Mt. Mulanje International Bioserve, Liwonde National Park, Majete Game Reserve, Nkotakota Game Reserve. June-July 2003, 2009, 2011.
- Sweden, Karlstad University and Uppsala coastal region. June 2006
- Brazil, Brasilia National Park, July 2005
- Japan, Sapporo, August 2005
- England and Scotland, July 2002

OTHER INTERESTS

History, psychology, sociology, anthropology, ecofriendly technologies and lifestyles, landscaping with native plants, astronomy, poetry and fiction writing, music (fiddle, guitar, piano), Appalachian culture, hiking, and antiques.

CURRICULUM VITAE

1. Name: Michael J. Lacki

2. Address and Contact Information:

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3. Current Position: Professor of Wildlife Ecology and Management

4. Degrees, with Field, Institution, and Date:

B.S., Biology, University of Dayton, 1978 (*Magna Cum Laude*)

M.S., Zoology, The Ohio State University, 1980

Ph.D., Zoology, North Carolina State University, 1984

5. Experience:

July 2006 – 2015: Professor of Wildlife Ecology and Management, Department of Forestry, University of Kentucky, Lexington, KY

Apr 2009 – June 2010: Interim Department Chair, Department of Forestry, University of Kentucky, Lexington, KY

July 1996 – June 2006: Associate Professor of Wildlife Ecology and Management, Department of Forestry, University of Kentucky, Lexington, KY

December 1989 – June 1996: Assistant Professor of Wildlife Ecology and Management, Department of Forestry, University of Kentucky, Lexington, KY

July 1986 – November 1989: Program Leader & Assistant Professor of Wildlife Technology, Wildlife Technology Program, The Pennsylvania State University, DuBois, PA

August 1984 – June 1986: Visiting Assistant Professor of Wildlife Ecology, Center for Earth & Environmental Science, State University of New York at Plattsburgh,

Plattsburgh, NY

January 1984 – July 1984: Instructor, Department of Zoology, North Carolina State University, Raleigh, NC

January 1981 – December 1983: Graduate Teaching Assistant, Department of Forestry, North Carolina State University, Raleigh, NC

August 1978 – December 1980: Graduate Teaching Assistant, Department of Zoology, The Ohio State University, Columbus, OH

January 1976 – July 1978: Research Assistant, Department of Biology, University of Dayton, Dayton, OH

6. Research Projects:

Extramural:

“Effect of silvicultural treatments on vertical stand structure in forested ecosystems of the Appalachian Mountain Region: implications for foraging and roosting behavior of *Myotis* bats during the staging, maternity, and swarming seasons;” Forestland Group LLC; 2015-2018; \$149,000;. Principal Investigator (*Awarded: email confirmation*) with J. Stringer, J. Lhotka, M. Contreras (Forestry-UK), and L. Dodd (EKU).

“Evaluate habitat utilization and baseline abundance of northern long-eared bats at Mammoth Cave National Park;” National Park Service & Southern Appalachian Cooperative Ecosystems Study Unit; 2014-2017; \$142,000; Principal Investigator with J. Johnson (Bucknell U) and L. Dodd (EKU)

“Assessing potential impact of white-nose syndrome on bats in the Greater Yellowstone Ecosystem: development of a bat monitoring program for Yellowstone National Park;” National Park Service & Southern Appalachian Cooperative Ecosystems Study Unit; 2014-2016; \$35,250; Principal Investigator with J. Treanor (NPS), J. Johnson (Bucknell U), L. Dodd (EKU), M. Baker (CF&FP), G. Falxa (CRC)

“Response of bat populations at Mammoth Cave National Park to white-nose syndrome;” National Park Service & Disney Nature; 2014-2015; \$21,660; Principal Investigator with L. Dodd (EKU)

“A long-term evaluation of the interaction of prescribed fire and white-nose syndrome on bats and insect prey at Mammoth Cave National Park: the world’s largest cave system;” USFS Joint Fire Science Program; 2014-2017; \$237,634; co-Principal Investigator with L. Dodd (PI-EKU) and L. Rieske-Kinney (Entomology-UK)

“Pre-WNS habitat assessment of bats during late summer and autumn in Yellowstone National Park;” National Park Service; 2010-2014; \$60,000.00; Co-Principal Investigator with John Treanor

“Fire management and habitat quality for endangered bats in Kentucky’s Mammoth Cave National Park during the swarming and staging periods: predator-prey interactions and habitat use of bats threatened by White-Nose Syndrome;” USDA Joint Fire Science Program; 2010-2013, \$333,265.00; Principal Investigator with Matt Dickinson and Lynne Rieske-Kinney

“Roosting and foraging behavior of Rafinesque’ big-eared bat near the northern limits of the species range;” KDFWR; 2009-2012, \$153,915.00; Principal Investigator

“Ecological monitoring initiative at Griffith Woods;” USDA; 2007 to 2008, \$66,262; Co-Principal Investigator with John J. Cox and Christopher Barton

“Effects of forest practices on insect prey and activity levels of forest-dwelling bats in Tennessee;” Tennessee Nature Conservancy; 2006 to 2007, \$9,900.00; Principal Investigator

“Effects of silvicultural treatments on insect prey and activity levels of forest-dwelling bats in the central Appalachians;” National Council for Air and Stream Improvement, Inc.; 2006 to 2009, \$120,000.00; Principal Investigator with Lynne Rieske-Kinney and Luke Dodd

“Injury and mortality risks from wildland fire smoke and heat exposure for endangered Indiana bats in maternity roosts;” USDA Joint Fire Science Program; 2005 to 2008, \$380,000.00; Co-Principal Investigator with Matt Dickinson, James Norris, Valerie Young, and Anthony Bova

“Survey of forest bats in managed coniferous forest of north-central Idaho;” Idaho Wildlife Conservation and Restoration Program; 2004 to 2006, \$20,000.00; Co-Principal Investigator with Michael Baker

“Diet and prey abundance of the Ozark big-eared bat in northwest Arkansas;” Arkansas Game and Fish Commission; 2004 to 2006, \$50,000.00; Principal Investigator

“Status, distribution, and reproductive characteristics of river otters in Kentucky;” Kentucky Department of Fish and Wildlife Resources; 2003 to 2009, \$245,393.00; Principal Investigator

“Roost-site selection and roost microclimates of tree-roosting bats in coniferous forests of the Pacific Northwest;” Northwest Bat Cooperative; 2001 to 2007, \$296,175.00; Principal Investigator

“Restoration of the American peregrine falcon to cliff habitats in Kentucky;” Kentucky Department of Fish and Wildlife Resources; 2000 to 2003, \$157,573.00; Principal Investigator

“A comparison of natural versus artificial maternity roosts of *Myotis septentrionalis*,” Bat Conservation International; 1999 to 2000, \$3,750.00; Co-Principal Investigator with Jeff Schwierjohann

“A survey of bird communities on Black and Little Black Mountains, Kentucky,” Manalapan Mining Company; 1997 to 1999, \$12,000.00; Principal Investigator

“Population status of the endangered northern copperbelly water snake in the Pigeon Creek floodplain, Indiana,” Peabody Coal Company; 1992 to 2000, \$145,000.00; Co-Principal Investigator with Joseph Hummer

“Bat fauna of Grayson Lake Wildlife Management Area,” Kentucky Department of Fish and Wildlife Resources; 1997 to 1998, \$22,000.00; Principal Investigator

“Forest fragmentation and nesting success of Neotropical migratory birds in eastern Kentucky,” E.O. Robinson Trust Fund; 1997 to 1998, \$40,560.00; Principal Investigator

“Ecology of Laurel Creek Gorge and surrounding forest ecosystems and the implications for ecotourism in Elliott County, Kentucky,” E.O. Robinson Trust Fund; 1996 to 1998, \$60,994.00; Principal Investigator with Allan Worms

“Impact of rights-of-ways on habitat use of *Corynorhinus rafinesquii*,” East Kentucky Power Cooperative; 1996, \$2,000.00; Principal Investigator

“An assessment of the effects of silvicultural prescriptions on wildlife communities and associated habitats in the Daniel Boone National Forest,” U.S. Forest Service; 1992 to 1996, \$142,530.00; Principal Investigator with Tom Barnes, Jeff Stringer, and Paul Kalisz

“Foraging patterns and habitat use of gray bat summer colonies in the Jessamine Creek Gorge,” The Kentucky Nature Conservancy and Jessamine County; 1993, \$6,113.00; Principal Investigator

“Foraging behavior and summer habitat selection of the endangered Virginia big-eared bat (*Plecotus townsendii virginianus*) in the Daniel Boone National Forest,” U.S. Forest Service; 1990 to 1992, \$45,000.00; Principal Investigator

“Impacts of disturbance in fescue-dominated fields on bobwhite quail (*Colinus virginianus*) and eastern cottontail rabbit (*Sylvilagus floridanus*) in Kentucky: habitat, food quality and availability,” Kentucky Department of Fish and Wildlife Resources; 1990 to 1992, \$15,000.00; Co-Principal Investigator with Tom Barnes

“Design considerations of proposed AMD-treatment wetlands at Tecumseh Mine,” Atec Associates, Inc.; 1990 to 1991, \$30,000.00; Co-Principal Investigator with Hank Webster and Joe Hummer

“Bioaccumulation of heavy metals in wildlife in constructed wetlands;” DuBois Educational Foundation; 1989 to 1990, \$800.00; Principal Investigator with Hank Webster and Joe Hummer

“Faunal survey of the Simco #4 wetland development site;” American Electric Power Corporation; 1988 to 1990, \$86,000.00; Principal Investigator with Hank Webster and Joe Hummer

“Raccoon depredation on agricultural crops;” Max McGraw Wildlife Foundation; 1988 to 1990, \$1,300.00; Principal Investigator with Ken Adams

“Management of muskrats in fen wetlands;” Theodore Roosevelt Memorial Fund; 1985 to 1988, \$5,355.00; Principal Investigator with Bill Peneston and Dan Vogt

“Trace element levels and growth of selected tree species;” Oak Ridge National Laboratory; 1984 to 1985, \$9,900.00; Co-Principal Investigator with Bill Hafley

“Impact of wild pigs on tree growth and nutrient cycling in Great Smoky Mountains National Park;” Theodore Roosevelt Memorial Fund; 1981 to 1984, \$700.00; Principal Investigator with Richard Lancia

“Undergraduate Research Participation Grant;” National Science Foundation; 1977 to 1978, \$1,650.00; Principal Investigator with Kelly Williams

Other:

“Forest management and foraging habitat of bats vulnerable to white-nose syndrome;” College of Agriculture Experiment Station Project: 2014 to 2019.

“Research Activity Award;” University of Kentucky; 2011, \$3,600.00.

“Distribution and ecology of the North American river otter (*Lontra canadensis*) in Kentucky;” College of Agriculture Experiment Station Project; 2009 to 2013.

“Research Equipment Initiative;” University of Kentucky; 2002 to 2003, \$16,769.00; Principal Investigator

“Restoration of the American peregrine falcon (*Falco peregrinus anatum*) to cliff habitats in Kentucky;” College of Agriculture Experiment Station Project; 2001 to 2008.

“Selection of day roosts by eastern small-footed bats;” University of Kentucky Research Committee Grant; 2000 to 2001, \$4,330.00; Principal Investigator

“Roost selection of bats in forests in eastern Kentucky;” College of Agriculture Experiment Station Project; 1996 to 2001.

“Research Committee Equipment Grant;” University of Kentucky; 1992, \$1,300.00;
Principal Investigator

“Major Research Equipment Fund;” University of Kentucky; 1991, \$3,557.00; Principal
Investigator

“Development of conservation strategies for forest-dwelling wildlife dependent on
topographic habitat features;” College of Agriculture Experiment Station Project; 1991
to 1995.

“Habitat selection in terrestrial vertebrates;” College of Agriculture Experiment Station
Project; 1989 to 1991.

7. Graduate Students Supervised:

- *William Peneston, M.S., 1990
- Kevin Brooks, M.S., not completed
- *Michael Lusk, M.S., 1991
- *Michael Adam, M.S., 1992
- John Delfino, Ph.D., 1993
- Martina Hines, M.S., 1993
- Richard Mauro, M.S., 1994
- Andrew Madison, M.S., 1994
- *Laura Shoemaker (Burford), M.S., 1994
- Xiaoqiang Huang, Ph.D., 1995
- Brian Arnett, M.S., not completed
- James Lane, M.S., 1995
- *Timothy Herald, M.S., 1995
- Gary Raulerson, M.S., 1996
- *Michael Baker, M.S., 1996
- Andrew Storfer, Ph.D., 1997
- Jeffery Larkin, M.S., 1997
- *Tracy Hurst, M.S., 1997
- Kevin Hopper, Ph.D., 1998
- *Jeffrey Hutchinson, M.S., 1998
- Wade Davidson, M.S., 1999
- Brian Washburn, Ph.D., 2000
- Chris Teutsch, Ph.D., 2000
- Judith Smith, M.S., 2001
- Michael Wichrowski, M.S., 2001
- Elizabeth Springborn, Ph.D., not completed
- Herman Mays, Ph.D., 2001
- *Jeffery Larkin, Ph.D., 2001
- *Dana Secrist, M.S., 2001
- *Jeffrey Schwierjohann, M.S., not completed
- *Henry Yacek, Jr., M.S., not completed
- John Cox, Ph.D., 2003

Dana Secrist, Ph.D., not completed
 Elizabeth Ciuzio, M.S., 2003
 Michael Orlando, M.S., 2003
 Jennifer Rehage, Ph.D., 2003
 *Kristina LaDeur (Carter), M.S., 2003
 *Matthew Dzialak (Jollick), Ph.D., 2003
 Marvin Ruffner, M.S. 2004
 Joshua Brown, M.S., 2004
 Patricia Hartman, M.S., 2005
 Joshua Adkins, M.S., 2006
 *Joseph Johnson, M.S., 2006
 *Luke Titsworth (Dodd), M.S., 2006
 Anthony Miller, M.S., not completed
 Amy Courtney, M.S., 2006
 Dave Unger, Ph.D., 2007
 Wade Ulrey, M.S., 2007
 *Lauren Dahl, M.S., 2008
 *William Boling, M.S., 2009
 *Dan Cox, Ph.D., not completed
 *Tiffany Potter, M.S., not completed
 *Erin Barding, Ph.D., 2011
 *Luke Dodd, Ph.D., 2010
 *Hannah Harris, Ph.D., 2011
 Marvin Ruffner, Ph.D., 2014
 *Zeb Weese, M.S. 2015
 *Rebekkah Jensen, M.S., 2010
 Rachael Mallis, M.S., 2010
 *Joseph Johnson, Ph.D., 2012
 Bryan Tom, M.S., 2012
 *Sean Murphy, Ph.D., (active)
 Joshua Felch, M.S.
 Alejandra Betancourt, M.S. (active)
 Mickey Agha, M.S.
 *John Hast, Ph.D. (active)
 *Alexandra Slusher, M.S. (active)
 *Marissa Thalken, M.S. (active)
 *Phillip Arant, M.S. (active)
 *Piper Roby, Ph.D. (active)

*Major advisor or co-advisor

8. Post-Doctoral Scholars Supervised:

Michael Baker, Ph.D., Louisiana State University
 Laura Lhotka, Ph.D., Auburn University
 Luke Dodd, Ph.D., University of Kentucky

9. Teaching and Undergraduate Advising:

University of Kentucky:

Wildlife Biology and Management (FOR 370); 2011-2015
Introduction to Wildlife Conservation (FOR 101); 1990
Data Collection Techniques (NRC 320) – contributing instructor; 1994-2001, 2005-
2015
Forest Wildlife Management (FOR 430); 1990-2011
Interdependent Natural Resource Issues (FOR 470); 2013-2014
Integrated Forest Resources Management (FOR 480) – team taught course; 1994-
2006
Renewable Natural Resources in a Global Perspective (**Graduate Level** - FOR 602)
– contributing instructor; 2003, 2005, 2007, 2009, 2011, 2013, 2015
Special Topics in Conservation Biology (**Graduate Level** - FOR 620); 1995
Wildlife Habitat Analysis (**Graduate Level** - FOR 630); 1992, 1994, 1996, 2000,
2006
Forestry Seminar (**Graduate Level** – FOR 770); 2002

The Pennsylvania State University:

Introduction to Wildlife Management (WILDL 101); 1986-1989
Wildlife Mensuration (WILDL 204); 1986-1989
Animal Handling and Care (WILDL 209); 1987-1988
Dendrology (FOR 250); 1989

SUNY @ Plattsburgh:

Ecology (ENV/BIO 210); 1985
Introduction to Soils (ENV 270); 1986
Wildlife Ecology (ENV 330); 1985-1986
Community and Systems Ecology (ENV 331); 1985
Population Ecology (ENV 335); 1986
Habitat Analysis (ENV 435); 1985-1986

North Carolina State University:

Conservation of Natural Resources (FW 221); 1984

Undergraduate Advising:

University of Kentucky: ca. 170 undergraduate advisees; 22 internships.

The Pennsylvania State University: ca. 60 undergraduate advisees.

SUNY @ Plattsburgh: ca. 20 undergraduate advisees.

10. Publications:

Books, Book Chapters & Refereed Proceedings:

Law, B., K.J. Park, and M.J. Lacki. 2015. Insectivorous bats and silviculture: balancing timber production and bat conservation. Pp. XXX-XXX in C.C. Voigt and T. Kingston (eds.), *Bats in the Anthropocene*. Springer Publishing, New York, NY (in press).

Dodd, L.E., N.S. Skowronski, M.B. Dickinson, M.J. Lacki, and L.K. Rieske. 2013. Using LiDAR to link forest canopy structure with bat activity and insect occurrence: preliminary findings. Pp. 50-57 in *Mammoth Cave National Park's 10th Research Symposium: Celebrating the Diversity of Research in the Mammoth Cave Region*. Mammoth Cave, Kentucky.

Loeb, S.C., M.J. Lacki, and D.A. Miller, editors. 2011. *Conservation and management of eastern big-eared bats: a symposium*. Southern Research Station, USDA, GTR-SRS-145, 157pp.

Lacki, M.J., and L.E. Dodd. 2011. Diet and foraging behavior of *Corynorhinus* in eastern North America. Pp. 39-52 in *Conservation and management of eastern big-eared bats: a symposium*. (Loeb, S.C., M.J. Lacki, and D.A. Miller, eds.), Southern Research Station, USDA, GTR-SRS-145.

Johnson, J.S, and M.J. Lacki. 2011. Foraging and roosting ecology of Rafinesque's big-eared bat at the northern edge of the range. Pp. 129-137 in *Conservation and management of eastern big-eared bats: a symposium* (Loeb, S.C., M.J. Lacki, and D.A. Miller, eds.), Southern Research Station, USDA, GTR-SRS-145.

Loeb, S.C., M.J. Lacki, and D.A. Miller. 2011. Conservation and management of eastern big-eared bats: an introduction. Pp. 1-11 in *Conservation and management of eastern big-eared bats: a symposium*. (Loeb, S.C., M.J. Lacki, and D.A. Miller, eds.), Southern Research Station, USDA, GTR-SRS-145.

Dickinson, M.B, M.J. Lacki, and D.R. Cox. 2009. Fire and the endangered Indiana bat. Pp. 51-75 in *Proceedings of the 3rd fire in eastern oak forests conference* (Hutchinson, T.F., ed.), Northern Research Station, USDA, GTR-NRS-P-46.

Lacki, M.J., J.P. Hayes, and A. Kurta, editors. 2007. *Bats in forests: conservation and management*. The Johns Hopkins University Press, Baltimore, MD. 329pp.

Lacki, M.J., S.K. Amelon, and M.D. Baker. 2007. Foraging ecology of bats in forests. Pp. 83-127 in *Bats in forests: conservation and management* (M.J. Lacki, J.P. Hayes, and A. Kurta, eds.), The Johns Hopkins University Press, Baltimore, MD.

Lacki, M.J. 2002. Conference summary. Pp. xi-xii in *The Indiana bat: biology and management of an endangered species* (A. Kurta and J. Kennedy, eds.), Bat Conservation International, Inc., Austin, TX.

Hutchinson, J.T., and M.J. Lacki. 1999. Foraging behavior and habitat use of red bats in mixed mesophytic forests of the Cumberland Plateau, Kentucky. Pp. 171-177 in Proceedings of the 12th Central Hardwood Forest conference (J.W. Stringer and D.L. Loftis, eds.), USDA, GTR-SRS-24.

Lacki, M.J. 1996. The role of research in conserving bats in managed forests. Pp. 39-48 in Bats and forests symposium (R.M.R. Barclay and R.M. Brigham, eds.), Research Branch, British Columbia Ministry of Forests, Victoria, BC, Working Paper 23/1996.

Webster, H.J., M.J. Lacki, and J.W. Hummer. 1994. Biotic development comparisons of a wetland constructed to treat mine water drainage with a natural wetland system. Pp. 102-110 in Third International Conference on the abatement of acidic drainage (R.L.P. Kleinmann, ed.), Pittsburgh, PA.

Lacki, M.J. 1992. Animals everywhere: the basics of population dynamics. Pp. 39-46 of Section I in Private lands wildlife management: a technical guidance manual and correspondence course (T.G. Barnes, L.R. Kiesel, and J.R. Martin, eds.), University of Kentucky, Lexington, KY.

Lacki, M.J., J.W. Hummer, and H.J. Webster. 1990. Diversity patterns of invertebrate fauna in cattail wetlands receiving acid mine drainage. Pp. 365-371 in Proceedings, 1990 Mining and Reclamation conference and exhibition Vol. II (J. Skousen, J. Scencindiver, and D. Samuel, eds.), Charleston, WV.

Refereed Publications:

Lacki, M.J., L.E. Dodd, R.S. Toomey, S.C. Thomas, Z.L. Couch, and B.S. Nichols. 2015. Temporal changes in body mass and body condition of cave-hibernating bats during staging and swarming in Mammoth Cave National Park, Kentucky. *Journal of Fish and Wildlife Management* (in press).

Lacki, M.J., J.J. Krupa, and S.P. Lacki. 2015. Extralimital movement of Seminole bats (*Lasiurus seminolus*) into Kentucky. *Journal of the Kentucky Academy of Science* (in press).

Barding, E.E., and M.J. Lacki. 2015. Occurrence of nematodes (*Dracunculus* sp.) in reintroduced river otters in Kentucky. *Journal of the Kentucky Academy of Science* (in press).

Dodd, L.E., M.J. Lacki, J.S. Johnson, and L.K. Rieske. 2015. Prey size and dietary niche of Rafinesque's big-eared bat (*Corynorhinus rafinesquii*). *Southeastern Naturalist* (in press).

Dodd, L.E., M.J. Lacki, D.R. Cox, and L.K. Rieske. 2014. Prey consumed by bats across Central Appalachia prior to detection of white-nose syndrome. *Journal of the Kentucky Academy of Science* (in press).

- Barding, E.E., and M.J. Lacki. 2014. Demographic and reproductive characteristics of reintroduced northern river otters in Kentucky: implications for population growth. *American Midland Naturalist* 172: 339-348.
- Johnson, J.S., and M.J. Lacki. 2013. Effects of reproductive condition, roost microclimate, and weather patterns on summer torpor use by a vespertilionid bat. *Ecology and Evolution* (doi: 10.1002/ece3.913).
- Bat Conservation International and Southeastern Bat Diversity Network. 2013. A conservation strategy for Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) and southeastern myotis (*Myotis austroriparius*). Prepared by M.J. Lacki and M.L. Bayless. Bat Conservation International, Inc., Austin, Texas. 101 pp.
- Lacki, M.J., J.S. Johnson, and M.D. Baker. 2013. Temperatures beneath bark of dead trees used as roosts by *Myotis volans* in forests of the Pacific Northwest, USA. *Acta Chiropterologica* 15:143-151.
- Johnson, J.S., and M.J. Lacki. 2013. Habitat associations of Rafinesque's big-eared bats (*Corynorhinus rafinesquii*) and their lepidopteran prey in bottomland hardwood forests. *Canadian Journal of Zoology* 91: 94-101.
- Johnson, J.S., J.N. Kropczynski, and M.J. Lacki. 2013. Social network analysis and the study of sociality in bats. *Acta Chiropterologica* 15: 1-17.
- Johnson, J.S., and M.J. Lacki. 2012. Summer heterothermy in Rafinesque's big-eared bats (*Corynorhinus rafinesquii*) roosting in tree cavities in bottomland hardwood forests. *Journal of Comparative Physiology B* (doi: 10.1007/s00360-012-0728).
- Johnson, J.S., M.J. Lacki, S.C. Thomas, and J.F. Grider. 2012. Frequent arousals from winter torpor in Rafinesque's big-eared bat (*Corynorhinus rafinesquii*). *PLoS ONE* 7(11): e49754. doi: 10.1371/journal.pone.0049754.
- Johnson, J.S., J.N. Kropczynski, M.J. Lacki, and G.D. Langlois. 2012. Social networks of Rafinesque's big-eared bats (*Corynorhinus rafinesquii*) in bottomland hardwood forests. *Journal of Mammalogy* 93: 1545-1558.
- Barding, E.E., and M.J. Lacki. 2012. Winter diet of river otters in Kentucky. *Northeastern Naturalist* 19: 157-164.
- Lacki, M.J., M.D. Baker, and J.S. Johnson. 2012. Temporal dynamics of roost snags of long-legged myotis in the Pacific Northwest, USA. *Journal of Wildlife Management* 76: 1310-1316.
- Dodd, L.E., E.G. Chapman, J.D. Harwood, M.J. Lacki, and L.K. Rieske. 2012. Identification of prey of *Myotis septentrionalis* using DNA-based techniques. *Journal of Mammalogy* 93: 1119-1128.

Kroll, A.J., M.J. Lacki, and E.B. Arnett. 2012. Research needs to support management and conservation of cavity dependant birds and bats on forested landscapes in the Pacific Northwest. *Western Journal of Applied Forestry* 27: 128-136.

Dodd, L.E., M.J. Lacki, E.R. Britzke, D.A. Buehler, P.D. Keyser, J.L. Larkin, A.D. Rodewald, T.B. Wigley, P.B. Wood, and L.K. Rieske. 2012. Forest structure affects trophic linkages: how silvicultural disturbance impacts bats and their insect prey. *Forest Ecology and Management* 267: 262-270.

Dodd, L.E., M.J. Lacki, and L.K. Rieske. 2011. Habitat associations of Lepidoptera in the Ozark Mountains of Arkansas. *Journal of the Kansas Entomological Society* 84: 271-284.

Johnson, J.S., K.S. Watrous, G.J. Giumarro, T.S. Peterson, S.A. Boyden, and M.J. Lacki. 2011. Seasonal and geographic trends in acoustic detection of tree-roosting bats. *Acta Chiropterologica* 13: 157-168.

Barding, E.E., M.J. Lacki, and L.L. Patton. 2010. Recovery of the river otter to Kentucky. *Proceedings of the Southeastern Association of Fish and Wildlife Agencies* 64: 112-117.

Dickinson, M.B., J.C. Norris, A.S. Bova, R.L. Kremens, V. Young, and M.J. Lacki. 2010. Effects of wildland fire smoke on a tree-roosting bat: integrating a plume model, field measurements, and mammalian dose-response relationships. *Canadian Journal of Forest Research* 40: 2187-2203.

Lacki, M.J., M.D. Baker, and J.S. Johnson. 2010. Geographic variation in roost-site selection of long-legged myotis in the Pacific Northwest. *Journal of Wildlife Management* 74: 1218-1228.

Lacki, M.J., D.R. Cox, L.E. Dodd, and M.B. Dickinson. 2009. Response of northern bats (*Myotis septentrionalis*) to prescribed fires in eastern Kentucky forests. *Journal of Mammalogy* 90: 1165-1175.

Lacki, M.J., D.R. Cox, and M.B. Dickinson. 2009. Meta-analysis of summer roosting characteristics of two species of *Myotis* bats. *American Midland Naturalist* 161: 321-329.

Dzialak, M.R., K.M. Carter, M.J. Lacki, D.F. Westneat, and K. Anderson. 2009. Activity of post-fledging peregrine falcons in different rearing and habitat conditions. *Southeastern Naturalist* 8: 93-106.

Baker, M.D., M.J. Lacki, G.A. Falxa, P.L. Droppelman, R.A. Slack, and S.A. Slankard. 2008. Habitat use of pallid bats in coniferous forests of northern California. *Northwest Science* 82: 269-275.

- Dodd, L.E., M.J. Lacki, and L.K. Rieske. 2008. Variation in moth occurrence and implications for foraging habitat of Ozark big-eared bats. *Forest Ecology and Management* 255:3866-3872.
- Cox, D.R., M.J. Lacki, M.D. Baker, and J.S. Johnson. 2008. Sample size and the characterization of roosting habitat of forest-living bats. *Bat Research News* 49:1-9.
- Dodd, L.E., and M. J. Lacki. 2007. Prey consumed by *Corynorhinus townsendii ingens* in the Ozark mountain region. *Acta Chiropterologica* 9: 451-461.
- Lacki, M.J., and M.D. Baker. 2007. Day roosts of female fringed myotis, *Myotis thysanodes*, in xeric forests of the Pacific Northwest. *Journal of Mammalogy* 88: 967-973.
- Johnson, J.S., M.J. Lacki, and M.D. Baker. 2007. Foraging ecology of long-legged myotis, *Myotis volans*, in north-central Idaho. *Journal of Mammalogy* 88: 1261-1270.
- Lacki, M.J., J.S. Johnson, L.E. Dodd, and M.D. Baker. 2007. Prey consumption of insectivorous bats in coniferous forests of north-central Idaho. *Northwest Science* 81: 199-205.
- Dzialak, M.R., M.J. Lacki, and S. Vorisek. 2007. Survival, mortality, and morbidity among peregrine falcons reintroduced in Kentucky. *Journal of Raptor Research* 41: 61-65.
- Dzialak, M.R., K.M. Carter, and M.J. Lacki. 2007. Perch site selection by reintroduced peregrine falcons *Falco peregrinus*. *Wildlife Biology* 13:225-230.
- Baker, M.D., and M.J. Lacki. 2006. Day roosting habitat of female long-legged myotis in ponderosa pine forests. *Journal of Wildlife Management* 70: 207-215.
- Dzialak, M.R., M.J. Lacki, K.M. Carter, K. Huie, and J.J. Cox. 2006. An assessment of raptor hacking during a reintroduction. *Wildlife Society Bulletin* 34:542-547.
- Maehr, D.S., P. Crowley, J.J. Cox, M.J. Lacki, J.L. Larkin, T.S. Hoctor, L.D. Harris, and P.M. Hall. 2006. Of cats and Haruspices: genetic intervention in the Florida panther. Responses to Pimm et al. (2006). *Animal Conservation* 9:127-132.
- Dzialak, M.R., M.J. Lacki, J.L. Larkin, K.M. Carter, and S. Vorisek. 2005. Corridors affect dispersal initiation in reintroduced peregrine falcons. *Animal Conservation* 8:421-430.
- Dzialak, M.R., M.J. Lacki, and K.M. Carter. 2005. Characterization of potential release sites for peregrine falcon reintroduction. *Natural Areas Journal* 25:188-196.
- Lacki, M.J., J.W. Hummer, and J.L. Fitzgerald. 2005. Population patterns of copperbelly water snakes (*Nerodia erythrogaster neglecta*) in a riparian corridor impacted by mining and reclamation. *American Midland Naturalist* 153:357-369.

Dzialak, M.R., L.S. Burford, S. Vorisek, M.J. Lacki, and B.L. Palmer-Ball, Jr. 2005. The peregrine falcon and its recovery in Kentucky. *The Kentucky Warbler* 81:39-46.

Lacki, M. J., J.L. Fitzgerald, and J.W. Hummer. 2004. Changes in avian species composition following surface mining and reclamation along a riparian forest corridor in southern Indiana. *Wetlands Ecology and Management* 12:447-457.

Baker, M.D., and M.J. Lacki. 2004. Forest bat communities in the east Cascade Range, Washington. *Northwest Science* 78:234-241.

Lacki, M.J., H.F. Yacek, Jr., and M.D. Baker. 2004. Nesting success of forest songbirds in mixed mesophytic forests in eastern Kentucky. *Journal of the Kentucky Academy of Science* 65:21-26.

Secrist, D.E., D.S. Maehr, J.L. Larkin, and M.J. Lacki. 2004. Potential impacts of reintroduced elk on amphibian distribution and abundance in eastern Kentucky, U.S.A. *Natural Areas Journal* 24:65-68.

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Non-Refereed Publications & Published Abstracts:

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Lacki, M.J. 1980. A survey of bats in Wayne National Forest. M.S. Thesis, The Ohio State Univ., Columbus, OH. 70pp.

11. Presentations, Posters, and Seminars:

Lacki, M.J. 2014. Threatened and endangered forest bats in eastern U.S.: implications for forest management. 2014 Annual Meeting of the Kentucky Farm Bureau Federation, Louisville, KY.

Lacki, M.J., and M.L. Bayless. 2014. A conservation strategy for Rafinesque's big-eared bat and southeastern myotis. 19th Annual meeting of the Southeastern Bat Diversity Network and the 24th Colloquium on conservation of mammals in the southeastern United States, Nacogdoches, TX.

Lacki, M.J., D.R. Cox, L.E. Dodd, and M.B. Dickinson. 2014. Response of northern bats to prescribed fires in eastern Kentucky forests. Workshop for scientists and managers: discussing the relationships between fire management and the quality of habitat for bats. Mammoth Cave, KY.

Lacki, M.J., L.E. Dodd, R.S. Toomey, S.C. Thomas, Z.L. Couch, and B.S. Nichols. 2014. Body condition of cave-hibernating bats during staging and swarming in Mammoth Cave National Park. Workshop for scientists and managers: discussing the relationships between fire management and the quality of habitat for bats. Mammoth Cave, KY.

Lacki, M.J. 2012. Status of bats in Yellowstone National Park in advance of white-nose syndrome. Resource Management Division, YNP, Mammoth Hot Springs, WY.

Lacki, M.J. 2011. White-nose syndrome and North American bats. University of Kentucky, Lexington, KY.

- Dickinson, M.B., M.J. Lacki, and D.R. Cox. 2009. Fire and the endangered Indiana bat. Proceedings of the 3rd Fire in Eastern Oak Forests Conference, Carbondale, IL.
- Watrous, K.S., J.S. Johnson, G.J. Giumarro, T.S. Peterson, S.A. Boyden, and M.J. Lacki. 2009. Seasonal and geographic trends in acoustic detection of tree-roosting bats. Annual North American Symposium on Bat Research, Portland, OR.
- Lacki, M.J., D.R. Cox, L.E. Dodd, and M.B. Dickinson. 2008. Response of northern bats, *Myotis septentrionalis*, to prescribed fires in eastern Kentucky forests. 38th Annual North American Symposium on Bat Research, Scranton, PA.
- Lacki, M.J., D.R. Cox, and M.B. Dickinson. 2008. Response to prescribed fire of tree-roosting bats in eastern oak-hickory forest. International Workshop on Impact of Prescribed Fire in Forest Ecosystems. Athens, OH. **Invited.**
- Lacki, M.J., and M.D. Baker. 2004. Variation in choice of day roosts by reproductively-active female long-legged myotis, *Myotis volans* in ponderosa pine forests. 13th International Bat Research Conference, Mikolajki, Poland.
- Lacki, M.J., and S.K. Amelon. 2004. Foraging ecology of forest bats – a synthesis. 2nd Bats and Forests Symposium and Workshop, Hot Springs, AR. **Invited.**
- Lacki, M.J. 2004. Use of day roosts by *Myotis volans* and *Myotis thysanodes* in coniferous forests on the east side of the Cascade Crest. Oregon Chapter of The Wildlife Society Annual Meeting. Bend, OR. **Invited.**
- Lacki, M.J., and D.A. Miller. 2003. The need for scientific rigor in habitat studies of forest bats. 13th Annual Colloquium on Conservation of Mammals in the Southeastern United States. Starkville, MI. **Invited.**
- Lacki, M.J. 2001. The 2001 Indiana bat symposium: Introductory remarks. The Indiana Bat Symposium: Biology and Management of an Endangered Species. Lexington, KY.
- Perkins, J.M., and M.J. Lacki. 2000. An assessment of a snag model for roosting bats in Douglas fir forests. 30th Annual North American Symposium on Bat Research, Coral Gables, FL.
- Lacki, M.J., and J.T. Hutchinson. 1999. Foraging behavior and habitat use of red bats in mixed mesophytic forests of the Cumberland Plateau, Kentucky. 12th Central Hardwood Forest Conference, Lexington, KY.
- Lacki, M.J., and J.H. Schwierjohann. 1999. Selection of day roosts by northern bats (*Myotis septentrionalis*) in mixed mesophytic forest. 9th Colloquium on Conservation of Mammals in the South-Central United States.
- Lacki, M.J. 1998. Roosting ecology of a Nearctic phytophilic bat. Seminar presented at the University of Kentucky (Dept. of Biological Sciences).

- Lacki, M.J. 1998. Biology and management of *Corynorhinus rafinesquii* at Robinson Forest. Seminar presented at the University of Kentucky (Dept. of Forestry)
- Hurst, T.E., and M.J. Lacki. 1997. Foraging areas and habitat use of Rafinesque's big-eared bat in southeastern Kentucky. 27th Annual North American Symposium on Bat Research, Tucson, AZ.
- Lacki, M.J. 1997. Analyzing bat telemetry data. Workshop on Bat Telemetry. 2nd Annual Meeting, The Southeastern Bat Diversity Network. **Invited.**
- Walker, J., and M.J. Lacki. 1997. Stream channel stability in various valley types in eastern Kentucky. Kentucky Water Resources Annual Symposium, Lexington, KY.
- Lacki, M.J. 1996. Implications of silvicultural prescriptions for the management of herpetofauna in the Daniel Boone National Forest. Seminar presented at Eastern Kentucky University.
- Lacki, M.J. 1995. The role of research on conserving bats in managed forests. Bats and Forests Symposium. Victoria, British Columbia, Canada. **Invited.**
- Lacki, M.J., and M.D. Baker. 1995. Long-term monitoring of small mammals on the Daniel Boone National Forest, Kentucky: evaluation of responses to silvicultural prescriptions. 5th Colloquium on Conservation of Mammals in the South-Central United States.
- Lacki, M.J. 1995. Some thoughts on the feeding habits of the endangered gray bat (*Myotis grisescens*). 5th Colloquium on Conservation of Mammals in the South-Central United States.
- Lacki, M.J. 1994. Bat identification. 1st Eastern Nuisance Wildlife Control Operators Shortcourse, Lexington, KY. **Invited.**
- Lacki, M.J. 1993. Foraging patterns of *Myotis grisescens* in Jessamine Creek Gorge, Kentucky. Seminar presented to The Nature Conservancy & the Friends of Jessamine Creek.
- Lacki, M.J. 1993. Habitat requirements of Virginia big-eared bats in Daniel Boone National Forest. Seminar presented at Eastern Kentucky University.
- Lacki, M.J., and L.G. Shoemaker. 1993. Foraging patterns of *Myotis grisescens* in Jessamine Creek Gorge, Kentucky. 23rd Annual North American Symposium on Bat Research, Gainesville, FL.
- Lacki, M.J. 1993. Status of research project on Virginia big-eared bats in Daniel Boone National Forest. Seminar presented to the U. S. Forest Service, DBNF.
- Lacki, M.J. 1992. Habitat requirements of Virginia big-eared bats in Daniel Boone National Forest. Seminar presented to the Kentucky Dept. Fish & Wildlife Resources.

Lacki, M.J., and M.D. Adam. 1992. Modeling feeding roost preferences of Virginia big-eared bats: comparison of parametric versus a non-parametric approach. 2nd Colloquium on Conservation of Mammals in the South-Central United States.

Lacki, M.J. 1991. Herpetofaunal use of a mine drainage treatment wetland: does this type of reclamation practice qualify as wildlife habitat enhancement? Seminar presented at University of Kentucky (Dept. of Biol. Sciences).

Lacki, M.J., J.W. Hummer, and H.J. Webster. 1990. Herpetofaunal use of constructed wetland receiving acid mine drainage. Society for Ecological Restoration, Chicago, IL.

Lacki, M.J., J.W. Hummer, and H.J. Webster. 1990. Diversity patterns of invertebrate fauna in cattail wetlands receiving acid mine drainage. The 1990 Mining and Reclamation Conference and Exhibition, Charleston, WV.

Lacki, M.J. 1990. Faunal diversity patterns of the Simco #4 constructed wetland. Seminar presented to the Ohio EPA and the Ohio Department of Natural Resources.

Lacki, M.J. 1988. Effect of European wild boar on tree growth and nutrient cycling in Great Smoky Mountains National Park. Seminar presented at the University of Dayton.

Lacki, M.J. 1986. Impacts of water level drawdowns on the wetland ecosystems at the Chateaugay Lakes, New York. Seminar presented to the New York DEC and the Adirondack Park Agency.

Lacki, M.J. 1986. Muskrat management: effects of drawdowns. Workshop on Furbearer Management in New York: Issues and Progress. The New York Chapter of TWS Annual Meeting. **Invited.**

Lacki, M.J., and W.T. Peneston. 1986. Evidence for predator avoidance in the foraging patterns of muskrats. 66th Annual Meeting of the American Society of Mammalogists, Madison, WI.

Lacki, M.J. 1985. Long-term responses in forest growth to rooting by wild pigs. IV International Theriological Congress, Edmonton, Alberta, Canada.

Lacki, M.J., and R.A. Lancia. 1983. Changes in growth and foliar nutrient levels of *Fagus grandifolia* in relation to soil disturbed by wild boar. National Society of American Foresters Convention, Portland, OR.

Lacki, M.J., and R.A. Lancia. 1983. Changes in soil properties of forests rooted by wild boar. 37th Annual Meeting, Southeastern Association of Fish & Wildlife Agencies.

Lacki, M.J., and R.A. Lancia. 1983. Shoot growth response of *Fagus grandifolia* to rooting by wild boar. 9th Annual Scientific Research Meeting, National Park Service.

Lacki, M.J., and R.A. Lancia. 1982. Effect of wild boar on tree growth: an alternative hypothesis. 8th Annual Scientific Research Meeting, National Park Service.

Lacki, M.J., and T.A. Bookout. 1982. Factors influencing the efficiency of mist nets at capturing bats in riparian habitat. 12th Annual North American Symposium on Bat Research, Louisville, KY.

Lacki, M.J., M.J. Gregory, and P.K. Williams. 1978. Behavioral changes in *Tamias striatus* associated with food availability. 58th Annual Meeting of the American Society of Mammalogists, Athens, GA.

Papers and Posters Presented by Students & Post-Doctoral Scholars:

Dodd, L.E., M.J. Lacki, N.S. Skowronski, M.B. Dickinson, and L.K. Rieske. 2015. Long-term impacts of prescribed fire on bat and insect activity at Mammoth Cave National Park. Proceedings of the 5th Fire in Eastern Oak Forests Conference, Tuscaloosa, AL.

Dodd, L.E., M.J. Lacki, N.S. Skowronski, M.B. Dickinson, and L.K. Rieske. 2014. Investigating the effects of fire & forest canopy conditions on the abundance and diversity of insects at Mammoth Cave National Park. Workshop for scientists and managers: discussing the relationships between fire management and the quality of habitat for bats. Mammoth Cave, KY.

Dodd, L.E., M.J. Lacki, N.S. Skowronski, M.B. Dickinson, and L.K. Rieske. 2014. Modeling bat activity across the fire-managed landscape of Mammoth Cave National Park using remotely-sensed forest canopy data. Workshop for scientists and managers: discussing the relationships between fire management and the quality of habitat for bats. Mammoth Cave, KY.

McKenna, M.M., L.E. Dodd, and M.J. Lacki. 2014. Assessing bat activity across the northern tier of Yellowstone National Park (Poster). Annual Meeting of the National Council for Undergraduate Research, Lexington, KY.

Dodd, L.E., M.J. Lacki, N.S. Skowronski, M.B. Dickinson, and L.K. Rieske-Kinney. 2014. Developing predictive models of bat activity using remotely sensed forest canopy data. 19th Annual meeting of the Southeastern Bat Diversity Network and the 24th Colloquium on conservation of mammals in the southeastern United States, Nacogdoches, TX.

Dodd, L.E., M.J. Lacki, and L.K. Rieske-Kinney. 2013. Exploring prey size and diet breadth of Rafinesque's big-eared bat, a lepidopteran specialist. Annual Meeting of the Entomological Society of America, Austin, TX.

Dodd, L.E., M.J. Lacki, and L.K. Rieske-Kinney. 2013. Assessing dietary specialization of Rafinesque's big-eared bats (*Corynorhinus rafinesquii*) from a maternity colony at Mammoth Cave National Park. 2nd International Symposium on the Detection of Trophic Interactions, Lexington, KY.

Dodd, L.E., M.J. Lacki, N.S. Skowronski, M.B. Dickinson, and L.K. Riese-Kinney. 2013. Predicting bat activity across Mammoth Cave National Park using LiDAR-derived predictors of forest canopy conditions. Annual Meeting of the Kentucky Bat Working Group, Frankfort, KY.

Dodd, L.E., M.J. Lacki, N.S. Skowronski, D.R. Cox, M.B. Dickinson, and L.K. Riese-Kinney. 2013. Responses of *Myotis* bats & their prey to the effects of prescribed fire in the central hardwood forests of Kentucky. Prescribed Fire and Indiana Bats Workshop, Hosted by the USDA Forest Service, Indiana State University, and the Consortium of Appalachian Fire Managers and Scientists, Fontana Dam, NC.

Dodd, L.E., N.S. Skowronski, M.B. Dickinson, M.J. Lacki, and L.K. Riese. 2013. Using LiDAR to link forest canopy structure with bat activity and insect occurrence: preliminary findings. Mammoth Cave National Park's 10th Research Symposium: Celebrating the Diversity of Research in the Mammoth Cave Region. Mammoth Cave, Kentucky.

Johnson, J., J. Treanor, M. Lacki, M. Baker, L. Dodd, and G. Falxa. 2012. Preparing for possible arrival of white-nose syndrome in the western United States: an example from Yellowstone National Park. 42nd Annual North American Symposium on Bat Research. San Juan, Puerto Rico.

Dodd, L.E., J.S. Johnson, L.K. Riese-Kinney, S.C. Thomas, R.S. Toomey, and M.J. Lacki. 2012. Pre- and post-hibernation changes in the body condition of bats susceptible to white nose syndrome at Mammoth Cave National Park. 22nd Colloquium on Conservation of Mammals in the Southeastern United States, Louisville, MS.

Johnson, J.S., S.C. Thomas, and M.J. Lacki. 2012. Winter torpor and movements of *Corynorhinus rafinesquii* in Mammoth Cave National Park, Kentucky. 22nd Colloquium on Conservation of Mammals in the Southeastern United States, Louisville, MS. (**Outstanding Paper Award**).

Johnson, J.S., J.N. Kropezynski, and M.J. Lacki. 2011. Social networks of Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) in Kentucky. 21st Colloquium on Conservation of Mammals in the Southeastern United States, Louisville, KY. (**Outstanding Paper Award**).

Dodd, L.E., M.J. Lacki, and L.K. Riese-Kinney. 2011. First-year response of forest bats and their arthropod prey to prescribed fire during the swarming period at Mammoth Cave National Park. 21st Colloquium on Conservation of Mammals in the Southeastern United States, Louisville, KY.

Dodd, L.E., D.R. Cox, J.S. Johnson, M.J. Lacki, and L. K. Riese-Kinney. 2011. Regional assessment of prey consumed by bats in Central Appalachia prior to the arrival of white-nose syndrome. 41st Annual North American Symposium on Bat Research. Toronto, Canada.

Johnson, J.S., M.J. Lacki, and J.F. Grider. 2011. Thermoregulatory strategies of Rafinesque's big-eared bats (*Corynorhinus rafinesquii*) roosting in trees, caves, rock

shelters, and buildings. 41st Annual North American Symposium on Bat Research. Toronto, Canada.

Dodd, L.E., M.J. Lacki, and L.K. Rieske-Kinney. 2010. Impacts of disturbance on bats and nocturnal insects in the hardwood forests of eastern North America. Annual Meeting of the Entomological Society of America. San Diego, CA.

Dodd, L.E., M.J. Lacki, and L.K. Rieske-Kinney. 2010. Impacts of disturbance on bats and nocturnal insects in the hardwood forests of Kentucky. Annual Meeting of the Kentucky Native Plant Society. Shakertown, KY.

Johnson, J.S., and M.J. Lacki. 2010. Social roosting behavior in colonies of *Corynorhinus rafinesquii* in bottomland hardwood and upland karst regions of Kentucky. Annual North American Symposium on Bat Research, Denver, CO.

Barding, E.E., M.J. Lacki, and L.L. Patton. 2010. Recovery of the river otter (*Lontra canadensis*) to Kentucky. Proceedings of the Southeastern Association of Fish and Wildlife Agencies, Biloxi, MS.

Lacki, M.J., and L.E. Dodd. 2010. Diet and foraging behavior of *Corynorhinus* in eastern North America. Proceedings of the Conservation and Management of Eastern Big-eared Bats, Athens, GA. **Invited.**

Johnson, J.S., and M.J. Lacki. 2010. Foraging and roosting ecology of Rafinesque's big-eared bat at the northern edge of the range. Proceedings of the Conservation and Management of Eastern Big-eared Bats, Athens, GA.

Loeb, S.C., M.J. Lacki, and D.A. Miller. 2010. Conservation and management of eastern big-eared bats: an introduction. Proceedings of the Conservation and Management of Eastern Big-eared Bats, Athens, GA.

Dodd, L.E., L.K. Rieske-Kinney, and M.J. Lacki. 2010. Occurrence and diversity of nocturnal insects vary across a disturbance gradient in the Central Appalachians of eastern North America. Annual Meeting of the North Central Branch of the Entomological Society of America, Louisville, KY.

Dodd, L.E., M.J. Lacki, and L.K. Rieske-Kinney. 2010. Impacts of disturbance on bats and nocturnal insects in the hardwood forests of Kentucky. Annual Meeting of the Kentucky Native Plant Society, Shakertown, KY.

Dodd, L.E., E.G. Chapman, J.D. Harwood, M.J. Lacki, and L.K. Rieske-Kinney. 2009. Genetic markers offer multiple approaches to infer prey consumption by forest-dwelling bats. Annual Meeting of the Entomological Society of America, Indianapolis, IN.

Dodd, L.E., E.G. Chapman, J.D. Harwood, M.J. Lacki, and L.K. Rieske-Kinney. 2009. Barcoding forest Lepidoptera: development and application of a sequence

library. Annual Southern Forest Insect Work Conference, Gulfport, MS.

Cox, D.R., M.J. Lacki, L.E. Dodd, and M.B. Dickinson. 2008. Response of northern bats to prescribed fire in eastern Kentucky forests. 38th Annual North American Symposium of Bat Research. Scranton, PA.

Dodd, L.E., L.K. Rieske-Kinney, and M.J. Lacki. 2008. Genetic approaches enhance our understanding of the consumption of insects by forest-dwelling bats. Annual Meeting of the Entomological Society of America, Reno, NV.

Dodd, L.E., L.K. Rieske-Kinney, and M.J. Lacki. 2008. Silvicultural disturbance influences bat activity and the occurrence of nocturnal insects in the central Appalachians of eastern North America. 38th Annual North American Symposium on Bat Research, Scranton, PA.

Dodd, L.E., L.K. Rieske-Kinney, and M.J. Lacki. 2008. Silvicultural disturbances influence the insect prey base of forest-dwelling bats. 51st Annual Southern Forest Insect Work Conference, Chattanooga, TN.

Dodd, L.E., L.K. Rieske-Kinney, and M.J. Lacki. 2008. Application of genetic techniques for detection of prey of forest-dwelling bats. 18th Colloquium on Conservation of Mammals in the Southeastern United States, Blacksburg, VA.

Barding, E.E., M.J. Lacki, and E. Carlisle. 2008. Status of the river otter (*Lontra canadensis*) in Kentucky. Midwest Furbearer Resources Workshop, Olathe, KS.

Barding, E.E., and M.J. Lacki. 2007. Status, distribution and reproductive characteristics of river otters in Kentucky. Southeast Furbearer Managers Workshop, Cadiz, KY.

Dodd, L.E., L.K. Rieske-Kinney, and M.J. Lacki. 2007. Novel and traditional approaches for identifying prey of forest-dwelling bats: a comparison of methods. 50th Annual Southern Forest Insect Work Conference, Jeckyll Island, GA.

Dodd, L.E., L.K. Rieske-Kinney, and M.J. Lacki. 2007. Effects of timber harvest on insect prey and the activity of forest-dwelling bats in the central Appalachians. University of Kentucky graduate Student Interdisciplinary Conference, Lexington, KY.

Dodd, L.E., M.J. Lacki, and L.K. Rieske-Kinney. 2006. Variation of Lepidoptera across forest landscapes – Implications for the Ozark big-eared bat (*Corynorhinus townsendii ingens*) in Arkansas. Annual meeting of the Entomological Society of America, Indianapolis, IN.

Baker, M.D., and M.J. Lacki. 2006. day-roosting habits of female fringed myotis, *Myotis thysanodes*, in xeric forests of the Pacific Northwest. 36th North American Symposium on Bat Research, Wilmington, NC.

Dodd, L.E., and M.J. Lacki. 2006. Occurrence of prey and diet of the Ozark big-eared bat (*Corynorhinus townsendii ingens*). 36th North American Symposium on Bat Research, Wilmington, NC.

Johnson, J.S., M.J. Lacki, and M.D. Baker. 2006. Foraging ecology of long-legged myotis (*Myotis volans*) in north-central Idaho. 36th North American Symposium on Bat Research, Wilmington, NC.

Dodd, L.E., M.J. Lacki, and L. Rieske-Kinney. 2006. Variation in lepidopteran communities across landscapes – implications for forest-dwelling bats in eastern North America. North American Forest Insect Work Conference, Asheville, NC.

Dodd, L.E., and M.J. Lacki. 2006. Landscape variation of moth abundance surrounding roost sites of the Ozark big-eared bat (*Corynorhinus townsendii ingens*) in Arkansas. 16th Colloquium on Conservation of Mammals in the Southeastern United States, Chattanooga, TN.

Dzialak, M.R., M.J. Lacki, J.L. Larkin, K.M. Carter, and S. Vorisek. 2005. Corridors affect dispersal initiation in reintroduced peregrine falcons. 12th Annual Conference of The Wildlife Society, Madison, WI.

Potter, T.M., J.A. Hanna, L. Freer, and M. Lacki. 2005. Agonistic behavior of the North American river otter (*Lontra canadensis*) toward humans: a medical case report & review of literature. 2005 Wilderness Medicine Conference and Annual Meeting, Snowmass, CO.

Baker, M.D., and M.J. Lacki. 2004. Habitat use by day-roosting female long-legged myotis (*Myotis volans*) in ponderosa pine forests. 2nd Bats and Forests Symposium, Hot Springs, AR.

LaDeur, K.M., M.R. Dzialak, and M.J. Lacki. 2003. Characteristics of perch sites used by peregrine falcons reintroduced in Kentucky cliff habitat. 10th Annual Conference of The Wildlife Society, Burlington, VT.

Baker, M.D., and M.J. Lacki. 2002. Importance of slope position and type of bark in selection of day roosts by female *Myotis volans*. 32rd Annual North American Symposium on Bat Research, Burlington, VT.

LaDeur, K.M., M.R. Dzialak, M.J. Lacki, L.S. Burford, and R.E. Bethany. 2002. Comparison of food habits among territorial pairs of peregrine falcons in Kentucky. 9th Annual Conference of The Wildlife Society, Bismarck, ND.

Dzialak, M.R., M.J. Lacki, K.M. LaDeur, and L.S. Burford. 2002. Peregrine falcon restoration in Kentucky: history, research, and applied conservation. 9th Annual Conference of The Wildlife Society, Bismarck, ND.

Jollick, M.R., L.S. Burford, and M.J. Lacki. 2000. Selecting release-sites for restoration of peregrine falcons in cliff habitat in Kentucky. 7th Annual Conference of The Wildlife Society, Nashville, TN.

Schwierjohann, J.H., and M.J. Lacki. 1999. Selection of day roosts by northern bats (*Myotis septentrionalis*) in mixed mesophytic forest. The Kentucky Chapter of TWS Annual Meeting.

Hutchinson, J.T., and M.J. Lacki. 1998. Roost site selection of *Lasiurus borealis* in mixed mesophytic forests. 78th Annual Meeting, American Society of Mammalogists, Blacksburg, VA.

Hutchinson, J.T., and M.J. Lacki. 1997. Roost site selection of red bats in mixed mesophytic forests. 27th Annual North American Symposium on Bat Research, Tucson, AZ.

Hutchinson, J.T., and M.J. Lacki. 1997. A comparison of foraging area estimators using the CALHOME software package. The Kentucky Chapter of TWS Annual Meeting. **(Outstanding Student Paper)**.

Hurst, T.E., and M.J. Lacki. 1997. Tracking logistics: mountains. Workshop on Bat Telemetry. Second Annual Meeting, The Southeastern Bat Diversity Network.

Hutchinson, J.T., and M.J. Lacki. 1997. Preliminary observations on roost sites and foraging areas of the red bat in Kentucky. 7th Colloquium on Conservation of Mammals in the South-Central United States.

Adams, J.P., M.J. Lacki, and M.D. Baker. 1996. Response of herpetofauna to silvicultural prescriptions in the Daniel Boone National Forest, Kentucky. 50th Annual Meeting, Southeastern Association of Fish and Wildlife Agencies.

Hurst, T.E., and M.J. Lacki. 1996. Food habits of Rafinesque's big-eared bat in southeastern Kentucky. 26th Annual North American Symposium on Bat Research, Bloomington, IL.

Hurst, T.E., and M.J. Lacki. 1996. Food habits of Rafinesque's big-eared bat in Southeastern Kentucky. 6th Colloquium on Conservation of Mammals in the South-Central United States. **(Outstanding Student Paper)**.

Baker, M.D., and M.J. Lacki. 1995. Composition of breeding avifaunal communities in response to silvicultural prescriptions on the Daniel Boone National Forest, Kentucky. 49th Annual Meeting, Southeastern Association of Fish and Wildlife Agencies.

Baker, M.D., and M.J. Lacki. 1994. Avian community patterns in response to timber harvest methods in Daniel Boone National Forest. The Kentucky Chapter of TWS Annual Meeting. **(Outstanding Student Paper)**.

Shoemaker, L.G., and M.J. Lacki. 1993. Availability and selection of lepidopteran prey by the endangered Virginia big-eared bat in Daniel Boone National Forest. The Kentucky Chapter of TWS Annual Meeting. (**Outstanding Student Paper**).

Shoemaker, L.G., and M.J. Lacki. 1993. Selection of lepidopteran prey by *Plecotus townsendii virginianus* in the Daniel Boone National Forest of Kentucky. 23rd Annual North American Symposium on Bat Research, Gainesville, FL.

Madison, L.A., T.G. Barnes, J.D. Sole, and M.J. Lacki. 1993. Impacts of disturbance in tall fescue-dominated fields on northern bobwhite habitat. 47th Annual Meeting, Southeastern Association of Fish and Wildlife Agencies.

Madison, L.A., T.G. Barnes, J.D. Sole, and M.J. Lacki. 1993. Impacts of disturbance in tall fescue-dominated fields on northern bobwhite habitat. Annual Meeting, Midwest Fish and Wildlife Conference.

Lusk, M.R., M.J. Lacki, and R.A. Lancia. 1992. Responses of small mammal populations to wild hog rooting in the gray beech forests of Great Smoky Mountains National Park. 18th Annual Scientific Research Meeting, National Park Service.

Adam, M.D., and M.J. Lacki. 1992. Home range and habitat selection of an endangered Vespertilionid bat, *Plecotus townsendii virginianus*, in Daniel Boone National Forest, Kentucky. 22nd Annual North American Symposium on Bat Research, Quebec City, Canada.

Adam, M.D., M.J. Lacki, and T.G. Barnes. 1992. Determining critical habitat requirements of Virginia big-eared bats in Daniel Boone National Forest: application of home range estimates to habitat management guidelines. The Kentucky Chapter of TWS Annual Meeting.

Madison, L.A., T.G. Barnes, M.J. Lacki, and J.D. Sole. 1992. Fescue as northern bobwhite habitat? The Kentucky Chapter of TWS Annual Meeting. (**Outstanding Student Paper**).

Adam, M.J., and M.J. Lacki. 1992. Home range size and habitat preference of Virginia big-eared bats in Daniel Boone National Forest. 2nd Colloquium on Conservation of Mammals in the South-Central United States.

Adam, M.D., M.J. Lacki, and T.G. Barnes. 1991. Movements and habitat use of Virginia big-eared bats in the Daniel Boone National Forest. The Kentucky Chapter of TWS Annual Meeting. (**Outstanding Student Paper**).

Peneston, W.T., F.D. Vogt, and M.J. Lacki. 1987. Comparative muskrat (*Ondatra zibethicus*) morphology and physiology: the influence of water level and habitat type. American Society of Zoologists, New Orleans, LA.

12. Membership in Scientific and Professional Societies:

American Society of Mammalogists, 1978 to 2012
North American Society for Bat Research, 1980 to 2015
Society for Conservation Biology, 1990 to 2010
Southeastern Bat Diversity Network, 1992 to 2015
The Wildlife Society, 1978 to 2012

13. Service and Recognition:

Administrative Assignments:

Interim Chair of the Department of Forestry; University of Kentucky; 2009 to 2010

Managed departmental budgets exceeding \$3 million and provided oversight of programmatic activities in instruction, research and extension. Facilitated the transition of management of the school forest (Robinson Forest) from the Department of Forestry to the College of Agriculture unit in eastern Kentucky (RCARS). Lead departmental efforts in successful re-accreditation of the undergraduate curriculum by the Society of American Foresters. Implemented changes to the undergraduate curriculum leading to a BS in Forestry. Steered departmental process for developing a new mission statement and goals as requested by the Provost Office.

Chair of Robinson Forest Committee; University of Kentucky; 1999 to 2005

Responsibilities included directing the committee that is charged with oversight of instructional, research, and extension activities that occur on the University of Kentucky school forest. Committee chair has oversight of the development and implementation of management actions on the school forest as approved by the Department of Forestry faculty.

Director of Graduate Studies; University of Kentucky; 1995 to 1999

Served as the liaison for the Department of Forestry to the Graduate School. General responsibilities included recruitment, screening, and admission of graduate applicants. Served as Chair of the Department Graduate Committee. Revised the graduate curriculum as necessary.

Leader of Wildlife Technology Program; The Pennsylvania State University; 1986 to 1989

General responsibilities included hiring staff, assigning teaching loads, student recruitment, delegating student advising, equipment inventory and purchase, curriculum changes, and instituting University policies that impacted the faculty and operation of the program.

Awards and Honors:

Eagle Scout; Boy Scouts of America; 1973

Outstanding Student Teaching Award; North Carolina State University; 1983

Recognition for Outstanding Service; The Wildlife Society; 2000

Editorships and Reviewer Service:

Associate Editor for Proceedings of the Conservation and Management of Eastern Big-eared Bats (2009 to 2011)

Associate Editor for 2nd Bats in Forests Symposium (2003 to 2006)

Associate Editor for Nongame Wildlife Papers Proceedings of the 12th Central Hardwood Forest Conference (1998 to 1999)

Associate Editor for Nongame Technical Papers Proceedings of the 50th Southeastern Association of Fish & Wildlife Agencies (1996 to 1997)

Associate Editor, Transactions of the Northeast Section of the Wildlife Society (1989 to 1990)

Reviewer for 35 peer-reviewed journals (1982 to 2013)

Committees, Elected Positions, and Offices Held:

Past-President, Southeastern Bat Diversity Network, 2013-2015.

President, Southeastern Bat Diversity Network, 2011-2013.

President-Elect, Southeastern Bat Diversity Network, 2009-2011.

Proceedings Associate Editor and Member of Planning Committee for the Symposium on Conservation and Management of Big-eared Bats in Southeastern United States, Athens, GA; 2010.

Chair of the Publications Committee for the 2nd Bats and Forests Symposium and Workshop, Hot Springs, AR; 2004.

Host and Chair for The Indiana Bat Symposium: Biology and Management of an Endangered Species, Lexington, KY; 2001.

Chair for Contributed Papers for the 7th Annual Conference of The Wildlife Society, Nashville, TN; 2000.

Organizing Committee for the 7th Annual Conference of The Wildlife Society, Nashville, TN; 2000.

Member of the Ad-Hoc Recovery Team for the Virginia Big-eared Bat, U.S. Fish and Wildlife Service; 1992 to 1998.

Member of the Forest Wildlife Committee for the Southeastern Association of Fish and Wildlife Agencies; 1992 to 1997.

Chair of the Nongame Technical Committee for the Southeastern Association of Fish and Wildlife Agencies Annual Meeting, Hot Springs, Arkansas; 1996.

Board Member at Large for the Southeastern Bat Diversity Network; 1995 to 2003.

Host and Chair of the Program Committee for the 5th Colloquium on Conservation of Mammals in the South-Central United States; 1995.

Member of the Conservation Review and Public Statements Committee for the Kentucky Chapter of The Wildlife Society; 1993.

Board Member at Large for the Kentucky Chapter of The Wildlife Society; 1992.

Member of the Bats and Abandoned Mines Ad-hoc Committee for Bat Conservation International, Inc.; 1992.

Department Representative to the National Association of University Fish and Wildlife Programs; 1990 to 1991.

Member of the Anti-Hunting/Animal-Rights Sentiment Ad-hoc Committee of the Kentucky Chapter of The Wildlife Society; 1990.

Chapter Representative to the Northeast Section of The Wildlife Society for the Pennsylvania State Chapter; 1989.

Member of the Executive Committee for the Northeast Section of The Wildlife Society; 1989.

Member of the Publicity Committee for the North American Wildlife Technology Association; 1988.

CURRICULUM VITAE

JOHN M. LHOTKA

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EDUCATION

Doctorate of Philosophy, 2006. Silviculture, Auburn University
Dissertation: Predicting light transmittance and seedling growth across a gradient of riparian forest canopy structures

Master of Science, 2001. Forest Resource Management, Southern Illinois University
Thesis: The effects of soil scarification on oak regeneration in upland and bottomland forests of southern Illinois

Bachelor of Science, *Summa Cum Laude*, 1999. Forestry, Southern Illinois University

PROFESSIONAL EXPERIENCE

Associate Professor of Silviculture, University of Kentucky, Department of Forestry, Lexington, KY, July 2014 to present

Assistant Professor of Silviculture, University of Kentucky, Department of Forestry, Lexington, KY, June 2007 to June 2014

Affiliate Associate Professor, Auburn University, School of Forestry and Wildlife Sciences, Auburn, AL, November 2010 to present

Research Associate, Auburn University, School of Forestry and Wildlife Sciences, Auburn, AL, June 2006 to April 2007

Graduate Research Assistant, Auburn University, School of Forestry and Wildlife Sciences, Auburn, AL, May 2003 to May 2006

Forester (GS-9), USDA Forest Service, Rocky Mountain Research Station, Moscow, ID, July 2001 to March 2003

Graduate Research Assistant, Southern Illinois University, Department of Forestry, Carbondale, IL, August 1999 to May 2001

Intern Forester, Tennessee Valley Authority, Land Between The Lakes, Golden Pond, KY, June 1999 to August 1999

Field Research Technician, Southern Illinois University, Department of Forestry, Carbondale, IL, May 1998 to August 1998

RESEARCH

Extramural Research (\$521,656)

Lhotka, J.M., C.D. Barton, and J.W. Stringer. 2015-2017. Effect of grading technique on productivity of high-value tree species in reforested surface mine lands. U.S. Department of Interior, Applied Science Program Cooperative Agreements Related to Coal Mining and Reclamation. \$174,765. J.M. Lhotka PI

Lacki, M.J., J.W. Stringer, **J.M. Lhotka**, and M. Contreras. 2014-2017. Effect of silvicultural treatments on vertical stand structure in forested ecosystems of the Appalachian Mountain Region: Implications for foraging and roosting behavior of *Myotis* bats during the staging, maternity, and swarming seasons. The Forestland Group, LLC. \$150,000. J.M. Lhotka co-PI

Lhotka, J.M. Crosswalk and develop GIS mapping applications and accomplishment monitoring geospatial database. 2010-2011. Commonwealth of Kentucky, Energy and Environment Cabinet, Division of Forestry. \$6,000. J.M. Lhotka PI

Lhotka, J.M. and J.W. Stringer. Evaluating seedling development, stand structure, and understory microenvironment six growing seasons following midstory removal. 2009-2010. USDA Forest Service, Southern Research Station, Forestry Research (Federal Domestic Assistance Number: 10.652). \$14,435. J.M. Lhotka PI

J.M. Lhotka directed two M.S. students (Parrott and Craig) whose work was supported by this project. To date, this research has resulted in two M.S. theses, one refereed journal article, one non-refereed proceedings paper, and four presentations at professional meetings

Barton, C.D., **J.M. Lhotka**, R.C. Warner, C.T. Agouridis, D.H. Graves and S. Fei. 2008-2010. Techniques for establishing woody biomass plantations on surface mines as feedstocks for energy production. Kentucky Governors Office of Energy Policy: Energy R&D Program (08-GOEP-01). \$170,773. J.M. Lhotka co-PI

J.M. Lhotka directed M.S. student (Brinks) completing the project. This research has resulted in one M.S. thesis, one refereed journal article, one refereed proceedings paper, and three presentations at professional meetings

Lhotka, J.M. and J.W. Stringer. Evaluating seedling development, stand structure, and understory microenvironment six growing seasons following midstory removal. 2008. USDA Forest Service, Southern Research Station, Forestry Research (Federal Domestic Assistance Number: 10.652). \$5,683. J.M. Lhotka PI

J.M. Lhotka supervised field technician supported by this project. Project yielded one refereed proceedings paper

Other Research Efforts

Lhotka, J.M. 2013 to present. Silvicultural approaches to enhance the resiliency of oak-dominated forests to disturbance

University of Kentucky Agricultural Experiment Station Project KY009027

Lhotka, J.M. and T.F. Hutchinson. 2013 to present. Modeling long-term stand density and growth relationships in upland oak stands of Ohio and Kentucky

J.M. Lhotka is the PI directing the analysis of four USDA Forest Service stand density studies that include fifty years of tree growth and yield data

Bradford, M.A. and K.R. Covey. 2013 to present. Yale University eastern forest methane assessment project.

J.M. Lhotka is a collaborating investigator managing the Kentucky field site in a forest methane assessment network that includes 24 research locations across the eastern US

Lhotka, J.M. and J.W. Stringer. 2012 to present. Formulating an expanding-gap irregular shelterwood (*Femelschlag*) system for oak dominated stands

J.M. Lhotka is the project PI and is leading the development of a gap-based silvicultural practice designed to help address the oak regeneration issues present within the Central Hardwood Forest Region of the US. J.M. Lhotka is co-Major Advisor of the M.S. student (Patterson) involved with the project

Lhotka, J.M. 2008 to 2013. Use of underplanting to enhance the health and sustainability of oak-dominated ecosystems in Kentucky and the Central Hardwood Region

University of Kentucky Agricultural Experiment Station Project KY009022

Other Funding Sources (\$7,887)

Lhotka, J.M. and S. Fei. Barnhart Fund Award, \$1,000, 2010, awarded by University of Kentucky, College of Agriculture

Lhotka, J.M. Research Activity Award, \$1,500, Spring 2009, awarded by University of Kentucky, College of Agriculture

Lhotka, J.M. Research Activity Award, \$3,700, Fall 2008, awarded by University of Kentucky, College of Agriculture

Lhotka, J.M. Research Activity Award, \$1,000, Spring 2008, awarded by University of Kentucky, College of Agriculture

Lhotka, J.M. Research Activity Award, \$687, Fall 2007, awarded by University of Kentucky, College of Agriculture

Other Research Proposals Submitted

Extramural Submitted

Carlson, J.E., **J.M. Lhotka**, S. Schlarbaum, K.L. Shumaker, J.L. Wegrzyn. 2015. Landscape genomics of responses to environmental stress and forest management activities in oak-dominated forests. National Science Foundation, Plant Genome Research Project (15-548). \$3,959,657 (\$983,204 subaward to co-PI **J.M. Lhotka**)

Lhotka, J.M. and S.J. Price. 2015. Summer undergraduate fellowships in the science and management of Appalachian forest ecosystems. NIFA Agricultural and Food Research Initiative (USDA-NIFA-AFRI-004797), Undergraduate Research and Extension Experiential Learning Fellowship. \$286,012

Extramural Submitted Not Funded

Keyser, T.L., C.C. Kern, C.R. Webster, **J.M. Lhotka**, and S.J. Price. 2014. Sustaining productivity and a diversity of species with management strategies based on natural disturbance and ecological theory. FY 2014 National Institute of Food and Agriculture, Agriculture and Food Research Initiative (AFRI): Foundational Program (USDA-NIFA-AFRI-004412). \$491,070 (\$195,437 subaward to co-PIs S.J. Price and **J.M. Lhotka**)

Stringer, J.W., **J.M. Lhotka**, M. Contreras, G.A. Stainback, R. Smith, and T. Mueller. 2013. Toyota sustainable biomass initiative. Toyota Motor Engineering & Manufacturing North America, Inc., K.M. Butt, Chief Environmental Officer. \$840,216

Price, S.J. and **J.M. Lhotka**. 2013. Integrated studies of disturbance in an Appalachian forest ecosystem, the University of Kentucky's Robinson Forest. National Science Foundation, Research Experiences for Undergraduates (NSF 13-542). \$350,721

Price, S.J. and **J.M. Lhotka**. 2012. REU site: Forest ecology and natural resource management in Appalachia. National Science Foundation, Research Experiences for Undergraduates (NSF 12-569). \$337,112

Lhotka, J.M., C.D. Barton, and L. Liang. 2012. Subward for Purdue University (S. Fei, Project Director) Coordinated Agricultural Project (CAP) titled "Optimizing climate change mitigation and adaptation in central hardwood forests". Regional Approaches for Adaptation to and Mitigation of Climate Variability and Change (USDA-NIFA-AFRI-003537). \$778,906 (\$205,400 to J.M. Lhotka)

Lhotka, J.M., S. Fei, G.A. Stainback, and J. Schieffer. 2011. A fuzzy logic based GIS tool for locating economically viable energy crop plantations. Sun Grant Program, Southeastern Region, 2010 Competitive Grants Program. \$90,621

Lhotka, J.M., J.W. Stringer, and T. Conners. 2010. The effect of silvicultural practices on the yield of short rotation woody plantations in north-central Kentucky. Encapital Inc., Ron Reilly, CEO. \$209,500

Lhotka, J.M., C.D. Barton, C. Agouridis, and R.C. Warner. 2009. Using short-rotation technologies to enhance woody feedstock production on reclaimed surface mines in

eastern Kentucky. Kentucky Renewable Energy Consortium, 2009 Competitive Grants Program. \$73,121

Lhotka, J.M., J.W. Stringer, M.A. Arthur, and E. Seekamp. 2009. Forest harvesting for renewable bioenergy in the central hardwood region: Impacts to forest ecosystem services and social barriers to implementation. FY 2009 Agriculture and Food Research Initiative Competitive Grants Program (USDA-CSREES-AFRI-002010), Managed Ecosystems program. \$498,952

Fei, S., C.D. Barton, M.A. Arthur, J.W. Stringer, and **J.M. Lhotka**. 2009. Spatial and temporal dynamics of invasive plants and their impact on ecosystem services in Robinson Forest following forest management. FY 2009 Agriculture and Food Research Initiative Competitive Grants Program (USDA-CSREES-AFRI-002010), Biology of Weedy and Invasive Species in Agroecosystems program. \$499,858

Lhotka, J.M., C.D. Barton, and J.W. Stringer. 2009. Effect of grading technique and forest thinning on productivity of high-value tree species in reforested surface mine lands. U.S. Department of Interior, 2009 National Technology Transfer Team Applied Science Program (DOI-SM-255-09). \$167,402

Stringer, J.W. and **J.M. Lhotka**. 2009. Hardwood Forestry Fund grant program. \$26,000

Lhotka, J.M., C.D. Barton, R.C. Warner, C.T. Agouridis, T.L. Cushing, S. Fei, M.D. Coleman. 2007. Techniques for enhancing productivity of woody feedstock plantations on reclaimed surface mines. USDA/DOE Biomass Research and Development Initiative (RD-RBP-Biomass-2007). \$732,590

Intramural Submitted Not Funded

Lhotka, J.M. 2010. Regenerating oak dominated forests using gap-based silvicultural systems. USDA-CSREES Precision Resource Management Phase VI Special Grant. \$49,858

Lhotka, J.M., M.A. Arthur, and R.L. Sherriff. 2008. Impact of forest harvesting on the invasion of non-native plant species. USDA-CSREES Precision Resource Management Phase IV Special Grant. \$74,716

Pre-proposals Submitted Not Invited

Lhotka, J.M., C.D. Barton, M.A. Contreras, G.A. Stainback, J.W. Stringer, and R.B. Rummer. 2012. Developing a sustainable woody bioenergy system for Appalachian coal basins. Biomass Research and Development Initiative (DE-FOA-0000657)

Lhotka, J.M., C.D. Barton, G. Halich, D. van der Lelie, and R.J. Rousseau. 2009. Enhancing woody feedstock production on reclaimed surface mines through application of short-rotation technologies, FY 2009 USDA/DOE Biomass Research and Development Initiative (DE-PS36-09GO99016)

Letter of Intent Submitted Not Invited

Stainback, G.A., J. Schieffer, **J.M. Lhotka**, and M. Contreras. A policy, economic, and spatial analysis of bioenergy feedstock production in northern Kentucky. FY 2012 Agriculture and Food Research Initiative Competitive Grants Program (USDA-NIFA-AFRI-A6122), Sustainable Bioenergy program

Lhotka, J.M., M.A. Arthur, and B.D. Lee. 2008. Impact of forest harvesting on the invasion of non-native weedy species. National Research Initiative Program (USDA-CSREES-NRI-001030), Biology of Weedy and Invasive Species in Agroecosystems program

Graduate Student Advising and Committee Service

Completed Graduate Students (6)

Russell Cunningham, M.S. Forestry, 2015, co-Major Advisor with G.A. Stainback
Thesis: Effects of regeneration opening size and simulated crop tree release on volume yields and economic value in oak-dominated stands
Currently: Forester, Domtar Paper Company

Prativa Shrestha, M.S. Forestry, 2013, co-Major Advisor with G.A. Stainback
Thesis: Carbon life-cycle and economic analysis of forest carbon sequestration and woody bioenergy production
Publications: One non-refereed proceedings paper
Currently: Ph.D. student, Mississippi State University

Jared Craig, M.S. Forestry, 2012, Major Advisor
Thesis: Effects of midstory removal and shoot clipping on the growth and development of three oak species
Publications: One refereed proceedings paper, one non-refereed extended abstract, one refereed journal article in revision
Currently: Forester, Ohio Division of Forestry

Zachary Leitch, M.S. Forestry, 2012, Major Advisor
Thesis: Private landowner intent to supply forest biomass for energy in Kentucky
Publications: One refereed journal article

David Parrott, M.S. Forestry, 2011, Major Advisor
Thesis: Effects of midstory removal on black oak (*Quercus velutina*) and white oak (*Quercus alba*) regeneration
Publications: Two refereed journal articles, one refereed proceedings paper
Currently: Laboratory Technician Senior, University of Kentucky

Joshua Brinks, M.S. Forestry, 2010, Major Advisor
Thesis: Two year response of a woody biofuel plantation to intensive management on a reclaimed surface mine in eastern Kentucky
Publications: Two refereed journal articles, one refereed proceedings paper
Currently: Graduate Fellow and Ph.D. student, Penn State University

Current Graduate Students (3)

Wesley Dement, M.S. Forestry, co-Major Advisor with C.D. Stringer
Philip Arant, M.S. Forestry, co-Major Advisor with M.J. Lacki
Clint Patterson, M.S. Forestry, co-Major Advisor with J.W. Stringer

Graduate Committee Service (14)

Ten M.S. students, University of Kentucky, Department of Forestry
One M.S. student, University of Kentucky, Department of Biology
One Ph.D. student, University of Kentucky, Department of Geography
One Ph.D. student, University of Kentucky, Department of Biology
One Ph.D. student, Auburn University, School of Forestry and Wildlife Sciences

Graduate Student Awards (7)

David Parrott (2011), Jared Craig (2012), Prativa Shrestha (2013), Forestry Graduate Student Awards for Excellence in Research, Academic Performance, and Service, awarded by the University of Kentucky Department of Forestry

David Parrott, Outstanding Graduate Student Poster Award, 2011, awarded at the 16th Biennial Southern Silviculture Research Conference

David Parrott, Student Travel Scholarship, 2011, awarded by the 16th Biennial Southern Silviculture Research Conference committee

David Parrott, Outstanding Student Paper Award, 2010, awarded at 17th Central Hardwood Forest Conference

Joshua Brinks, Second Place Poster Presentation, 2009 University of Kentucky Graduate Student Interdisciplinary Conference

Research Staff Supervision

David Parrott, Laboratory Technician Senior, August 2011 to March 2013

Publications: Two refereed journal articles, one extension publication

PUBLICATIONS

† Indicates corresponding author

Underline indicates graduate student or technician who participated under my supervision

JIF denotes journal impact factor from Journal Citation Reports® published by Thomson Reuters

Refereed Journal Articles (26)

Lhotka, J.M.[†], D.L. Parrott, and C.M. Ruffner. In Press. A dendroecological investigation of an upland oak-dominated forest within the Grand Prairie region of Illinois. *Natural Areas Journal* (Accepted: July 31, 2015). (JIF: 0.659)

Lhotka, J.M.[†] and E.F. Loewenstein. 2015. Comparing individual-tree approaches for predicting height growth of underplanted seedlings. *Annals of Forest Science* 72(4): 469-477. (JIF: 1.536)

Shrestha, P., G.A. Stainback[†], P. Dwivedi, and **J.M. Lhotka**. 2015. Economic and life-cycle analysis of forest carbon sequestration and wood-based bioenergy offsets in the central hardwood region of United States. Submitted to *Journal of Sustainable Forestry* 34(3): 214-232. (JIF: n/a)

Nepal, S., M. Contreras[†], **J.M. Lhotka**, and G.A. Stainback. 2014. A spatially explicit model to identify suitable sites to establish dedicated woody energy crops. *Biomass and Bioenergy* 71: 245-255. (JIF: 2.975)

Craig, J.M., **J.M. Lhotka**[†], and J.W. Stringer. 2014. Evaluating initial responses of natural and underplanted oak reproduction and a shade tolerant competitor to midstory removal. *Forest Science* 60(6): 1164-1171. (JIF: 1.523)

J.M. Lhotka[†], and J.W. Stringer. 2013. Forest edge effects on *Quercus* reproduction within naturally regenerated mixed broadleaf stands. *Canadian Journal of Forest Research* 43(10):911-918. (JIF: 1.559)

Catron, J.F., G.A. Stainback[†], **J.M. Lhotka**, J.W. Stringer, and L. Hu. 2013. Financial and management implications of producing energywood in upland oak stands in Kentucky. *Northern Journal of Applied Forestry* 30(4):164-169. (JIF: 0.435)

Parrott, D.L., **J.M. Lhotka**[†], and J.W. Stringer. 2013. The effect of soil scarification on *Quercus* seedling establishment within upland stands of the Northern Cumberland Plateau. *Northern Journal of Applied Forestry* 30(3):125-130. (JIF: 0.435)

Leitch, Z.J., **J.M. Lhotka**[†], G.A. Stainback, and J.W. Stringer. 2013. Private landowner intent to supply woody feedstock for bioenergy production. *Biomass and Bioenergy* 56:127-136. (JIF: 2.975)

Lhotka, J.M.[†], and E.F. Loewenstein. 2013. Development of three underplanted hardwood species seven years following midstory removal. *Southern Journal of Applied Forestry* 37(2):81-90. (JIF: 0.320)

Lhotka, J.M.[†] 2013. Effect of gap size on mid-rotation stand structure and species composition in a naturally regenerated mixed broadleaf forest. *New Forests* 44(3):311-325. (JIF: 1.636)

Catron, J., G.A. Stainback[†], P. Dwivedi, and **J.M. Lhotka**. 2013. Bioenergy development in Kentucky: A SWOT-ANP analysis. *Forest Policy and Economics* 28:38-43. (JIF: 1.638)

Parrott, D.L., J.M. Lhotka[†], J.W. Stringer, and D.N. Dillaway. 2012. Seven-year effects of midstory removal on natural and underplanted oak reproduction. *Northern Journal of Applied Forestry* 29(4):182-190. (*JIF*: 0.435)

Parrott, D.L., J.M. Lhotka[†], S. Fei, and B.S. Shouse. 2012. Improving woody biomass estimation efficiency using double sampling. *Forests* 3(2):179-189. (*JIF*: 1.094)

Lhotka, J.M.[†] 2012. Height-diameter relationships in sweetgum (*Liquidambar styraciflua*) dominated stands. *Southern Journal of Applied Forestry* 36(2):98-106. (*JIF*: 0.320)

Parrott, D.L., J.S. Brinks, and J.M. Lhotka[†]. 2012. Designing Nelder wheel plots for tree density experiments. *New Forests* 43(2):245-254. (*JIF*: 1.636)

Lhotka, J.M.[†], and E.F. Lowenstein. 2011. An individual-tree diameter growth model for managed uneven-aged oak-shortleaf pine stands in the Ozark Highlands of Missouri, USA. *Forest Ecology and Management* 261:770-778. (*JIF*: 2.766)

Brinks, J.S., J.M. Lhotka[†], C.D. Barton, R.C. Warner, and C.T. Agouridis. 2011. Effects of fertilization and irrigation on American sycamore and black locust planted on a reclaimed surface mine in Appalachia. *Forest Ecology and Management* 261:640-648. (*JIF*: 2.766)

Lhotka, J.M.[†], and E.F. Loewenstein. 2009. Effect of midstory removal on understory light availability and the 2-year response of underplanted cherrybark oak seedlings. *Southern Journal of Applied Forestry* 33(4):171-177. (*JIF*: 0.320)

Lhotka, J.M.[†], and E.F. Loewenstein. 2008. An examination of species-specific growing space utilization. *Canadian Journal of Forest Research* 38(3):470-479. (*JIF*: 1.559)

Lhotka, J.M.[†], and E.F. Loewenstein. 2008. Influence of canopy structure on the survival and growth of underplanted seedlings. *New Forests* 35(1):89-104. (*JIF*: 1.636)

Lhotka, J.M.[†], and E.F. Loewenstein. 2007. A weighted relative density model applied to loblolly pine (*Pinus taeda* L.) stands. *African Journal of Agricultural Research* 2(7):300-304. (*JIF*: n/a)

Lhotka, J.M.[†], and E.F. Loewenstein. 2006. Indirect measures for characterizing light along a gradient of mixed-hardwood riparian forest canopy structures. *Forest Ecology and Management* 226(1-3):310-318. (*JIF*: 2.766)

Zaczek, J.J.[†], and J.M. Lhotka. 2004. Seedling reproduction established with soil scarification within an oak overwood after overstory removal. *Northern Journal of Applied Forestry* 21(1):5-11. (*JIF*: 0.435)

Lhotka, J.M.[†], and J.J. Zaczek. 2003. Effects of scarification disturbance on the seedling and midstory layer in a successional mixed-oak forest. *Northern Journal of Applied Forestry* 20(2):85-91. (*JIF*: 0.435)

Lhotka, J.M.[†], and J.J. Zaczek. 2003. Soil scarification effects on oak reproduction in two mixed-oak bottomland stands of Southern Illinois. *Southern Journal of Applied Forestry* 27(3):164-171. (*JIF*: 0.320)

Books and Edited Volumes (1)

Fei, S., **J.M. Lhotka**, J.W. Stringer, K.W. Gottschalk, and G.W. Miller (eds.). 2011. Proceedings of the 17th Central Hardwood Forest Conference. USDA Forest Service, Newtown Square, PA. General Technical Report NRS-P-778. 678 p
Conference proceedings included 60 refereed research papers and 17 extended abstracts

Refereed Conference Proceedings (5)

Craig, J.M., **J.M. Lhotka[†]**, and J.W. Stringer. 2013. Response of naturally regenerated and underplanted white oak (*Quercus alba* L.) seedlings six years following midstory removal. P. 365-372 in Proceedings, 18th Central Hardwood Forest Conference., Miller, G.W., T.M. Schuler, K.W. Gottschalk, J.R. Brooks, S.T. Grushecky, B.D. Spong, and J.S. Rentch (eds.). USDA For. Ser., Northern Research Station, Newtown Square, PA. Gen. Tech. Rep. NRS-P-117.

Brinks, J.S., **J.M. Lhotka[†]**, and C.D. Barton. 2011. One-year response of American sycamore (*Platanus occidentalis* L.) and black locust (*Robinia pseudoacacia* L.) to granular fertilizer applications on a reclaimed surface mine in eastern Kentucky. P. 306-313 in Proceedings of the 17th Central Hardwood Forest Conference, Fei, S., J.M. Lhotka, J.W. Stringer, K.W. Gottschalk, and G.W. Miller (eds.). USDA Forest Service, Northern Research Station, Newtown Square, PA. General Technical Report NRS-P-78

Parrott, D.L., **J.M. Lhotka[†]**, and J.W. Stringer. 2011. Effects of midstory removal on underplanted black oak and white oak in the western Cumberland Plateau. P. 270-276 in Proceedings of the 17th Central Hardwood Forest Conference, Fei, S., J.M. Lhotka, J.W. Stringer, K.W. Gottschalk, and G.W. Miller (eds.). USDA Forest Service, Northern Research Station, Newtown Square, PA. General Technical Report NRS-P-78

Lhotka, J.M.[†], and J.J. Zaczek. 2003. The development of oak reproduction following soil scarification - implications for riparian forest management. P. 199-202 in Proceedings 13th Central Hardwood Forest Conference, Van Sambeek, J.W., J.O. Dawson, J. Ponder, F., E.F. Loewenstein, and J.S. Fralish (eds.). USDA Forest Service, North Central Research Station, St. Paul, MN. General Technical Report NC-234

Ruffner, C.M. [†], A. Trieu, S. Chandy, M.D. Davis, D. Fishel, G. Gipson, **J. Lhotka**, K. Lynch, P. Perkins, S.L. van de Gevel, W. Watson, and E. White. 2003. From savanna to campus woodlot: the historical ecology of farm woodlots in Southern Illinois. P. 333-342 in Proceedings 13th Central Hardwood Forest Conference, Van Sambeek, J.W., J.O.

Dawson, J. Ponder, F., E.F. Loewenstein, and J.S. Fralish (eds.). USDA Forest Service, North Central Research Station, St. Paul, MN. General Technical Report NC-234.

Non-Refereed Conference Proceedings (5)

Lhotka, J.M.[†], and E.F. Loewenstein. 2013. A comparison of canopy structure measures for predicting height growth of underplanted seedlings. P. 289-293 *in* Proceedings of the 15th Biennial Southern Silvicultural Research Conference, Guldin, J.M. (ed.). USDA Forest Service, Southern Research Station, Asheville, NC. e-General Technical Report SRS-175

Cotton, C., C. Barton[†], **J. Lhotka**, P. Angel, and D. Graves. 2012. Evaluating reforestation success on a surface mine in Eastern Kentucky. P. 16-23 *in* National Proceedings: Forest and Conservation Nursery Associations - 2011, Haase, D.L., J.R. Pinto, and L.E. Riley (eds.). USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO. Proceedings RMRS-P-68

Lhotka, J.M.[†], and E.F. Loewenstein. 2006. Initial response of underplanted yellow poplar and cherrybark oak seedlings to four levels of mechanical midstory removal. P. 275-278 *in* Proceedings of the 13th Biennial Southern Silvicultural Research Conference, Conner, K.F. (ed.). USDA Forest Service, Southern Research Station, Asheville, NC. General Technical Report SRS-92

Lhotka, J.M.[†], J.J. Zaczek, and R.T. Graham. 2004. The influence of soil scarification on oak reproduction: Review and management considerations. P. 292-294 *in* Upland Oak Ecology Symposium: History, Current Conditions, and Sustainability, Spetich, M.A. (ed.). USDA Forest Service, Southern Research Station, Asheville, NC. General Technical Report SRS-73

Lhotka, J.M.[†], and J.J. Zaczek. 2002. The use of soil scarification to enhance oak regeneration in a mixed-oak bottomland forest of southern Illinois. P. 401-404 *in* Proceedings of the 11th Biennial Southern Silvicultural Research Conference, Outcalt, K.W. (ed.). USDA Forest Service, Southern Research Station, Asheville, NC. General Technical Report SRS-48

Extended Abstracts in Non-Refereed Conference Proceedings (1)

Craig, J.M., **J.M. Lhotka**[†], and J.W. Stringer. In Press. Six-year effect of midstory removal on white oak growth and biomass distribution and seedling response one year post-clipping. *in* Proceedings of the 17th Biennial Southern Silvicultural Research Conference. USDA Forest Service, Southern Research Station, Asheville, NC. General Technical Report

Extension Publications (2)

Parrott, D.L.[†], **J.M. Lhotka**, and J.W. Stringer. 2012. Using midstory removal to enhance oak development. Kentucky Woodlands Magazine 7(2):16-17

Lhotka, J.M.[†] and J.W. Stringer. 2008. Improving oak regeneration through soil scarification and underplanting. Forest Landowner 67(6):38-39

TEACHING AND ADVISING

Extramural Funding

Bullard, S.H., D.W. Cremeans, T.L. Cushing, S. Fei, **J.M. Lhotka**, and L.R. Lhotka. 2008-2010. Reviving traditional forestry with HP technology. 2008 HP Technology for Teaching Higher Education Award. \$77,000

J.M. Lhotka assumed the project director role in May 2009 and taught the two primary courses involved in this project, FOR 350 and FOR 480

Courses Taught

FOR 350 - Silviculture (4 credits)

Semester	Enrollment	Course Evaluation* (College Mean)	Teaching Evaluation* (College Mean)
Fall 2014	18	3.82 (3.37)	3.91 (3.42)
Fall 2013	23	3.6 (3.5)	3.6 (3.5)
Fall 2012	19	3.8 (3.4)	3.9 (3.4)
Fall 2011	18	3.5 (3.4)	3.5 (3.5)
Spring 2011	12	3.7 (3.4)	3.7 (3.5)
Spring 2010	10	4.0 (3.4)	3.9 (3.4)
Spring 2009	17	3.5 (3.3)	3.4 (3.4)

*Scale 0 to 4

FOR 358 - Silvicultural Practices (3 credits)

Semester	Enrollment	Course Evaluation* (College Mean)	Teaching Evaluation* (College Mean)
Spring 2015	14	3.89 (3.35)	3.89 (3.45)
Spring 2014	18	3.77 (3.31)	3.85 (3.39)
Spring 2013	20	3.9 (3.5)	4.0 (3.5)
Spring 2012	16	3.9 (3.4)	3.8 (3.5)

*Scale 0 to 4

FOR 480 - Integrated Resource Management (5 credits). Co-taught (50% responsibility) with J.M. Ringe (2009 to 2015) and T.L. Cushing (2008)

Semester	Enrollment	Course Evaluation* (College Mean)	Teaching Evaluation* (College Mean)
Spring 2015	17	3.58 (3.35)	3.75 (3.45)
Spring 2014	20	3.5 (3.31)	3.72 (3.39)
Spring 2013	16	3.9 (3.4)	3.9 (3.5)

Spring 2012	11	3.9 (3.4)	3.7 (3.5)
Spring 2011	9	3.9 (3.4)	4.0 (3.5)
Spring 2010	17	3.9 (3.4)	3.9 (3.4)
Spring 2009	14	3.7 (3.3)	3.8 (3.4)
Spring 2008	7	2.9 (3.3)	3.1 (3.3)

*Scale 0 to 4

FOR 770 – Ecology and Silviculture of Oak Dominated Forests (1 credit)

Semester	Enrollment	Course Evaluation* (College Mean)	Teaching Evaluation* (College Mean)
Fall 2014	7	3.4 (3.37)	3.4 (3.42)

*Scale 0 to 4

FOR 770 - Continuous Cover Forestry (1 credit)

Semester	Enrollment	Course Evaluation* (College Mean)	Teaching Evaluation* (College Mean)
Fall 2009	7	4.0 (3.3)	3.7 (3.4)

*Scale 0 to 4

FOR 399 - Field-based Education in Forestry

Fall 2010, Topic: Advanced forest inventory techniques, Enrollment: 1 (1 credit)

FOR 376 - Silvicultural Practices (2 credits)

Summer 2010, Co-instructor assisting during one week of this two week field course,
Enrollment: 12

Summer 2009, Co-instructor assisting during one week of this two week field course,
Enrollment: 14

FOR 599 - Independent Work in Forestry

Spring 2011, Topic: Advanced Silviculture, Enrollment: 1 (3 credits)

Spring 2010, Topic: Advanced Silviculture, Enrollment: 2 (3 credits)

FOR 602 - Renewable Natural Resources in a Global Perspective (3 credits)

Fall 2011, Co-instructor responsible for two 50-minute class sessions, Enrollment:

15

Fall 2009, Co-instructor responsible for two 50-minute class sessions, Enrollment: 9

FOR 791 - Research in Forestry

Fall 2011, Topic: Tree-ring analysis, Enrollment: 1 (2 credit)

Fall 2010, Topic: Design of tree density experiments, Enrollment: 1 (1 credit)

Guest Lectures

FOR 357 - Inventory and Measurements II

Introduction to TwoDog forest inventory software, February 3, 2012, February 15, 2013

FOR 375 - Forest Mensuration

Introduction to TwoDog forest inventory software, May 19-20, 2008, May 26-27, 2009, May 25-26, 2010, May 23-24, 2011

FOR 425 - Forest Management

Introduction to growth and yield modeling, September 26, 2007, October 1, 2007, and September 24, 2008

Student Advising

2014-2015: two forestry students

2013: Spring advising, one forestry student

2012: Summer advising, one forestry student

2009: Summer advising, one forestry student

PRESENTATIONS AND CONSULTATIONS

† Indicates presenter

Underline indicates graduate student or technician who participated under my supervision

Invited Presentations (11)

Lhotka, J.M.[†] Advanced woodland management practices. University of Kentucky Forestry Extension, Woodland Owners Short Course. August 15, 2015. Versailles, KY

Lhotka, J.M.[†] Forest edge effects on oak regeneration in gap-based silvicultural systems. Eastern Kentucky University, Department of Biology Seminar Series. February 13, 2015. Richmond, KY

Lhotka, J.M.[†] Forest edge effects on oak regeneration in gap-based silvicultural systems. University of Kentucky Department of Biology, Eco-Lunch Seminar Series. September 5, 2014. Lexington, KY

Lhotka, J.M.[†] Vegetation management and soils (1945 to 1975): Silvicultural systems. Priest River Experimental Forest Centennial Celebration. October 7, 2011. Priest River, ID

Lhotka, J.M.[†] Wood energy harvesting and woodlands – Costs and benefits for woodland owners. Biomass Harvesting in Kentucky Forestry Extension Workshops. Three presentations given on July 12, 13, and 14, 2011 in Princeton, London, and Morehead, KY, respectively

Lhotka, J.M.[†] Faster timber cruising using point double sampling. Association of Consulting Foresters Kentucky Chapter, Spring Continuing Education Program. April 28, 2011. Lexington, KY

Lhotka, J.M.[†] Management of oak in Kentucky. Conducted two field tours for the Association of Consulting Foresters of America, Inc. National Conference. June 29, 2010

Lhotka, J.M.[†] Unintended consequences of biomass harvesting. Kentucky-Tennessee Chapter of the Society of American Foresters Winter Meeting. January 28, 2010. Lexington, KY

Lhotka, J.M.[†] Predicting understory light transmittance and hardwood seedling growth across a canopy structure gradient. University of Missouri, Forestry Graduate Student Association seminar. October 3, 2008. Columbia, MO

Lhotka, J.M.[†] Soil scarification to improve oak establishment. Indiana Society of American Foresters, 2008 Summer Meeting. August 26, 2008. Columbus, IN

Lhotka, J.M.[†] Soil scarification to improve oak establishment. Oak Regeneration and Management Professional Forestry Workshop hosted by University of Kentucky – University of Tennessee Cooperative Extension Partnership. October 3-4, 2007. Lexington, KY

Oral Presentations (19)

Lhotka, J.M.[†] and J.W. Stringer. Forest edge effects on oak regeneration in gap-based silvicultural systems. Society of American Foresters National Convention. October 23-26, 2013. Charleston, SC

Lhotka, J.M.[†] and J.W. Stringer. Formulating an expanding-gap regeneration system for *Quercus* dominated stands. 9th North American Forest Ecology Workshop. June 17-20, 2013. Bloomington, IN

Lhotka, J.M.[†] Formulating an expanding gap system for *Quercus* dominated stands. University of Kentucky Department of Forestry seminar. November 26, 2012

Craig, J.M.[†], **J.M. Lhotka**, and J.W. Stringer. Response of naturally regenerated and underplanted white oak (*Quercus alba* L.) seedlings six years following midstory removal. 18th Central Hardwood Forest Conference. March 26-28, 2012. Morgantown, WV

Lhotka, J.M.[†] Wood energy harvesting and woodlands: Costs and benefits for Kentucky's forest resources. University of Kentucky Department of Forestry seminar. August 29, 2011

Brinks, J.S.[†], **J.M. Lhotka**, and C.D. Barton. Intensive management of a woody biofuel plantation on a reclaimed Appalachian surface mine. 8th North American Forest Ecology Workshop. June 19-23, 2011. Roanoke, VA

Lhotka, J.M.[†] Revisiting the 1960 size of opening oak regeneration study on Robinson Forest. University of Kentucky Department of Forestry seminar. September 13, 2010

Brinks, J.S.[†], **J.M. Lhotka**, and C.D. Barton. One year response of American sycamore (*Platanus Occidentalis*) and black locust (*Robinia Pseudoacacia*) to granular fertilizer applications on a reclaimed surface mine in Eastern Kentucky. 17th Central Hardwood Forest Conference. April 5-7, 2010. Lexington, KY

Parrott, D.L.[†], **J.M. Lhotka**, and J.W. Stringer. Effects of midstory removal on underplanted black oak (*Quercus velutina*) and white oak (*Quercus alba*) in Western Cumberland Plateau. 17th Central Hardwood Forest Conference. April 5-7, 2010. Lexington, KY

Lhotka, J.M.[†] and E.F. Loewenstein. A comparison of canopy structure measures for predicting height growth of underplanted seedlings. 15th Biennial Southern Silviculture Research Conference. November 17-20, 2008. Hot Springs, AR

Lhotka, J.M. and E.F. Loewenstein[†]. Diameter increment models for individual trees within upland oak stands managed using single-tree selection. 6th IUFRO Workshop of Uneven-aged Silviculture, Feasibility of Silviculture for Complex Stand Structures: Designing Stand Structures for Sustainability and Multiple Objectives. October 24-27, 2008. Shizuoka, Japan

Lhotka, J.M.[†] and E.F. Loewenstein. Individual tree based growing space model for quantitative management of uneven-aged stands. IFURO Natural Disturbance-Based Silviculture – Managing for Complexity conference. May 14-18, 2006. Rouyn-Noranda, Québec

Lhotka, J.M.[†] Silvicultural implications of forest canopy structure based light transmittance and seedling growth models. Southern Illinois University Department of Forestry seminar. April 12, 2006. Carbondale, IL

Loewenstein, N.J.[†], E.F. Loewenstein, **J.M. Lhotka** and B.J. Ostrom. Response of *Microstegium vimineum* and *Lonicera japonica* to continuous forest cover forestry practices. 7th annual Southeast Exotic Plant Pest Council symposium. May 3-5 2005. Birmingham, AL

Lhotka, J.M.[†] and E.F. Loewenstein. Initial response of underplanted yellow poplar and cherrybark oak seedlings to four levels of mechanical midstory removal. 13th Biennial Southern Silviculture Research Conference. February 28-March 4, 2005. Memphis, TN

Lhotka, J.M.[†] and J.J. Zaczek. The development of oak reproduction following soil scarification – Implications in riparian forest management. 13th Central Hardwood Forest Conference. April 1-3, 2002. Champaign, IL

Lhotka, J.M.[†] and J.J. Zaczek. Use of soil scarification to enhance oak regeneration in a mixed-oak bottomland forest of southern Illinois. 11th Biennial Southern Silviculture Research Conference. March 19-22, 2001. Knoxville, TN

Lhotka, J.M.[†] and J.J. Zaczek. The enhancement of oak regeneration through the use of mechanical incorporation of acorns in a mixed-oak upland forest in southern Illinois. 62nd Association of Southeastern Biologist annual meeting. April 4-7, 2001. New Orleans, LA

Lhotka, J.M.[†] and J.J. Zaczek. The use of soil scarification to enhance oak regeneration: Five-year results. 61st Association of Southeastern Biologist annual meeting. April 5-7, 2000. Chattanooga, TN

Poster Presentations (11)

Lhotka, J.M.[†] and J.W. Stringer. Formulating an expanding-gap regeneration system for *Quercus* dominated stands. Society of American Foresters National Convention. October 24-27, 2012. Spokane, WA

Shaffer, J.D.[†], S.K. Gleeson, J.J. Cox, and **J.M. Lhotka**. The influence of grass competition and herbivory on native hardwood seedling establishment in the Inner Bluegrass of Kentucky. 97th Annual Ecological Society of America meeting. August 5-10, 2012. Portland, OR

Craig, J.M.[†] and **J.M. Lhotka**. Using the dendrochronology program library (dplR) to document the influence of environmental conditions and human disturbance on tree growth in a Kentucky forest. 18th Central Hardwood Forest Conference. March 26-28, 2012, Morgantown, WV

Parrott, D.L.[†], **J.M. Lhotka**, J.W. Stringer. Impact of ice damage on overstory canopy structure and oak reproduction established following midstory removal. 16th Biennial Southern Silviculture Research Conference. February 14-17, 2011. Charleston, SC

Brinks, J.S.[†], **J.M. Lhotka**, and C.D. Barton. Biomass accumulation in black locust and American sycamore on reclaimed surface mines in eastern Kentucky. University of Kentucky Graduate Student Interdisciplinary Conference. April 3, 2009. Lexington, KY

Lhotka, J.M.[†], M.R. Saunders, J.M. Kabrick, D.C. Dey. Regenerating oak dominated forests using irregular, gap-based silvicultural systems. 15th Biennial Southern Silviculture Research Conference. November 17-20, 2008. Hot Springs, AR

Lhotka, J.M. and J.J. Zaczek[†]. 2006. Scarification seeding of oak: Reproduction in three case studies. IUFRO Advances in Principles and Practices of Oak Silviculture and Genetics. September 24-27, 2006. Stevens Point, WI

Rawls, R.P.[†], **J.M. Lhotka**[†], E.F. Loewenstein, J.M. McDaniel, and M.F. Smidt. Stakeholder preferences among various forest management regimes at the wildland-urban interface. Emerging Issues along Urban/Rural Interfaces: Linking Science and Society conference. March 13-16, 2005. Atlanta, GA

Lhotka, J.M.[†], J.J. Zaczek, and R.T. Graham. The influence of soil scarification on oak reproduction: Review and management recommendations. Upland Oak Ecology Symposium: History, Current Conditions, and Sustainability. October 7-10. 2002. Fayetteville, AR

Graham, R.T.[†], T.B. Jain, and **J.M. Lhotka**. Physically and biologically enhancing residual decomposition. Joint Fire Sciences Program Principal Investigator Workshop. March 11-14, 2002. San Antonio, TX

Graham, R.T.[†], T.B. Jain, and **J.M. Lhotka**. Structural and fuel treatments for restoring old-growth ponderosa pine forests in the Interior West. Joint Fire Sciences Program Principal Investigator Workshop. March 11-14, 2002. San Antonio, TX

Consultations (5)

August, 20 2013: Day-long field visit to Fort Knox Military Reservation to discuss upland hardwood management strategies with Department of Defense forestry staff and a consultant with Central Kentucky Forest Management

April 22, 2013: Discussed integration of forest inventory software and growth and yield models with Fogarty Forestry, LLC, Consultant from West Newbury, VT

November 18, 2009: Discussed gap-based regeneration approaches for upland oak stands with Kentucky Natural Lands Trust, Forest Steward from Berea, KY

April 6, 2009: Discussed techniques for reforestation of reclaimed surface mines with Chevron Mining Inc., Environmental Engineer from Berry, AL

October 23, 2008: Discussed methods for regenerating oak on productive sites in eastern Missouri with Missouri Department of Conservation, Resource Forester from Perry County, MO

SERVICE AND RECOGNITION

Editorships, Review Panels, Reviewer Service

Journal Reviewer: Canadian Journal of Forest Research, European Journal of Forest Research, Forest Ecology and Management, Forest Science, Forestry Chronicle, Journal of Forestry, Journal of the Torrey Botanical Society, New Forests, Northern Journal of Applied Forestry, Southern Journal of Applied Forestry

Guest Associate Editor, 2014-2015, Forest Science

Guest Associate Editor, 2011, Southern Journal of Applied Forestry

Co-Editor, 2010, Proceedings of the 17th Central Hardwood Forest Conference

Reviewed silviculture proposal for the McIntire-Stennis Cooperative Forestry Program at Southern Illinois University, 2009

Reviewed manuscripts for Proceedings of 16th Central Hardwood Forest Conference, 2007

Reviewed pre-proposals (18) and full-proposals (4) for the Southern Forest Research Partnership (SFRP) grant program, 2007

Reviewed proposals (11) for University of Kentucky, Precision Resource Management grant program, 2007

Affiliate Faculty Appointments

Affiliate Associate Professor, School of Forestry and Wildlife Sciences, Auburn University, Auburn, AL, November 2010 to present

Conference Planning

Member of organizing committee for Bioenergy Symposium associated with 2011 Kentucky Agricultural Summit. Conference held in Louisville, KY on November 17, 2011

Coordinator of meeting titled “Opportunities and Challenges of Woody Biomass for Meeting Kentucky’s Bioenergy Needs”. Event held in Lexington, KY on February 24, 2011

Co-Chair of the 17th Central Hardwood Forest Conference committee. Conference held in Lexington, KY on April 5 to 7, 2010

Professional Affiliations

Society of American Foresters (SAF)

Committee on Accreditation – January 1, 2015 to December 31, 2017

Working Group D2 (Silviculture)

Silviculture Instructors Subgroup of Working Group D2

Southern Hardwood Forestry Group

Media Highlights

USDA Forest Service People, Places, and Things May 3, 2013 newsletter highlighted UK forestry students’ visit to Coweeta Hydrologic Laboratory and Nantahala and Chattahoochee-Oconee National Forests as part of J.M. Lhotka’s Silvicultural Practices (FOR 358) field course

Pontiac Daily Leader, “Condition of Woods Studied”, July 26, 2012 by Luke Smucker, <http://www.pontiacdailyleader.com/article/20120726/NEWS/307269945>

University of Kentucky Cooperative Extension Service’s “Growing Kentucky” TV program, HP Technology Grant, April 2009

Awards and Honors

A Teacher Who Made a Difference, University of Kentucky College of Education, April 26, 2014

Outstanding Young Alumnus Award, Southern Illinois University, Department of Forestry, 2007

The James Floyd Goggans Graduate Fellowship, For Excellence in Forest Biology Study and Research, 2005

USDA Certificate of Merit, Outstanding Contributions to National Fire Plan Studies, 2001

Outstanding Graduate Student Paper, 11th Biennial Southern Silviculture Research Conference, 2001

Dean's Certificate of Distinction, Southern Illinois University, College of Agriculture, 1997

Dean's List, Southern Illinois University, 1995-1996, 1996-1997, 1997-1998, 1998-1999 academic years

University Committee Service

Member: Agriculture Faculty Council, University of Kentucky, College of Agriculture, Food, and Environment, May 2015 to present

Co-Chair: University of Kentucky, Department of Forestry, Research Committee, August 2014 to Present

Chair: University of Kentucky, Department of Forestry, Seminar Committee, August 2011 to December 2014

Member: University of Kentucky, Department of Forestry, Research Committee, August 2010 to present

Member: University of Kentucky, Department of Forestry, Undergraduate Program Committee, August 2010 to Present

Member: University of Kentucky, Department of Forestry, Graduate Program Committee, August 2007 to July 2009, August 2011 to July 2013

Member: University of Kentucky, College of Agriculture, Precision Resource Management Committee, April 2009 to February 2010

Other Service Activities

Lexington-Fayette Urban County Government Reforest the Bluegrass program
Coordinator to recruit and train UK student volunteers, 2009, 2010, 2011

Volunteer tree planting crew leader, April 2009, 2011

Faculty Marshal, Spring 2011 University of Kentucky graduation ceremony

PROFESSIONAL DEVELOPMENT

Professional Meetings Attended (36)

10th Biennial Conference on University Education in Natural Resources. March 13-15, 2014. Auburn, AL

Society of American National Convention. October 24-25, 2013. Charleston, SC

Society of American Foresters Silviculture Instructors Field Tour “Silviculture Matters: Silviculture from the Appalachian Mountains to the Atlantic Coastal Plain”. October 19-23, 2013

9th North American Forest Ecology Workshop. June 17-20, 2013. Bloomington, IN

Central Appalachian Early-Career Scientist Retreat. May 1-3, 2013. University of Kentucky Robinson Forest, Clayhole, KY

Society of American National Convention. October 24-27, 2012. Spokane, WA

Society of American Foresters Silviculture Instructors Field Tour of Western Montana and Northern Idaho. October 20-24, 2012

Kentucky-Tennessee Chapter of the Society of American Foresters Winter Meeting. January 25-27, 2012. Lexington, KY

2011 Missouri Bioenergy Tour, co-sponsored by Kentucky Governor’s Office of Agricultural Policy and Energy and Environment Cabinet. May 3-5, 2011

16th Biennial Southern Silviculture Research Conference. February 14-17, 2011. Charleston, SC

Society of American Foresters National Convention. October 28, 2010. Albuquerque, NM

Society of American Foresters Silviculture Instructors Field Tour of Northern New Mexico. October 24-27, 2010. Albuquerque, NM

Association of Consulting Foresters of America, Inc. National Conference. June 28-29, 2010. Louisville, KY

17th Central Hardwood Forest Conference. April 5-7, 2010. Lexington, KY

Invasive Species Conference. December 12-14, 2008. Lexington, KY

15th Biennial Southern Silviculture Research Conference. November 17-20, 2008. Hot Springs, AR

Society of American Foresters National Convention. November 6, 2008. Reno, NV

Society of American Foresters Silviculture Instructors Field Tour of the Sierra Nevada Mountains and Tahoe Basin. November 3-5, 2008. Reno, NV

16th Central Hardwood Forest Conference. April 8-9, 2008. Lafayette, IN

Society of American Foresters National Convention. October 24-26, 2007. Portland, OR

Society of American Foresters Silviculture Instructors Field Tour of Western Oregon and Washington. October 21-23, 2007

Scientific Foundations of Conservation Planning in the Cumberland Plateau and Mountains. November 13-14, 2007. Knoxville, TN

USDA/CSREES Grantsmanship Workshop. October 9-10, 2007. Washington, DC

Southern Hardwood Forestry Group field tour and meeting. April 2007. Selma, AL

Forest Inventory and Analysis data training workshop. March 1, 2007. Athens, GA

14th Biennial Southern Silviculture Research Conference. February 26-March 1, 2007. Athens, GA

IFURO Natural Disturbance-Based Silviculture: Managing for Complexity conference. May 14-18, 2006, Rouyn-Noranda, Québec

Emerging Issues along Urban/Rural Interfaces: Linking Science and Society conference. March 13-16, 2005, Atlanta, GA

13th Biennial Southern Silviculture Research Conference. February 28 - March 4, 2005. Memphis, TN

Upland Oak Ecology Symposium: History, Current Conditions, and Sustainability. October 7-10, 2002, Fayetteville, AR

13th Central Hardwoods Forest Conference. April 1-3, 2002. Champaign, IL

11th Biennial Southern Silviculture Research Conference. March 19-22, 2001. Knoxville, TN

62nd Association of Southeastern Biologist Annual Meeting. April 4-7, 2001. New Orleans, LA

61st Association of Southeastern Biologist Annual Meeting. April 5-7, 2000.
Chattanooga, TN

60th Association of Southeastern Biologist Annual Meeting. April 14-16, 1999.
Wilmington, NC

Society of American Foresters National Convention. September 11-15, 1999. Portland, OR

Curriculum vitae of
Steven J. Price

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Lexington, KY 40546-0073
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Fax: 859-323-1031
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EDUCATION

Doctorate of Philosophy, 2011. Biology, Wake Forest University

Master of Science, 2003. Environmental Science and Policy, University of Wisconsin-Green Bay

Bachelor of Science, 2000. Biology and Environmental Science (double major), University of Wisconsin-Green Bay

PROFESSIONAL EXPERIENCE

Assistant Professor, University of Kentucky, Department of Forestry, Lexington KY, July 2012-present.

- Distribution of Effort FY 2013: 83% research, 17% teaching
- Distribution of Effort FY 2014: 59.2% research, 40.8% teaching

Post-Doctoral Research Fellow, Davidson College, Department of Biology, Davidson NC, June 2011-June 2012.

Visiting Professor, Davidson College, Department of Biology, Davidson NC, 2008-2009, 2011-2012

Database Manager, Carolina Herp Atlas, Department of Biology, Davidson College, Davidson NC, 2006-2012.

Research Coordinator, Department of Biology, Davidson College, Davidson NC, 2004-2011.

Research Scientist, Wisconsin Department of Natural Resources, Green Bay, WI, January-May 2004.

Field Biologist, Milwaukee Public Museum, Milwaukee, WI, March-October 2003.

Graduate Research Assistant, University of Wisconsin-Green Bay, Green Bay, WI, 2001-2003.

Museum Assistant, University of Wisconsin-Green Bay, Richter Museum of Natural History, Green Bay, WI, 2000-2003.

Vertebrate Zoology Assistant, Milwaukee Public Museum, Milwaukee WI, 2001.

Research Technician, University of Wisconsin-Green Bay, Green Bay, WI Spring 2001.

Wildlife Technician, United States Fish and Wildlife Service, Green Bay, WI
Spring/Summer 2000.

RESEARCH

Extramural Research

Weisrock, D.W. and S.J. Price. 2013. Leveraging novel genetic and genomic technologies to understand and conserve a Kentucky state endangered giant salamander. Kentucky Science and Engineering Foundation. \$30,000.

Price, S.J., D.W. Weisrock, and W. Haag. Dispersal congruency and population structure within imperiled host-parasite systems. Kentucky Science and Engineering Foundation. \$30,000

Price, S.J. and T. Kreher. 2015. Amphibian habitat assessment at the Paducah Gaseous Diffusion Plant and the Western Kentucky State Wildlife Management Area. Department of Energy. \$12,000

Other Research Efforts

Price, S.J. 2013. Multi-scale approaches to investigate the effects of anthropogenic disturbance on stream-inhabiting amphibians and reptiles. University of Kentucky Agricultural Field Station Project KY009028

Extramural Submitted Under Evaluation

Price, S.J., G.M. Connette, S.J. Bonner and J.M. Lorch. 2015. Evaluating the impact of snake fungal disease on wild snake populations. National Geographic Society

Greathouse, J., C. Wampler, P. Hime, D. Baxley, and S. J. Price. 2014. Training future field biologists through eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*) surveillance in the Cumberland ranger district of the Daniel Boone National Forest. National Fish and Wildlife Federation.

Lhotka, J. and S.J. Price. 2015. Summer Undergraduate Fellowships in the Science and Management of Appalachian Forest Ecosystems. Undergraduate research and extension experiential learning fellowships (USDA-NIFA-AFRI-004797). US Department of Agriculture.

PUBLICATIONS *denotes undergraduate student author, †denotes graduate student author,

Books/Book Chapters

6. **Price, S.J.**, J. L. Snodgrass, and M.E. Dorcas. 2014. Managing aquatic habitats for wildlife in urban areas. In R. McCleery, C. Moorman, and N. Peterson (eds), Urban Wildlife Science: Theory and Practice. Springer.

5. Dorcas, M.E., **S.J. Price**, S. C. Walls and W. J. Barichivich. 2009. Auditory monitoring of anuran populations. In Dodd, C.K., Jr. (ed.), Conservation and Ecology of Amphibians. A Handbook of Techniques. Oxford University Press.
4. Dorcas, M.E. and **S.J. Price**. 2008. Effective undergraduate-based herpetological research in an urban environment. In R. E. Jung and J. C. Mitchell (eds.), Urban Herpetology. Herpetological Conservation Vol. 3, Society for the Study of Amphibians and Reptiles. Salt Lake City, UT Pp 535-540.
3. **Price, S. J.** 2008. Painted turtle, *Chrysemys picta*. J. Jensen, C. D. Camp, J. W. Gibbons, and M. Elliot, (eds.), The Amphibians and Reptiles of Georgia. University of Georgia Press.
2. Dorcas, M. E., **S. J. Price**, J. C. Beane, and S. S. Cross. 2007. The Frogs and Toads of North Carolina. North Carolina Wildlife Resources Commission, Raleigh, NC.
1. **Price, S. J.** 2004. Sea Turtles. Pp. 1106-1108. In Encyclopedia of World Environmental History. ed. S. Krech III, J. R. McNeill and C. Metchant (eds.), Berkshire Publishing Group, Great Barrington, MA.

Publications in Peer-reviewed Journals

60. Price, S.J., C.R. Oldham[‡], W.M. Boys*, and L.J. Fleckenstein*. *In press*. First record of snake fungal disease in Kentucky. Journal of the Kentucky Academy of Science
59. Murphy, M.O. [‡], M. Agha[‡], T.A. Mairgret[‡], **S.J. Price**, and M.E. Dorcas. *In press*. The effects of urbanization on body size of larval stream salamanders. Urban Ecosystems
58. Cecala, K.K., **S.J. Price**, and M.E. Dorcas. *In press*. Stream salamanders accurately assess size-dependent predation threats. Herpetologica.
57. Oldham, C.R.[‡], **S.J. Price**, W.A. Boys*, and L.J. Fleckenstein*. 2015. *Regina septemvittata* (Queensnake). Defensive behavior/death-feigning. Herpetological Review 46:51-52
56. Agha, M. [‡], B. Augustine[‡], J.E. Lovich, D. Delaney, B. Sinervo, M.O. Murphy[‡], J.R. Ennen, R. Cooper and **S. J. Price**. 2015. Using motion-sensor camera technology to infer seasonal activity and thermal niche of the desert tortoise (*Gopherus agassizii*). Journal of Thermal Biology 49/50: 119-126.
55. Agha, M.M[‡]., D. Delaney, J.E. Lovich, J. Briggs, M. Austin, and **S.J. Price**. 2015. Nelson's big horn sheep (*Ovis canadensis nelsoni*) trample Agassiz's desert tortoise (*Gopherus agassizii*) burrow at a California wind energy facility. Bulletin of the Southern California Academy of Science 114:58-62.
54. Agha, M.[‡], M.O. Murphy[‡], J.E. Lovich, J.R. Ennen, C.R. Oldham[‡], K. Meyer, C. Bjurlin, M. Austin, S. Madrak, C. Loughran, L. Tennant, and **S.J. Price**. 2015. The effect of research activities and winter precipitation on defensive voiding behavior of Agassiz's desert tortoises (*Gopherus agassizii*). Wildlife Research 41:641-649.

53. Agha, M.[‡], J. E. Lovich, J. R. Ennen, B. Augustine[‡], T. R. Arundel, M. O. Murphy[‡], D. Delaney, J. Briggs, K. Meyer, C. Bjurlin, M. Austin, S. Madrak, L. Tennant, and **S. J. Price**. 2015. Turbines and terrestrial vertebrates: variation in tortoise survivorship between a wind energy facility and an adjacent undisturbed wildland area in the desert southwest (USA). *Environmental Management* 56:332-341
52. Fleckenstein, J.L.* , M. Agha[‡], and **S.J. Price**. 2015. *Terrapene carolina*. Diet. *Herpetological Review* 46:85.
51. Muncy, B.L.[‡], **S.J. Price**, S.J. Bonner and C.D. Barton. 2014. Mountaintop removal mining reduces stream salamander occupancy and richness in southeastern Kentucky (USA). *Biological Conservation* 180:115-121
50. Akins, C.* , C.D. Ruder*, **S.J. Price**, L.A. Harden[‡], J.W. Gibbons, and M.E. Dorcas. 2014. Factors affecting body temperature variation and habitat use in free-ranging diamondback terrapins. *Journal of Thermal Biology* 44:63-69.
49. Guzy, J.C., **S.J. Price**, and M.E. Dorcas. 2014. Using multiple methods to assess detection probabilities of riparian-zone anurans: implications for monitoring. *Wildlife Research* 41:243-257.
48. Witczak, L.R.* , J.C. Guzy[‡], **S.J. Price**, J.W. Gibbons, and M.E. Dorcas. 2014. Temporal and spatial variation in survivorship of diamondback terrapins (*Malaclemys terrapin*). *Chelonian Conservation and Biology* 13:146-151.
47. Hime, P.M.[‡] and **S.J. Price**. 2014. *Aneides aeneus*. Death feigning/immobility. *Herpetological Review* 45:470.
46. Hime, P.M.[‡], A.N. Drayer, and **S.J. Price**. 2014. *Necturus maculosus*. Larval guarding. *Herpetological Review* 45:474.
45. Maignret, T.A. [‡], J.J. Cox, D.R. Schneider, C.D. Barton, **S.J. Price** and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. *Forest Ecology and Management* 324:46-51.
44. Barrett, K. and **S.J. Price**. 2014. Urbanization and stream salamanders: a review, conservation options, and research needs. *Freshwater Science* 33:927-940.
43. Muncy, B.L.[‡], **S.J. Price** and M.E. Dorcas. 2014. Capture probability and survivorship of the southern two-lined salamander (*Eurycea cirrigera*) in drought and non-drought conditions. *Copeia* 2014:366-371.
42. Richter, S.C., **S.J. Price**, C.S. Kross[‡], J.R. Alexander* and M.E. Dorcas. 2013. Upland habitat quality and historic landscape composition influence genetic variation of a pond-breeding salamander. *Diversity* 5: 724-733.

41. Guzy, J.C., **S.J. Price** and M.E. Dorcas. 2013. An assessment of the spatial configuration of greenspace and aquatic habitats on semi-aquatic turtle occupancy and species richness in a suburban landscape. *Landscape and Urban Planning* 117:46-56.
40. **Price, S.J.**, J.C. Guzy, L. Witzcak* and M.E. Dorcas. 2013. Do ponds on golf courses provide suitable habitat for wetland-dependent animals? An assessment of turtle abundances. *Journal of Herpetology* 47:243-250.
39. Cecala, K.K. ‡, **S.J. Price** and M.E. Dorcas. 2013. Modeling the effects of life-history traits on estimation of population parameters for a cryptic species. *Freshwater Science* 32:116-125.
38. Hunt, S.D.* , J.C. Guzy, **S.J. Price**, B.J. Halstead, E.A. Eskew* and M.E. Dorcas. 2013. Response of riparian zone reptile communities to damming and urbanization. *Biological Conservation* 157:277-284.
37. Kern, M.M.* , J.C. Guzy, **S.J. Price**, S.D. Hunt*, E.A. Eskew* and M.E. Dorcas. 2012. Riparian zone amphibians and reptiles within the Broad River basin, South Carolina. *Journal of North Carolina Academy of Science* 128:81-87.
36. **Price, S.J.**, R.A. Browne and M.E. Dorcas. 2012. Resistance and resilience of a stream salamander to supra-seasonal drought. *Herpetologica* 68:312-323.
35. Foley, S.M.* , **S.J. Price** and M.E. Dorcas. 2012. Nest-site selection and nest depredation of semi-aquatic turtles on golf courses. *Urban Ecosystems* 15:489-497.
34. Eskew, E.A.* , **S.J. Price** and M.E. Dorcas. 2012. Effects of river-flow regulation on anuran occupancy and abundance in riparian zones. *Conservation Biology* 26:504-512.
33. **Price, S.J.**, R.A. Browne and M.E. Dorcas. 2012. Evaluating the effects of urbanization on salamander abundances using a before-after control-impact design. *Freshwater Biology* 57:193-203.
32. **Price, S.J.**, E.A. Eskew*, K.K. Cecala*, R.A. Browne and M.E. Dorcas. 2012. Estimating survival of a streamside salamander: Importance of temporary emigration, capture response and location. *Hydrobiologia* 679:205-215.
31. **Price, S.J.**, and M.E. Dorcas. 2011. The Carolina Herp Atlas: an online, citizen-science approach to document amphibian and reptile occurrences. *Herpetological Conservation and Biology* 6:287-296.
30. **Price, S.J.**, K.K. Cecala*, R.A. Browne and M.E. Dorcas. 2011. Effects of urbanization on occupancy of stream salamanders. *Conservation Biology* 27:547-555.
29. Connette, G.M.,* **S.J. Price** and M.E. Dorcas. 2011. Influence of abiotic factors on activity in a larval stream salamander assemblage. *Southeastern Naturalist* 10: 109-120.

28. Eskew, E.A.*, **S.J. Price** and M.E. Dorcas. 2011. Survivorship of painted turtles (*Chrysemys picta*) in recently modified suburban landscapes. *Chelonian Conservation and Biology* 9:244-249.
27. Cecala, K.K.*, **S.J. Price** and M.E. Dorcas. 2010. Ecology of juvenile northern watersnakes (*Nerodia sipedon*) inhabiting low-order streams. *Amphibia-Reptilia* 31:169-174.
26. Eskew, E.A.*, **S.J. Price** and M.E. Dorcas. 2010. Survival and recruitment of semi-aquatic turtles in an urbanized region. *Urban Ecosystems* 13:365-374.
25. Birx-Raybuck, D.*, **S.J. Price** and M.E. Dorcas. 2010. Pond age and riparian zone proximity influence anuran occupancy of urban retention ponds. *Urban Ecosystems* 13:181-190.
24. Cecala, K.K.*, **S.J. Price** and M.E. Dorcas. 2009. Evaluating existing movement hypotheses in linear systems using larval stream salamanders. *Canadian Journal of Zoology* 87: 292-298.
23. Harden, L.A.*, **S. J. Price**, and M. E. Dorcas. 2009. Terrestrial activity and habitat selection of eastern mud turtles inhabiting a golf course pond: Implications for habitat management. *Copeia* 2009: 78-84.
22. Westfall, M. C.*, K. K. Cecala*, **S. J. Price**, and M. E. Dorcas. 2008. Patterns of Trombiculid mite (*Hannemania durni*) parasitism among Plethodontid salamanders in the Western Piedmont of North Carolina. *Journal of Parasitology* 94: 631-634.
21. Eskew, E.A.*, **S. J. Price**, and M. E. Dorcas. 2008. New distributional records for reptiles and amphibians of the Charlotte Metropolitan area of North Carolina. *Herpetological Review* 39:245-246.
20. Pittman, S. E.*, A. L. Jendrek*, **S. J. Price**, M. E. Dorcas. 2008. Habitat selection and site fidelity of Cope's Gray Treefrog (*Hyla chrysoscelis*) at the aquatic-terrestrial ecotone. *Journal of Herpetology* 42: 378-385.
19. **Price, S. J.**, R. W. Howe, J. Hanowski, R. R. Regal, G. J. Niemi, and C. R. Smith. 2008. Are anurans of Great Lakes coastal wetlands reliable indicators of ecological condition? *Journal of Great Lakes Research* 33(Special Issue 3): 211-223.
18. Hester, J. M.*, **S. J. Price**, and M. E. Dorcas. 2008. Effects of relocation on movements and home ranges of eastern box turtles. *Journal of Wildlife Management*. 72: 772-777.
17. Cecala, K. K.*, **S. J. Price**, and M. E. Dorcas. 2007. *Pseudotriton ruber ruber*. Polymelia. *Herpetological Review* 38:434.

16. Failey, E. L.*, J. C. McCoy*, **S. J. Price** and M. E. Dorcas. 2007. Ecology of turtles inhabiting golf course and farm ponds in the western Piedmont of North Carolina. *Journal of North Carolina Academy of Science* 123: 221-232.
15. Cecala, K. K.*, **S. J. Price**, and M. E. Dorcas. 2007. Diet of larval *Pseudotriton ruber* examined using a non-lethal stomach-flushing technique. *Journal of Herpetology* 41: 741-745.
14. McCoy, J. C.*, E. L. Failey*, **S. J. Price** and M. E. Dorcas. 2007. An assessment of leech parasitism on semi-aquatic turtles in the western Piedmont of North Carolina. *Southeastern Naturalist* 6: 191-202.
13. Cecala, K. K.*, **S. J. Price**, and M. E. Dorcas. 2007. A comparison of the effectiveness of recommended doses of MS-222 (Tricaine Methane Sulfonate) and Orajel® (Benzocaine) for amphibian anesthesia. *Herpetological Review* 38: 63-66.
12. **Price, S. J.**, M. E. Dorcas, A. L. Gallant, R. W. Klaver and J. D. Willson. 2006. Three decades of urbanization: Estimating the impact of land cover change on stream salamander populations. *Biological Conservation* 133: 436-441.
11. Budischak, S. A.*, J. M. Hester*, **S. J. Price**, and M. E. Dorcas. 2006. Natural history of box turtles, *Terrapene carolina*, in an urbanized landscape. *Southeastern Naturalist* 5: 191-204.
10. Kornilev, Y. K.*, **S. J. Price** and M. E. Dorcas. 2006. Between a rock and a hard place: responses of eastern box turtles (*Terrapene carolina*) when trapped between railroad tracks. *Herpetological Review* 37: 145-148.
9. Kornilev, Y. K.*, **S. J. Price**, E. P. Hill*, and M. E. Dorcas. 2006. *Ambystoma maculatum*. Mortality. *Herpetological Review* 37: 196.
8. Gooch, M. M.*, A. M. Heupel*, **S. J. Price**, and M. E. Dorcas. 2006. The effects of survey protocol on detection probabilities and site occupancy estimates of summer breeding anurans. *Applied Herpetology* 3: 129-142.
7. Kirlin, M. S.*, M. M. Gooch*, **S. J. Price**, and M. E. Dorcas. 2006. Predictors of winter anuran calling activity in the North Carolina Piedmont. *Journal of North Carolina Academy of Science* 122:10-18.
6. Dorcas, M. E., **S. J. Price**, and G. E. Vaughan. 2006. Amphibians and reptiles of the Great Falls bypassed reaches in South Carolina. *Journal of North Carolina Academy of Science* 122:1-9.
5. **Price, S. J.**, D. R. Marks, R. W. Howe, J. Hanowski, and G. J. Niemi. 2005. The importance of spatial scale for conservation and assessment of anuran populations in coastal wetlands of the western Great Lakes. *Landscape Ecology* 20:441-454.

4. **Price, S. J.** and J. M. Jaskula. 2005. *Hemidactylium scutatum*. Nesting Ecology. Herpetological Review. 36:159
3. **Price, S. J.** and J. M. Jaskula. 2005. *Hemidactylium scutatum*. Terrestrial Microhabitat. Herpetological Review. 36:159.
2. **Price, S. J.** and J. M. Jaskula. 2002. *Hemidactylium scutatum*. Record Size. Herpetological Review. 33:298.
1. **Price, S. J.** 2000. Geographic Distribution. *Hemidactylium scutatum*. Herpetological Review. 31:249.

Extension/Popular publications

2. Williams, J., **S.J. Price** and P. Wood. 2014. Salamanders and surface mining in the Appalachian mountains. Partners in Amphibian and Reptile Conservation Monthly Newsletter 12:17-18

1. **Price, S.J.** 2013. Salamanders of Kentucky. Kentucky Woodlands Magazine 8: 8-9.

RECENT PRESENTATIONS (2013-2015) *undergraduate student, ‡ graduate student, § presenter

Invited Presentations

Price, S.J.§, Muncy, B.L.‡, and C.D. Barton. 2014. Effects of mountaintop removal and valley fill on stream salamander populations. Biology Department, Davidson College, 18 November. Davidson NC. 18 November Davidson NC.

Price, S.J.§, Muncy, B.L.‡, and C.D. Barton. 2014. Effects of mountaintop removal and valley fill on stream salamander occupancy and abundance. USFWS, 21 July Frankfort KY.

Price, S.J.§, Muncy, B.L.‡, and C.D. Barton, and 2014. Effects of mountaintop removal and valley fill on stream salamanders. Water Quality Roundtable, Eastern Kentucky University, 11 April Richmond, KY.

Price, S.J. 2013. Amphibian populations in dynamic and degraded landscapes. Biology Department, Centre College, 3 December. Danville, KY.

Presentations

Maigret, T.A. ‡§ J.J. Cox, **S.J. Price** and C.D. Barton. 2013. Habitat preferences and hibernacula selection of timber rattlesnakes in an increasingly fragmented landscape in southeastern Kentucky. Southeastern Partners in Amphibian and Reptile Conservation Annual Meeting. February 21-24, 2013. Hickory Knob State Park, McCormick, SC.

Price, S.J. §, J.C. Guzy and M.E. Dorcas. 2013. Detection and occupancy estimates of anuran amphibians: the manual calling survey and beyond. Symposia on detectability

and studying rare species. Joint Meeting of Ichthyologists and Herpetologists. July 10-15, 2013. Albuquerque, NM.

Guzy, J.C. [§], **S.J. Price** and M.E. Dorcas. 2013. Effects of damming on riparian zone reptiles and amphibians. Symposia on impact of energy development on amphibians and reptiles in North America. Joint Meeting of Ichthyologists and Herpetologists. July 10-15, 2013. Albuquerque, NM.

Ruder, C.D. ^{*§}, C. Akins, **S.J. Price**, L.A. Harden, J.W. Gibbons, and M.E. Dorcas. 2013. Effects of environmental temperature variation on body temperatures and habitat use in free-ranging diamondback terrapins (*Malaclemys terrapin*). 6th Symposium on the Ecology, Status and Conservation of Diamondback Terrapins. September 13-15, 2013. Seabrook Island, SC.

Witzcak, L.R. ^{*§}, J.C. Guzy, **S.J. Price**, J. W. Gibbons, and M.E. Dorcas. 2013. Creek-specific variation in survivorship and recruitment of *Malaclemys terrapin* over three decades. 6th Symposium on the Ecology, Status and Conservation of Diamondback Terrapins. September 13-15, 2013. Seabrook Island, SC.

Maigret, T.A. ^{‡§}, J.J. Cox, D.R. Schneider, C.D. Barton, **S.J. Price** and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. The Kentucky Chapter of the Wildlife Society Annual Meeting. 20-21 February, Barren River Lake State Park, KY

Muncy, B.L. ^{‡§}, C.D. Barton, and **S.J. Price**. 2014. Effects of mountaintop removal and valley fill on stream salamander communities. The Kentucky Chapter of the Wildlife Society Annual Meeting. 20-21 February, Barren River Lake State Park, KY.

Hime, P.M. ^{‡§}, **S.J. Price**, and D.W. Weisrock. 2014. Leveraging genomics to inform *Cryptobranchus* conservation: Sex-linked genes, range-wide phylogenetics and species delimitation, and field surveys across Kentucky. Southeast Partners in Amphibian and Reptile Conservation Annual Meeting (Poster). February 13-16, 2014. Lake Cumberland, KY.

Maigret, T.A. ^{‡§}, J.J. Cox, D.R. Schneider, C.D. Barton, **S.J. Price** and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. Southeast Partners in Amphibian and Reptile Conservation Annual Meeting, 13-15 February, Lake Cumberland, KY.

Agha, M. ^{‡§}, M. O. Murphy[‡], J. E. Lovich, J. R. Ennen, C. R. Oldham, K. Meyer, C. Bjurlin, M. Austin, S. Madrak, C. Loughran, L. Tennant, **S.J. Price**. 2014 Research activities and winter precipitation influence voiding behavior in Agassiz's desert tortoise (*G. agassizii*). Southeast Partners in Amphibian and Reptile Conservation Annual Meeting, 13-15 February, Lake Cumberland, KY.

Muncy, B.L.^{‡§}, C.D. Barton, and **S.J. Price**. 2014. Effects of mountaintop removal and valley fill on stream salamander communities. Southeast Partners in Amphibian and Reptile Conservation Annual Meeting, 13-15 February, Lake Cumberland, KY.

Agha, M. ^{‡§}, M.O. Murphy[‡], J.E. Lovich, J.R. Ennen, C.R. Oldham[‡] and **S.J. Price**. 2014. Research activities influence voiding behavior in desert tortoises (*Gopherus agassizii*). Southeast Partners in Amphibian and Reptile Conservation Annual Meeting, 13-15 February, Lake Cumberland, KY.

Oldham, C.R.^{‡§}, L.J. Fleckenstein III^{*§} and **S.J. Price**. 2014. Novel application of passive integrated transponder (PIT) telemetry in natricine snakes. Southeast Partners in Amphibian and Reptile Conservation Annual Meeting, 13-15 February, Lake Cumberland, KY.

Hime, P.M. ^{‡§}, **S.J. Price**, and D.W. Weisrock. 2014. Leveraging genomics to understand and conserve an imperiled North American giant salamander. University of Kentucky EcoLunch Seminar Series (Oral Presentation). February 28, 2014. Lexington, KY.

Agha, M. [‡], M.O. Murphy^{‡§}, J.E. Lovich, J.R. Ennen, C.R. Oldham[‡] and **S.J. Price**. 2014. Research activities influence voiding behavior in desert tortoises (*Gopherus agassizii*). Midwest Ecology and Evolution Conference, 1-2 March, Dayton, OH.

Muncy, B.L.^{‡§}, C.D. Barton, and **S.J. Price**. 2014. Effects of mountaintop removal and valley fill on stream salamander communities. Association of Southeastern Biologists Annual Meeting 2-5 April, Spartanburg, SC.

Oldham, C.R.^{‡§}, L.J. Fleckenstein III^{*§} and **S.J. Price**. 2014. Novel application of passive integrated transponder (PIT) telemetry in natricine snakes. Association of Southeastern Biologists Annual Meeting 2-5 April, Spartanburg, SC.

Maigret, T.A. ^{‡§}, J.J. Cox, D.R. Schneider, C.D. Barton, **S.J. Price** and J.L. Larkin. 2014. Effects of timber harvest within streamside management zones on salamander populations in ephemeral streams of southeastern Kentucky. Association of Southeastern Biologists Annual Meeting 2-5 April, Spartanburg, SC.

Murphy, M.O. ^{‡§}, **S.J. Price**, and D.W. Weisrock. 2014. Host before Habitat? Assessing congruency in patterns of gene flow in an imperiled freshwater mussel and its vertebrate host. Evolution. June 21-25, 2014. Raleigh, NC.

Agha, M. ^{‡§}, M. O. Murphy[‡], J. E. Lovich, J. R. Ennen, C. R. Oldham[‡], K. Meyer, C. Bjurlin, M. Austin, S. Madrak, C. Loughran, L. Tennant, and **S.J. Price**. 2014 Research activities and winter precipitation influence voiding behavior in Agassiz's desert tortoise (*G. agassizii*). 57th Annual Meeting of the Society for the Study of Amphibians and Reptiles hosted by Society of Ichthyologists and Herpetologists. July 30-August 3, 2014. Chattanooga, TN.

Murphy, M.O.^{‡§}, **S.J. Price**, and M.E. Dorcas. 2014. The effects of urbanization on salamander body size using a before-after control-impact design. 57th Annual Meeting of the Society for the Study of Amphibians and Reptiles hosted by Society of Ichthyologists and Herpetologists. July 30-August 3, 2014. Chattanooga, TN.

Agha, M.^{‡§}, J. E. Lovich, J. R. Ennen, B. Augustine[‡], T. R. Arundel, M. O. Murphy[‡], D. Delaney, J. Briggs, K. Meyer, C. Bjurlin, M. Austin, S. Madrak, L. Tennant, and **S. J. Price**. 2014. Turbines and terrestrial vertebrates: Variation in tortoise survivorship between a wilderness and wind energy facility in the desert southwest, USA. 57th Annual Meeting of the Society for the Study of Amphibians and Reptiles hosted by Society of Ichthyologists and Herpetologists. July 30-August 3, 2014. Chattanooga, TN.

Hime P.M.^{‡§}, S.O. Nunziata[‡], J.T. Briggler, J.S. Reece, **S.J. Price**, and D.W. Weisrock. 2014. Genomic approaches to *Cryptobranchus* conservation. 57th Annual Meeting of the Society for the Study of Amphibians and Reptiles hosted by Society of Ichthyologists and Herpetologists. July 30-August 3, 2014. Chattanooga, TN.

Oldham, C.R.^{‡§}, L.J. Fleckenstein III^{*} and **S.J. Price**. 2014. Novel application of passive integrated transponder (PIT) telemetry in natricine snakes. 57th Annual Meeting of the Society for the Study of Amphibians and Reptiles hosted by Society of Ichthyologists and Herpetologists. July 30-August 3, 2014. Chattanooga, TN.

Agha, M.^{‡§}, B. Augustine[‡], M. O. Murphy[‡], J. E. Lovich, D. Delaney, J. R. Ennen, B. Sinervo, R. Cooper and **S.J. Price**. 2014. Inferring seasonal activity and thermal niche of Agassiz's desert tortoises (*Gopherus agassizii*) through the application of motion sensor camera technology. Symposium for the Conservation and Biology of Tortoises and Freshwater Turtles, co-hosted by TSA and IUCN. August, 2014. Orlando, FL.

Lewis, M.A.^{*§}, M. Agha[‡], and **S.J. Price**. 2014. Preliminary analysis of the use of open canopy gaps by the eastern box turtle (*Terrapene. c. carolina*). Symposium for the Conservation and Biology of Tortoises and Freshwater Turtles, co-hosted by TSA and IUCN. August, 2014. Orlando, FL.

Lewis, M.A.^{*§}, M. Agha[‡], and **S.J. Price**. 2014. Preliminary analysis of the use of open canopy gaps by the eastern box turtle (*Terrapene.c.carolina*). Natural Resource and Environmental Science Internship/Research Forum. October 9, 2014. Lexington, KY.

Hime P.M.^{‡§}, S.O. Nunziata[‡], J.T. Briggler, J.S. Reece, **S.J. Price**, and D.W. Weisrock. 2014. Genomic approaches to *Cryptobranchus* conservation. AZA Amphibian Taxon Advisory Group Advanced Amphibian Course in Hellbender Management and Conservation (Invited Oral Presentation). November 9-12, 2014. St. Louis, MO

Hime, P.M.^{‡§}, **S.J. Price**, and D.W. Weisrock. 2014. Genomic insights into amphibian evolution and conservation. SUNY Buffalo Biology Department Seminar Series (Invited Oral Presentation). November 1, 2014. Buffalo, NY.

Yates, W.T.* §, M. Agha‡, J.R. Ennen, J.E. Lovich, C.H. Ernst, E.M. Ernst, and **S.J. Price**. 2015. Delayed emergence dynamics in Emydid neonate turtles of North America. Association of Southeastern Biologists Annual Meeting 1-5 April, Chattanooga, TN.

Agha, M. ‡§, B. Augustine, J.E. Lovich, D. Delaney, B. Sinervo, M.O. Murphy, J.R. Ennen, J.R. Briggs, and **S.J. Price**. 2015. Using motion-sensor camera technology to infer seasonal activity and thermal niche of the desert tortoise (*Gopherus agassizii*). Association of Southeastern Biologists Annual Meeting 1-5 April, Chattanooga, TN.

Agha, M. ‡§, J.E. Lovich, J.R. Ennen, B. Augustine, T.R. Arundel, and **S.J. Price**. 2015. Exploring the spatial dynamics of tortoise burrow placement in an industrial landscape. Association of Southeastern Biologists Annual Meeting 1-5 April, Chattanooga, TN.

Murphy, M.O.‡§, M. Agha‡, T.A. Maigret‡, M.E. Dorcas and **S.J. Price**. 2015. The effects of urbanization on body size of larval stream salamanders. Association of Southeastern Biologists Annual Meeting 1-5 April, Chattanooga, TN.

Price, S.J., B. Muncy‡, S. Bonner, C. Barton, and A. Drayer. 2015. Impacts of mountaintop removal mining and valley fills on stream salamander occupancy, abundance and species richness. Society for Freshwater Science annual meeting, 17-21 May, Milwaukee WI.

Murphy, M.O. ‡§, **S.J. Price**, W. Haag, and D. Weisrock. 2015. Assessing congruency of population structure and gene flow between freshwater mussels and their hosts: a genomic approach. Society for Freshwater Science annual meeting, 17-21 May, Milwaukee WI.

TEACHING AND ADVISING

Courses Taught

FOR 599. Urban Ecology, University of Kentucky

Fall 2014, Enrollment: 5

Overall Value of the Course (4.0/4.0) (College Mean = 3.37)

Quality of Teaching: 4.0/4.0 (College Mean = 3.42)

Fall 2013, Enrollment: 4

Overall Value of the Course (3.9/4.0) (College Mean = 3.5)

Quality of Teaching: 3.9/4.0 (College Mean = 3.5)

NRE 320. Natural Resources and Environmental Analysis: Costa Rica, University of Kentucky

Summer 2014, Enrollment: 12

Overall Value of the Course (4.0/4.0) (College Mean =3.31)

Quality of Teaching: 4.0/4.0 (College Mean = 3.39)

Summer 2013, Enrollment: 19

Overall Value of the Course (4.0/4.0) (College Mean =3.5)

Quality of Teaching: 4.0/4.0 (College Mean = 3.5)

FOR 599 (FOR 510) Herpetology, University of Kentucky

Spring 2015, Enrollment: 14

Overall Value of the Course 3.75/4.0 (College Mean = 3.35)

Quality of Teaching: 3.75/4.0 (College Mean = 3.39)

Spring 2014, Enrollment: 10

Overall Value of the Course 4.0/4.0 (College Mean = 3.31)

Quality of Teaching: 4.0/4.0 (College Mean = 3.39)

Spring 2013, Enrollment: 15

Overall Value of the Course 3.5/4.0 (College Mean = 3.5)

Quality of Teaching: 3.7/4.0 (College Mean = 3.5)

FOR 791 – Research in Forestry, University of Kentucky

Spring 2013, Topic: Mark-recapture analyses, Enrollment: 1 (3 credits)

Spring 2014, Topic: Estimating salamander occupancy and abundance, Enrollment: 1 (2 credits)

Spring 2015, Topic: Population Analysis, Enrollment: 2 (2 credits)

NRE 395 – Independent Study Research Project Experience, University of Kentucky

Fall 2014, Overwintering and phylogeny in freshwater turtles, Enrollment: 1 (3 credits)

Spring 2014, Effects of roads on stream salamander populations, Enrollment: 2 (3 credits)

Spring 2014, Thermal biology of box turtles, Enrollment: 1 (3 credits)

FOR 602 – Renewable Natural Resources in a Global Perspective, University of Kentucky

Fall 2014, Co-instructor responsible for three 50-minute class sessions, Enrollment: 16 (3 credits)

NRE 320. Natural Resources and Environmental Analysis: Robinson Forest, University of Kentucky

Spring 2013, Co-instructor responsible for a 6-hour class session; Enrollment: 14 (3 credits)

Student Advising and Committee Service

Completed Graduate Students (2)

Brenee' Muncy, M.S. Forestry, 2014, co-major advisor with C.D. Barton

Thesis: Effects of mountaintop removal mining and valley fills on stream salamander communities.

Mickey Agha, M.S. Forestry, 2015

Thesis: A long-term investigation of the federally threatened desert tortoise (*Gopherus agassizii*) at a wind energy facility in Southern California.

Current Graduate Students (4)

Christian Oldham, M.S. Forestry, expected graduation December 2015
Mason Murphy, M.S. Biology, co-major advisor with D.W. Weisrock – Expected Graduation December 2015
Sara Beth Freytag, M.S. Forestry, expected graduation May 2016
Jenn McKenzie, M.S. Forestry, expected graduation May 2017

Graduate Student Committee

Six M.S. students, University of Kentucky, Department of Forestry
One M.S. student, Eastern Kentucky University, Department of Biology
Two Ph.D. students, University of Kentucky, Department of Biology

Independent Research Undergraduate Students

Four students, University of Kentucky, Natural Resources and Environmental Science (3), Animal Sciences (1)
One student, Northern Ohio University, sponsored through NSF REU to University of Kentucky, Department of Biology.

Student Awards

Brenee' Muncy

Forestry Graduate Student Award for Excellence in Research, Academic Performance, and Service, awarded by the University of Kentucky, Department of Forestry
Forestry Graduate Student Research Conference Travel Grant (\$612)
Natural History/Biodiversity Grant, Kentucky Society of Natural History (\$500)
Southeast Partners in Amphibian and Reptile Conservation Travel Award (\$50)

Christian Oldham

Forestry Graduate Student Award for Excellence in Research, Academic Performance, and Service, awarded by the University of Kentucky, Department of Forestry
Forestry Graduate Student Research Conference Travel Grant (\$755)

Mickey Agha

National Science Foundation, Graduate Research Fellowship Program Honorable Mention
Forestry Graduate Student Research Conference Travel Grant (\$367)
Desert Legacy Fund, California Desert Research Program and Community Foundation (\$3200)

Mason Murphy

Kentucky Academy of Science, Marcia Athey Grant (\$933)
Society of Freshwater Science, Graduate Student Conservation Research Award (\$1000)
Southeast Partners in Amphibian and Reptile Conservation Travel Award (\$50)
Forestry Graduate Student Research Conference Travel Grant (\$180)
Kentucky Society for Natural History (\$500)

Sara Beth Freytag

Kentucky Society for Natural History (\$500)

Eller Billings Summer Research Mini-Grant, UK Appalachian Center (\$500)

Karri Casner Environmental Sciences Fellowship from the Tracy Farmer Institute for Sustainability and the Environment (\$1500)

Kentucky Academy of Science, Marcia Athey Grant (\$1000)

EXTENSION AND OUTREACH ACTIVITIES

Kentucky Children's Garden 4th Friday Fun Day. University of Kentucky Arboretum, Lexington KY, April 26th, 2013.

- Effort results in contact with approximately 200 attendees

Floracliff Field Studies 2013: Herpetology. Floracliff Nature Preserve, Lexington KY. May 3 and 4, 2013.

- Two day intensive course, co-taught with Dr. Stephen Richter (EKU) on reptiles and amphibians of Kentucky
- 18 participants enrolled in course

Reptiles and Amphibians in Kentucky's Forests. Kentucky Wood Expo, Lexington KY, September 20th and 21st.

- Effort resulted in contact with approximately 500 attendees

Trees, Trails and Creatures. University of Kentucky Arboretum, Lexington KY, October 4th and 5th, 2013.

- Effort resulted in contact with approximately 300 attendees

Reptiles of Kentucky. Carter G. Woodson Middle School. December 2013.

- Effort resulted in contact with approximately 20 participants

Reptiles and amphibians in Kentucky. Kentucky Biodiversity Day. State Capital Annex Building, Frankfort, KY, February 27, 2014.

- Effort resulted in contact with approximately 150 participants

Amphibians of the Ohio River Valley Woodlands. Ohio River Valley Woodlands and Wildlife Workshop. General Butler State Park, Carrollton, KY, March 22, 2014.

- Effort resulted in contact with 21 participants

Reptiles, amphibians and wildlife-related research in the Department of Forestry, University of Kentucky. Ingels Hall Program, University of Kentucky, 27 March 2014.

- Effort resulted in contact with approximately 40 participants

Mountain Agriculture Days. Robinson Center for Appalachian Resources Sustainability, Quicksand, KY, September 27, 2014.

- Effort resulted in contact with approximately 200 participants

SERVICE AND RECOGNITION

Reviewer Service (since arrival at University of Kentucky)

Biology, Biological Conservation, Copeia, Forest Ecology and Management (2), Herpetologica, Herpetological Conservation and Biology(3), Herpetological Review, Hydrobiologia, Journal of Applied Ecology, Journal of Herpetology (2), Journal of North American Herpetology, Journal of Wildlife Management , Landscape and Urban Planning (2), Wetlands (2), Wildlife Society Bulletin, Urban Ecosystems

Current Professional Affiliations

American Society of Ichthyologists and Herpetologists, The Wildlife Society – Kentucky Chapter, Society for the Study of Amphibians and Reptiles, Partnership for Amphibian and Reptile Conservation, Association of Southeastern Biologists, Herpetologists League

Media Highlights

Currentcast, “Golf course designs can help make turtles feel at home”, Oct 22, 2014
(<http://www.currentcast.org/conservation/golf-course-turtles/>)

Greenwire, “Study links mountaintop removal to low salamander populations”, Oct 22, 2014
(<http://www.eenews.net/login?r=%2Fgreenwire%2Fstories%2F1060007734%2Fsearch%3Fkeyword%3Dsalamanders>)

National Geographic Daily News, “Turtles flourishing in golf course ponds”, July 9, 2013 by Traci Watson (<http://news.nationalgeographic.com/news/2013/07/130710-golf-courses-turtle-habitat-eco-friendly-environment/>)

Science Daily, Charlotte Observer, Wake Forest News, “Drought, climate change impact salamander survival rates”, October 10, 2012 by Katie Neal
(<http://www.sciencedaily.com/releases/2012/10/121010083935.htm>)

University Committee Service

Co-Chair, Research Committee (University of Kentucky, Forestry)
Outreach Committee (University of Kentucky, Forestry)
Graduate Committee (University of Kentucky, Forestry)

CURRICULUM VITAE

JAMES M. RINGE

PERSONAL DATA

Date and Place of Birth: 24 August, 1955, Ann Arbor, Michigan.

Marital Status: Married, three children.

EDUCATION

Ph.D. 1983, Forestry, Purdue University, West Lafayette, IN. Dissertation Title: Technology Assessment in the Structural Wood Products Industry Through Value Added Simulation.

M.S. 1979, Agriculture, University of Kentucky, Lexington, KY. Thesis Title: Effects of Bark Mulch, Fertilization, and Herbaceous Cover on Survival and Growth of Three Tree Species on Eastern Kentucky Mine Spoil.

B.S. 1977, Forestry (with High Distinction), University of Kentucky, Lexington, KY.

PROFESSIONAL EXPERIENCE

Professor, Forest Products Economics/Marketing. University of Kentucky, Department of Forestry, July 1, 1999 - present.

Associate Professor, Forest Products Economics/Marketing. University of Kentucky, Department of Forestry, December 1, 1990 – June 30, 1999.

Assistant Professor, Forest Products Economics/Marketing. University of Kentucky, Department of Forestry, December 1, 1984 - November 30, 1990.

Temporary Instructor, University of Kentucky, Department of Forestry, August 1, 1983 - December 1, 1984.

Research Instructor, Purdue University, Department of Forestry and Natural Resources, June 1979 - July 1983.

Research Assistant, University of Kentucky, Department of Forestry, May 1977 - May 1979.

DISTRIBUTION OF EFFORT

Fiscal Year Percent Research Percent Teaching Percent Administration

1985-1986	75	25	
1987-1988	70	30	
1989-1992	60	40	
1993	64	36	
1994	63	37	
1995	47	53	
1996	40	60	
1997	27	73	
1998	36.7	43.3	20
1999	17	63	20
2000	39	61	
2001	20	60	20
2002	10	70	20
2003	10	75	15
2004	17	68	15
2005	17	68	15
2006	12	68	20
2007		80	20
2008		80	20

<u>Fiscal Year</u>	<u>Percent Research</u>	<u>Percent Teaching</u>	<u>Percent Administration</u>
2009		79	21
2010		70	30
2011		80	20
2012		72.5	27.5

2013	80	20
2014	80	20
<u>Fiscal Year</u>	<u>Percent Research</u>	<u>Percent Teaching</u>
2015	60	40

PUBLICATIONS

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- Ringe, J.M. and D.H. Graves. 1987. Economic factors affecting mulch choices for revegetating disturbed land. *Reclamation and Revegetation Research* 6(2):121-128.
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- Hoover, W.L., C.A. Eckelman, J.M. Ringe, and J.A. Youngquist. 1987. Markets for hardwood laminated-veneer-lumber. *Forest Products Journal* 37(10):57-62.
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- Ringe, J.M. 1987. Use of the dominance concept for matching raw material grades of Douglas-fir to lumber production objectives. *Wood and Fiber Science* 19(4):370-380.
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- Hoover, W.L., C.A. Eckelman, J.M. Ringe, and J.A. Youngquist. 1988. Design and specification of hardwood laminated-veneer-lumber for furniture applications. *Forest Products Journal* 38(1):31-34.
- Ringe, J.M. 1988. The feasibility and competitive nature of yellow-poplar structural lumber using value added analysis. *Forest Products Journal* 38(9):22-26.
- Ringe, J.M. 1988. Economic aspects of sawmill residue use for tree seedling establishment on surface mines. *International Journal of Surface Mining* 2(3):129-133.
- Ringe, J.M. 1989. Economic aspects of broadcast fertilizer use for tree seedling establishment on surface mines. *International Journal of Surface Mining* 3(2):93-97.

- Ringe, J.M., D.H. Graves, and J.W. Stringer. 1989. Economics of sawmill residues in the establishment of black locust biomass plantations on surface mines. *International Journal of Surface Mining* 3(4):201-205.
- Ringe, J.M. and D.H. Graves. 1990. The economics of mycorrhizal inoculations and wood-based mulches in the reforestation of surface mines. *International Journal of Surface Mining and Reclamation* 4(2):47-52
- Ringe, J.M. and D.H. Graves. 1990. Mulches derived from wood: an economic comparison of two materials used to reclaim surface mines. *Forest Products Journal* 40(9):35-38
- Davidson, W.H., D.H. Graves, J.M. Ringe, and T.R. Cunningham. 1991. Performance of spot-seeded oaks and walnut on an eastern Kentucky minesoil. *International Journal of Surface Mining and Reclamation* 5(4):163-165.
- Ringe, J.M. and D.H. Graves. 1992. The longer term economics of herbicide use in establishing European alder in herbaceous cover on surface mined land. *International Journal of Environmental Issues in Minerals and Energy Industry* 1(1):27-31.
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- Graves, D.H. and J.M. Ringe. 1993. Surface mine sod treatment effects on survival and growth of Virginia pine (*Pinus virginiana*) after two and eight years. *International Journal of Surface Mining and Reclamation* 7(2):47-50.
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- Pelkki, M.H., J.M. Ringe, D.L. Brown, and D.H. Graves. 1996. Woody plant biodiversity on an abandoned coal washing pond. *International Journal of Surface Mining, Reclamation and Environment* 10(4):161-166.
- Ringe, J.M., D.H. Graves, and J.E. Reeb. 1998. Wood waste biomass co-firing with high

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Ringe, J.M., M.H. Pelkki, D.H. Graves, and D.L. Brown. 1998. Economic considerations in the revegetation of an abandoned coal washing settlement pond. *International Journal of Surface Mining, Reclamation and Environment* 12(2):67-74.

Ringe, J.M., M.H. Pelkki, D.H. Graves, and D.L. Brown. 1998. Economics of biomass production on an abandoned coal washing settlement pond. *International Journal of Surface Mining, Reclamation and Environment* 12(3):123-129.

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Ringe, J.M. 2015. Forestry for the curious: majoring in forestry at the University of Kentucky. IN *Forestry for the curious: why study forestry?* (ISBN 978-1-925128-52-9). IN PRESS

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Ringe, J.M., and R.F. Wittwer. 1978. The effect of fertilizer, bark mulch, and grass competition on the survival and growth of three tree species on surface mine spoil. *Reclamation Review* 1(3&4):172.

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competition control measures on the longer-term survival and growth of Virginia pine seedlings grown on eastern Kentucky mined land. IN Proc. National Symposium on Surface Mining Hydrology, Sedimentology, and Reclamation. University of Kentucky, Lexington, KY, December 2-7, 1984.

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- Hoover, W.L. and J.M. Ringe. 1983. Technological progress in the U.S. forest products industry - formulation of a general model. IN Proc. of the 1983 Society of American Foresters Annual Meeting. Portland, OR. October 16-19, 1983.
- Ringe, J.M. and M.H. Pelkki. 1998. Back to basics - are traditional teaching methods obsolete? IN Proc. of the Second Biennial Conference on University Education in Natural Resources. Utah State University, Logan, Utah. March 7-10, 1998; *Natural Resources and Environmental Issues* 7:174-177.
- Pelkki, M.H. and J.M. Ringe. 1998. Valuing information: potential tree grades for yellow-poplar stands. Pages 181-184 IN Proc. of the Southern Forest Economics Workshop annual meeting. March 25-27, 1998. Williamsburg, VA.
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- Pelkki, M.H. and J. M. Ringe. 2002. Using informatics to value forest stand information. IN Proc. of the 2001 Southern Forest Economics Workshop, March 26-28, 2001, Atlanta, GA. 5pp..
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- Connors, T.E., P. Stiglbauer, S. Banerjee, and J.M. Ringe. 2005. Influence of knife angle and ambient temperature on fines generation from flakers. IN Proc. Ninth European Panel Products Symposium, October 5-7, 2005, Llandudno, Wales. pp. 23-30.
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Thomas, W.R., M.H. Pelkki, and J.M. Ringe. 1999. Soil sampling on surfaced mined spoils : systematic composite vs. systematic vs. random. IN Proc. 12th Central Hardwood Forest Conference. U.S.D.A. Forest Service Gen. Tech. Rep. SRS-24. Lexington, KY. Feb. 28 - Mar. 2, 1999.

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Ringe, J.M., D.H. Graves, and D.B. Hill. 1985. Options for Kentucky farmers: Christmas trees. University of Kentucky Extension Pub. Options-24.

Ringe, J.M., D.H. Graves, and J.R. Shelly. 1985. Options for Kentucky farmers: firewood. University of Kentucky Extension Pub. Options - 25.

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Ringe, J.M. and S.J. Chang. 1989. Economic importance of Kentucky's forest products industry. Univ. of KY, College of Agriculture, Cooperative Extension Service, Natural Resources Newsletter 7(4):1-2.

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Ringe, J.M. and S.J. Chang. 1990. The globalization of forestry and its vital importance to Kentucky and the United States. Univ. of KY, College of Agriculture, Cooperative Extension Service, Natural Resources Newsletter 9(2):1-2.

Graves, D.H. and J.M. Ringe. 1993. Surface mining and Kentucky's forests: some economic impacts. Univ. of KY, College of Agriculture, Cooperative Extension Service, Natural Resources Newsletter 11(2): 37-38.

Conners, T. and J. Ringe. 2006. Grading hardwood logs according to USFS standard log grades. Univ. of KY, College of Agriculture, Cooperative Extension Service, Publication FORFS 06-02.

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Pelkki, M.H. and J.M. Ringe. 1994. Marketing mixed stands of pine and hardwood. Forest Farmer 53(1): 18-21.

Pelkki, M.H. and J.M. Ringe. 1994. Stumpage price trends make selling hardwoods more profitable. Forest Farmer 53(2):10-12.

INVITED REVIEWS IN JOURNALS

Ringe, J.M. 2000. Book review of Paper Cuts: Recovering the Paper Landscape by J.N Abramovitz and A.T. Mattoon IN Journal of Natural Resources and Life Sciences Education 29(1).

OTHER PUBLICATIONS

Chang, S.J. and J.M. Ringe. 1990. A study of the potential of overseas marketing of yellow-poplar pencil slats. Final Report for U.S. D.A. Forest Service National Marketing Initiative Project #423236. April 26, 1990.

Ringe, J.M. 1990. Statement in support of the allegations in the petition to declare Robinson Forest as lands unsuitable for mining. Commonwealth of Kentucky, Natural Resources and Environmental Protection Cabinet. Lands Unsuitable for Mining Petition No. 90-1.

Ringe, J.M. 2004. Editor and Co-author of the Interim status report of the professional forestry program at the University of Kentucky. Prepared for the Society of American Foresters Committee on Accreditation.

Ringe, J.M. 2006. Author of the Interim Progress Report to the SAF Committee on Accreditation. Prepared for the Society of American Foresters.

Ringe, J.M. 2012. Department of Forestry Undergraduate Advisor's Guide

PRESENTATIONS

INVITED PRESENTATIONS

Hoover, W.L. and J.M. Ringe. Procedures for assessing potential economic impacts of new technology in the solid and reconstituted wood products industry. Utilization Economics Workshop, U.S.D.A. Forest Products Laboratory, Madison, WI, October 18, 1982.

Speaker, spring meeting of the East Kentucky Chapter of the Society of American Foresters, March 7, 1986. Topic: hardwood lumber exportation.

Ringe, J.M. and J.E. Reeb. Commodity situation and trends: forestry. Issues and Outlook: 1991 and Beyond, A Day of Discussion. University of Kentucky, College of Agriculture, Lexington, KY. January 11, 1991.

Ringe, J.M. Emerging market opportunities for cut-to-size lumber. Plenary Session presentation at the 45th Annual Meeting of the Forest Products Research Society. New Orleans, LA. June 23-26, 1991.

Moderator, Plenary Session 6, Environmental challenges and opportunities confronting the hardwood lumber industry. 46th Annual Meeting of the Forest Products Research Society. Charleston, SC. June 21-24, 1992.

Ringe, J.M. Wood: its properties, decay processes, and preservation. Wood Preservative Workshop. University of Kentucky, College of Agriculture, Cooperative Extension Service. Elizabethtown, KY. November 21, 1995.

Keynote speaker with T.E. Connors at the 1st Lanzamiento de Maderas Duras de Los Estados Unidos (1st Launching of Hardwoods of the United States). September 17-20, 2003, Havana Cuba. Presented U.S. hardwood species characteristics to government and wood industry officials as part of an initiation of Kentucky hardwood lumber trade with Cuba.

Graves, D. H. and J.M. Ringe. Economic incentives for reclaiming for wildlife habitat as a post-mining land use. U.S. Office of Surface Mining Wildlife Summit. Louisville, KY. June 22-23, 2005.

PAPERS PRESENTED AT MEETINGS

Ringe, J.M., W.L. Hoover, C.A. Eckelman, and J.A. Youngquist. Design of hardwood LVL for furniture applications. 36th Annual Meeting of the Forest Products Research Society. New Orleans, LA, June 20-24, 1982.

Hoover, W.L., C.A. Eckelman, J.M. Ringe, and J.A. Youngquist. Use of laminated-veneer-lumber as a shelf, panel, or corestock material in furniture. 36th Annual Meeting of the Forest Products Research Society. New Orleans, LA, June 20-24, 1982.

- Ringe, J.M. The feasibility and competitive nature of yellow-poplar structural lumber using value added analysis. Technical Forum presentation at the 42nd Annual Meeting of the Forest Products Research Society. Quebec City, Canada. June 19-22, 1988.
- Participated in a University Studies Program Seminar on Ecological Sustainability, May 15-19, 1989. Made a presentation before faculty from a variety of disciplines concerning the concept of ecological sustainability as it relates to forestry and forest products.
- Ringe, J.M., D.H. Graves, and J.E. Reeb. Utilizing woodwaste biomass to upgrade high sulphur coal for power generation in Kentucky. Technical Forum presentation at the 47th Annual Meeting of the Forest Products Society. Clearwater, Florida. June 20-23, 1993.
- Pelkki, M.H., J.M. Ringe, D.H. Graves, and M. Mead. Bioremediation of an abandoned coal washing site in western Kentucky. Southern Appalachian Man and the Biosphere Conference. Gatlinburg, TN. Nov. 7-9, 1993.
- Ringe, J.M., D.H. Graves, and J.E. Reeb. Biomass energy potentials in Kentucky. Southern Appalachian Man and the Biosphere Conference. Gatlinburg, TN. Nov. 7-9, 1993.
- Ringe, J.M., D.H. Graves, and J.E. Reeb. Economic considerations in the co-firing of woodwaste biomass with high sulphur coal for electric power generation in Kentucky. Technical Forum presentation at the 48th Annual Meeting of the Forest Products Society. Portland, Maine. June 26-29, 1994
- Pelkki, M.H. and J.M. Ringe. Valuing information: potential tree grades for yellow-poplar stands. Southern Forest Economics Workshop annual meeting. March 25-27, 1998. Williamsburg, VA.
- Thomas, W.R., M.H. Pelkki, and J.M. Ringe. Native high value tree reclamation on surface mined spoils in eastern Kentucky. 12th Central Hardwood Forest Conference. Feb. 28 - Mar. 2, 1999. Lexington, KY.
- Thomas, W.R., M.H. Pelkki, and J.M. Ringe. Soil sampling on surfaced mined spoils: systematic composite vs. systematic vs. random. 12th Central Hardwood Forest Conference. Feb. 28 - Mar. 2, 1999. Lexington, KY.
- Connors, T.E. and J.M. Ringe. 2004. Lanzamiento de maduras duras: launching of U.S. hardwood lumber sales to Cuba in 2003. Presented at the 58th annual meeting of the Forest Products Society. Grand Rapids, MI. June, 2004
- True, A., R. Sweigard, D. Graves, V. Badaker, J. Ringe, and C. Barton. 2005. Development of site index curves for high-value trees on reclaimed surface mined land. Presented at the 2005 SME Annual Meeting and Exhibit, Salt Lake City, UT, February 28-March 2, 2005.

Graves, D.H. and J.M. Ringe. 2005. Economic incentives for reclaiming for wildlife habitat as a post-mining land use. Presented at the U.S. Office of Surface Mining Wildlife Summit, Louisville, KY, June 22-23, 2005.

Stiglbauer, P., T.E. Conners, S. Banerjee, and J.M. Ringe. 2005. Fines reduction at OSB flakers. Presented at the 59th International Convention of the Forest Products Society, Quebec City, Quebec, Canada, June 19-22, 2005.

Conners, T.E., P. Stiglbauer, S. Banerjee, and J.M. Ringe. 2005 Influence of knife angle and ambient temperature on fines generation from flakers. Presented at the Ninth European Panel Products Symposium, Llandudno, Wales. October 5-7, 2005.

RESEARCH AWARDS AND HONORS

Co-author of a Featured Presentation at the 1984 National Symposium on Surface Mining Hydrology, Sedimentology, and Reclamation. Featured Presentations are the eight submitted papers judged best by a panel of reviewers.

Co-author of a Featured Presentation at the 1985 National Symposium on Surface Mining Hydrology, Sedimentology, and Reclamation.

Recipient of one of four "Outstanding Technical Paper" Awards presented at the 1985 National Symposium on Surface Mining Hydrology, Sedimentology, and Reclamation.

Pencil slat research featured in "Odyssey - The Magazine of University of Kentucky Research", Winter/Spring 1991, p31.

Pencil slat research featured by the Office of Communication and Advancement in a "UK Science and You" column distributed to editors of 23 daily and 126 weekly newspapers in Kentucky. April, 1992.

Wood waste biomass utilization research featured in "Coal International" magazine, Volume 244, No. 3, May 1996. Reading, England.

Member of the "Reforestation of Surface Mined Lands" research team. Project designated a University of Kentucky Commonwealth Collaborative by University President Lee T. Todd Jr. - 2005

SPONSORED RESEARCH PROJECTS

FUNDED

Impact of Export Marketing on the Organizational, Operational, and Financial Structure of Hardwood Producing Firms; J.M. Ringe, Principal Investigator; D.H. Graves, Co-Investigator; U.S.D.A. Forest Service Co-operative Agreement #23-822, \$25,000;

September 20, 1983 - March 31, 1985.

Utilization and Marketing Alternatives for Kentucky's Hardwood Resource; J.M. Ringe, Principal Investigator; McIntire - Stennis Project 636; 1985 - 1991.

A Study of the Potential of Overseas Marketing of Yellow-poplar Pencil Slats; S.J. Chang and J.M. Ringe, Co-Investigators; U.S.D.A. Forest Service National Marketing Initiative Project #423236, \$15,000; September 1, 1988 - March 31, 1990.

Economic Feasibility of Converting Domestic Lumber to High Value Export Material; J.M. Ringe, Principal Investigator; S.J. Chang, Co-Investigator; U.S.D.A. Forest Service Co-operative Agreement #23-308, \$20,000; September 1, 1988 - August 31, 1993.

Utilizing Wood Waste Biomass to Upgrade High Sulphur Coal for Power Generation in Kentucky; J.M. Ringe, Principal Investigator; D.H. Graves, and J.E. Reeb, Co-Investigators; Tennessee Valley Authority Contract #TV-86454V, \$47,943; July 1, 1992 - August 31, 1995.

Economic Assessment of Surface Mine Reclamation Alternatives; J.M. Ringe, Principal Investigator; M.H. Pelkki and D.H. Graves, Co-Investigators; McIntire - Stennis Project KY009002; October 1, 1994 - September 30, 1999.

Stabilization of embankments on AML slopes using soil bioengineering techniques: a field evaluation of cost-effectiveness; R.J. Sweigard, Principal Investigator; D.H. Graves, Co-Principal Investigator; J.M. Ringe and R.C. Warner, Co-Investigators; Bureau of Mines, \$198,771; January 1, 1995 -December 31, 1996.

An Inter-Disciplinary Approach to Establish and Evaluate Experimental Reclamation of Surface Mine Soil with High Value Tree Species; Member of nine person investigation team representing four academic departments; Robinson Trust Fund, \$1,207,000; 1996-1999.

Stabilization of embankments on abandoned mine lands slopes using bioengineering techniques: a field evaluation of cost-effectiveness; D.H. Graves, M.H. Pelkki, D.L. Brown, and J.M. Ringe, Co-Investigators. Robinson Forest Initiative. \$9,863; 1996 - 1997.

Quantifying the costs of best management practices in Kentucky. M.H. Pelkki, J.M. Ringe, M. Smidt, and J.W. Stringer, Co-Investigators. Submitted under the SB-271 request for proposals. \$107,900; 1998-2001.

Investigation of natural forest forming processes on open-pit coal mines in western Siberia and Kentucky. M.H. Pelkki, Principal Investigator and J.M. Ringe, Co-Investigator. U.S.D.A. Research and Scientific Exchanges Division. \$43,865; 2000-2003.

Post mining reforestation demonstration project I. D.H. Graves, Principal Investigator; C.D. Barton J.M. Ringe, J.W. Stringer, R. Sweigard, and R. Warner, Co-Investigators.

U.S.D.A. Forest Service. \$985,000; 2001-2004.

Post mining reforestation demonstration project II. D.H. Graves, Principal Investigator; C.D. Barton, J.M. Ringe, J.W. Stringer, R. Sweigard, and R. Warner, Co-Investigators. U.S.D.A. Forest Service. \$985,000; 2002-2005.

Post mining reforestation demonstration project III. D.H. Graves, Principal Investigator; C.D. Barton, J.M. Ringe, J.W. Stringer, R. Sweigard, and R. Warner, Co-Investigators. U.S.D.A. Forest Service. \$985,000; 2003-2006.

Carbon Sequestration on surface mine lands. D.H. Graves, Principal Investigator; C.D. Barton, J.M. Ringe, J.W. Stringer, R. Sweigard, and R. Warner, Co-Investigators. U.S. Department of Energy. \$1,000,000; 2002-2005.

SUBMITTED, UNFUNDED

The use of organic waste materials in abandoned coal refuse storage area stabilization; D.H. Graves, Principal Investigator, J.M. Ringe, Co-Investigator (one of five). Submitted to the Office of Surface Mining. March 1984.

Economic effects of wood utilization prior to surface mining on the competitive position of Kentucky coal; J.M. Ringe, Principal Investigator, D.H. Graves, Co-Investigator. Submitted to the Institute for Mining and Minerals Research. March 1985.

Economic effects of commercial and non-commercial wood utilization prior to surface mining; J.M. Ringe, Principal Investigator, D.H. Graves, Co-Investigator. Submitted to USDA Forest and Rangeland Renewable Resources. May, 1985.

Quantifying disincentives to reforestation under PL 95-87; J.M. Ringe, Principal Investigator, D.H. Graves, Co-Investigator. Submitted to Resources for the Future, small grants program. February, 1987.

The University of Kentucky Center for International Marketing of Forest Products: A Proposal; S.J. Chang and J.M. Ringe, Co-Investigators. Submitted to the USDA Cooperative State Research Service. March, 1989.

Economic development through biomass integration; J.M. Ringe, Co-Investigator (one of ten). Submitted to the National Renewable Energy Laboratory. June, 1993.

Enhancing rural development through value added to timber resources; M.H. Pelkki, J.M. Ringe, and D.H. Graves, Co-Investigators. Submitted to the USDA Cooperative State Research Service. November, 1993.

Evaluating costs and benefits of forest best management practices on private woodlands; M.H. Pelkki, J.W. Stringer, and J.M. Ringe, Co-Investigators. Submitted to the American Farm Bureau Research Foundation. January, 1994.

Predicting and avoiding long-term volume, grade, and value losses associated with forest fires in hardwood forests of eastern Kentucky; J.W. Stringer, M.H. Pelkki, and J.M. Ringe, Co-Investigators. Submitted to the Robinson Forest Initiative. August, 1996.

Wood moisture content considerations in adhesive strength of water-cured and air-cured glues. J.M. Ringe and K.L. Powell, Co-Investigators. Robinson Forest Initiative. August 1997.

Quantifying barriers to woody biomass fuel markets. M.H. Pelkki and J. M. Ringe, Co-Investigators. Consortium for Plant Biotechnology Research, Inc. March 1998.

TEACHING ACTIVITIES

AWARDS AND HONORS

Recipient of the 1996 Master Teacher Award, sponsored by the Kentucky Chapter of the International Society of Gamma Sigma Delta, College of Agriculture.

Nominee for University Outstanding Advising Award. 1997.

Selected as a Faculty Advisor to the College of Agriculture Ambassadors, 2001-2003.

Selected as the Faculty Advisor of the College of Agriculture China Study Tour, 2002.

Finalist for the Provost's Award for Outstanding Teaching – 2002.

Nominated for the Provost's Award for Outstanding Teaching – 2003.

Finalist for the Provost's Award for Outstanding Teaching – 2006.

TEACHING ASSIGNMENTS

FOR 100 - Introduction to Forestry; 1985 - 2000.

FOR 200 - Map Reading and Photogrammetry; 1994 - present.

FOR 300 - Forest Mensuration; 1983.

FOR 305 - Harvesting Timber Crops; 1990 - 1993.

FOR 310 - Forest Photogrammetry; 1991.

FOR 260 – Forest Products and Wood Science; 2010 – present.

FOR 320 – Forest Valuation and Economics; 2011 – present.

FOR 359 – Forest Operations and Utilization, Spring Field Semester (jointly taught); 2012 – present.

FOR 360 - Wood Technology and Utilization; 1994 – 1995, 2000 - 2011.

FOR 377 - Forest Surveying, Summer Camp (assisted with course preparation and grading); 1984.

FOR 378 - Forest Mensuration, Summer Camp; 1984.

FOR 379 - Harvesting and Utilization of Wood, Summer Camp (jointly taught); 1988 – 1996, 2000 – 2011.

FOR 400 - Wood Identification and Properties; 1992.

FOR 420 - Wood Products (jointly taught) 1988 - 1991.

FOR 425 - Timber Management; 2001 – 2005, 2009 – 2011

FOR 455 - Forest Policy and Administration; 1985 - 1989.

FOR 470 Interdependent Natural Resource Issues – Analysis and Solutions; 2013
(Team taught with Mike Lacki)

FOR 480 – Integrated Forest Resource Management (Senior Capstone); 2009 – present.
(Team taught with John Lhotka)

FOR 601 - Research Methods; 1998 - 2000.
(Taught as FOR 620 in Fall 1998)

FOR 602 – Renewable Natural Resources in a Global Perspective; 2005 – present.
Present one lecture for the course.

NRC 381 - Natural Resource Policy Analysis - 2002 (taught 2 weeks of the course).

STUDENT EVALUATION OF TEACHING

Year	Course	Enrollment	Score	Department Average	College Average	University Average
Evaluation basis = 5.0 for 1983 - Spring 1991						
1983	FOR 300	16	4.3			
1984	FOR 377	10	NA			

	FOR 378	10	NA		
1985	FOR 100	30	4.5	4.2	4.2
	FOR 399	1	NA		
	FOR 455	11	4.2		
1986	FOR 100	16	4.7		
	FOR 455	5	4.2		
1987	FOR 100	32	4.4	4.1	4.2
	FOR 455	8	4.2		
1988	FOR 100	34	4.4	4.2	4.1
	FOR 100N	19	4.1		
	FOR 420	6	4.8		
	FOR 455	5	NA		
1989	FOR 100	34	4.5	4.3	4.1
	FOR 455	3	4.8	4.3	4.2
1990	FOR 100	56	4.2	3.9	4.2
	FOR 305	11	4.4		
	FOR 379	6	NA		
	FOR 420	7	NA		
1991	FOR 305	13	4.7	4.3	4.2
	FOR 310	7	4.8		
	FOR 420	5	4.9		

Year	Course	Enrollment	Score	Department Average	College Average	University Average
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Evaluation basis = 4.0 for Fall 1991 - present

1991	FOR 100	90	3.7	3.5	3.4	
1992	FOR 100	77	3.6	3.4	3.4	
	FOR 400	17	4.0			
1993	FOR 100	97	3.8	3.2	3.4	
	FOR 305	28	3.7	3.3	3.3	
1994	FOR 100	124	3.7	3.4	3.3	3.2
	FOR 200	36	3.6	3.4	3.4	
	FOR 360	18	4.0	3.4	3.4	
	FOR 379	19	NA			

1995	FOR 100	113	3.9	3.5	3.4	3.3
	FOR 200	32	3.8	3.3	3.4	3.3
	FOR 360	20	3.6	3.3	3.4	3.3
	FOR 379	11	NA			
1996	FOR 100	115	3.9	3.4	3.4	3.3
	FOR 200	38	3.8	3.4	3.3	NA
	FOR 379	20	NA			
1997	FOR 100	137	3.8	3.3	3.5	3.3
	FOR 200	37	3.8	3.3	3.4	3.3
1998	FOR 100	124	3.6	3.5	3.5	3.3
	FOR 200	32	3.9	3.5	3.4	3.3
	FOR 620	10	3.8	3.5	3.5	3.3
1999	FOR 100	97	3.9	3.5	3.5	3.3
		18	3.8	3.4	3.4	3.3
	FOR 200-2	12	4.0	3.4	3.4	3.3
2000	FOR 100-1	38	3.7	3.5	3.5	3.3
	FOR 100-2	58	3.8	3.5	3.5	3.3
	FOR 200-1	16	3.7	3.6	3.4	3.3
	FOR 200-2	6	4.0	3.6	3.4	3.3
	FOR 360	19	3.9	3.6	3.4	3.3
	FOR 379	21	3.4		3.9	3.4
	FOR 601	11	3.3	3.5	3.5	3.3
2001	FOR 200-1	7	3.9	3.4	3.4	3.4
	FOR 200-2	14	3.9	3.4	3.4	3.4
	FOR 360	10	3.8	3.4	3.4	3.4
	FOR 379	13	3.2			
	FOR 425	13	3.0	3.6	3.5	3.3
2002	FOR 200-1	10	4.0	3.7	3.4	3.3
	FOR 200-2	9	3.8	3.7	3.4	3.3
	FOR 360	12	3.8	3.7	3.4	3.3
	FOR 379	10	3.5			3.4
	FOR 425	11	3.7	3.3	3.4	3.3
2003	FOR 360	14	4.0	3.3	3.4	3.4
	FOR 379	11	3.9			
	FOR 425	12	3.9	3.4	3.3	3.2
2004	FOR 200-1	20	3.9	3.6	3.4	3.4
	FOR 200-1	10	3.9	3.6	3.4	3.4

Year	Course	Enrollment	Score	Department Average	College Average	University Average
	FOR 360	20	4.0	3.6	3.4	3.4
	FOR 379	15	4.0	NA	NA	NA
	FOR 425	20	3.9	3.5	3.4	3.3
2005	FOR 200-1	10	3.8	3.6	3.4	3.4
	FOR 200-2	10	4.0	3.6	3.4	3.4
	FOR 360	10	4.0	3.6	3.4	3.4
	FOR 379	6	4.0		3.7	
	FOR 425	8	4.0	3.6	3.4	3.4
2006	FOR 200-1	15	3.8	3.5	3.4	3.4
	FOR 200-2	12	3.9	3.5	3.4	3.4
	FOR 360	11	4.0	3.5	3.4	3.4
	FOR 379	13	4.0	3.4	3.4	3.5
2007	FOR 200-1	11	3.9	3.5	3.3	3.3
	FOR 200-2	6	4.0	3.5	3.3	3.3
	FOR 360	11	4.0	3.5	3.3	3.3
	FOR 379	7	3.9		3.7	
2008	FOR 200-1	13	4.0	3.5	3.3	3.4
	FOR 200-2	11	4.0	3.5	3.3	3.4
	FOR 360	11	4.0	3.5	3.3	3.4
	FOR 379	10	3.5		3.3	
2009	FOR 200-1	10	3.9	3.5	3.4	3.4
	FOR 200-2	6	3.8	3.5	3.4	3.4
	FOR 360	18	3.9	3.5	3.4	3.4
	FOR 379	14	3.7	3.5	3.6	3.4
	FOR 425	18	3.9	3.4	3.4	3.4
	FOR 480	14	3.5	3.5	3.4	3.4
2010	FOR 200-1	14	4.0	3.7	3.4	3.4
	FOR 200-2	6	4.0	3.7	3.4	3.4
	FOR 200	25	4.0			
	FOR 260	10	3.7	3.7	3.4	3.4
	FOR 260	23	4.0			
	FOR 379	12	4.0		3.8	3.5
	FOR 425	10	3.6			
	FOR 480	15	3.9	3.7	3.4	3.4
2011	FOR 200	15	3.9	3.7	3.5	3.4
	FOR 200	27	4.0		3.5	
	FOR 260	16	3.8	3.7	3.5	3.4

Year	Course	Enrollment	Score	Department Average	College Average	University Average
	FOR 260	28	4.0		3.5	
	FOR 320	25	3.8		3.5	
	FOR 379	10	4.0		3.4	3.4
	FOR 425	11	3.9		3.5	
	FOR 480	9	4.0	3.7	3.5	3.4
2012	FOR 200	30	3.8	3.4	3.4	3.4
	FOR 260	23	4.0			
	FOR 320	32	3.8			
	FOR 359	16	4.0		3.4	3.5
	FOR 480	10	3.7		3.4	3.4
2013	FOR 200	23	3.9	3.4	3.5	3.4
	FOR 260	22	3.9	3.4	3.5	3.5
	FOR 320	23	3.8	3.4	3.5	3.5
	FOR 359	20	3.7		3.5	3.5
	FOR 470	19	3.4		3.5	3.5
	FOR 480	16	3.7		3.5	3.5
2014	FOR 200	11	3.60	3.43	3.42	3.30
	FOR 260	12	3.82	3.43	3.42	3.30
	FOR 320	23	3.83	3.43	3.42	3.30
	FOR 359	18	3.46	3.4	3.39	3.35
	FOR 470	18	NA	3.4	3.39	3.35
	FOR 480	18	3.83	3.4	3.39	3.35

STUDENT EVALUATION OF ADVISING (4.0 basis)

Spring 2008	3.8
Spring 2010	3.9

GRADUATE THESES DIRECTED

Dickinson, T. M. 1992. Economic analysis of streamside management zones. M.S. in Forestry. Major Professor.

Ning, Yulin. 1993. U.S. direct investment abroad and its influences on the U.S. economy: cases in food and wood industries. Ph.D. in Agricultural Economics. Co-Director with M. Reed (Ag. Econ.)

Evans, J. 1994. Using magnetic resonance imaging to examine moisture in wood. M.S. in Forestry. Committee Member, became Major Professor upon retirement of J.R. Olson.

Thomas, William. 1999. Survival and growth of hardwoods under various soil amendments

and compaction regimes on surface mine spoil. M.S. in Forestry. Co-Director with M.H. Pelkki.

Kirilova, Natalia. 2001. Optimal financial management of yellow-poplar-oak stands in the central Appalachian region. M.S. in Forestry. Committee Member, became major professor upon resignation of M.H. Pelkki.

GRADUATE THESIS COMMITTEES

Hans, J. 1987. The effect of softwood log export restrictions on stumpage price and employment in the Pacific Northwest, U.S.A. M.S. in Forestry. Committee member.

Alderdice, L. 1988. Topsoil alternatives for surface mine reclamation. M.S. in Forestry. Committee member.

Lestari, P. 1991. Biomass production and nutrient accumulation on a 22 year old forest plantation on mine spoil in Bell County, southeastern Kentucky. M.S. in Forestry. Committee Member.

Gracey, E. 1997. Identifying non-industrial private forest landowner characteristics and attitudes in Kentucky. M.S. in Forestry. Committee Member.

Hilpp, G. 1997. Multiple product volume equations for yellow-poplar in eastern Kentucky M.S. in Forestry. Committee Member.

Swenk, D.W. 1997. An analysis of the effects on hillside hydrologic processes by forest roads in eastern Kentucky. M.S. in Forestry. Committee Member.

Hamner, P. 1998. Soil bioengineering as a method for slope stability on abandoned mine land in eastern Kentucky. M.S. in Forestry. Committee Member.

Woosley, P.B. 2002. Characterization and control of annual bluegrass in the transition zone. Ph.D. in Agronomy. Outside Member of Examination Committee.

Higgins, S. 2004. PhD in Plant and Soil Science. Served as Outside Member of Examination Committee.

Broadbeck, Scott, 2007. Property taxation, forest fragmentation and development in Kentucky's Green River and Lower Cumberland River Watersheds. M.S. in Forestry. Committee Member.

Carr, D.A. 2007. Environmental regulatory policy: political economy, industrial geography, and intergovernmental fiscal effects. Ph.D. Martin School of Public Policy and Administration. Served as Outside Member of Examination Committee.

Michels, Adam. 2007. Economics of low-compaction reforestation techniques on surface mines. M.S. in Forestry. Committee Member.

- Jia, Haili. 2008. The strategic exercise of options under noisy market conditions: agribusiness firms' investments in providing precision agriculture services. Ph.D. in Agricultural Economics. Served as Outside Member of Examination Committee.
- Wang, Xin. 2011. Using linked household-level datasets to explain consumer response to BSE in Canada. Ph.D. in Agricultural Economics. Served as Outside Member of Examination Committee.
- Catron, Jonathan Franklin. 2012. Economic and policy implications of forest-based bioenergy production in Kentucky. M.S. in Forestry. Committee Member.
- Craig, Jared Matthew. 2012. Effects of midstory removal and shoot clipping on the growth and development of three oak species. M.S. in Forestry. Committee Member.
- Birendra K.C. 2012. Socio-economic study of community forests in mid hills region of Nepal. M.S. in Forestry. Committee Member.
- Shrestha, Prativa. 2013. Carbon life-cycle and economic analysis of forest's carbon sequestration and woody bioenergy production. Committee Member
- Cunningham, Russell. 2014. Effects of regeneration opening size and simulated crop tree release on volume yields and economic value in oak-dominated stands. Committee member.

UNDERGRADUATE ADVISING

<u>Year</u>	<u>Number of Advising Conferences</u>
1985	8
1986	8
1987	14
1988	16
1989	39
1990	51
1991	63
1992	35
1993	52
1994	50
1995	68
1996	91
1997	122
1998	120
1999	99
2000	113
2001	104
2002	101
2003	96

2004	94
2005	107
2006	101
2007	114
2008	150
2009	133
2010	106
2011	122
2012	126
2013	136
2014	110

OUTREACH TEACHING ACTIVITIES

Served on the teaching staff of the 21st Annual RTA (Railway Tie Association) Crossties Seminar. Assisted in instructing industry personal in wood identification and crosstie grading. July 22-24, 2007, Terre Haute, IN.

Served on the teaching staff of the 23st Annual RTA (Railway Tie Association) Crossties Seminar. Assisted in instructing industry personal in wood identification and crosstie grading. August 2-4, 2009. Roanoke, VA.

Served on the College Staff that conducted the State 4-H Forestry Competition. May 26, 2010, Lexington, KY.

Served on the teaching staff of the 25th Annual RTA (Railway Tie Association) Crossties Seminar. Assisted in instructing industry personal in wood identification and crosstie grading. July 17-19, 2011. Russellville, AK

Participated in the College of Agriculture Open House featuring Forestry, Landscape Architecture, and Natural Resources & Environmental Science sponsored by the Environmental & Natural Resource Institute. July 22, 2011, Lexington, KY

Served on the teaching staff of the 26th Annual RTA (Railway Tie Association) Crossties Seminar. Assisted in instructing industry personal in wood identification and crosstie grading. August 7-9, 2012. Denver, CO

Served as a Judge for the 2013 State FFA Agriscience Fair. June 12, 2013, Lexington, KY.

Served on the teaching staff of the 27th Annual RTA (Railway Tie Association) Crossties Seminar. Assisted in instructing industry personal in wood identification and crosstie grading. July 30- August 1, 2013. Bossier City, LA

Serve on the Academic Committee of the RTA (Railway Tie Association). 2013-present.

Served as a Judge for the 2014 State FFA Agriscience Fair. June 11, 2014, Lexington, KY.

Served on the teaching staff of the 28th Annual RTA (Railway Tie Association) Crossties Seminar. Assisted in instructing industry personal in wood identification and crosstie grading. July 29- 31, 2014. Sutton, WV

ADMINISTRATIVE ASSIGNMENTS

Director of Undergraduate Studies: 1987 - 1991
1996 - 1999
2001 - present

Major Accomplishments and Duties:

Secured the pairing of FOR 100 with GEO 210 under the Cross-Disciplinary Requirement of the University Studies Program. (1988)

Authored “Standard II - Curriculum” for the departmental Society of American Foresters (SAF) Accreditation Document. (1989)

Authored statement on the value of Robinson Forest to the undergraduate Forestry program included in the petition to declare Robinson Forest as Lands Unsuitable for Mining. (1990)

Worked with D.B. Wagner and the Vice Chancellor for Minority Affairs to improve departmental efforts to recruit and retain minority students. (1996)

Participated with D. McLaren in the AVID (Advancement through Individual Determination) program sponsored by the Office of Minority Affairs. (1996)

Completed the editing of the “Progress Report of the Professional Forestry Program at the University of Kentucky” for the Committee on Accreditation, SAF authored by D.B. Wagner. (1996)

Oversaw the final editing and release of the Forestry program brochure - work initiated by D.B. Wagner. (1996)

Coordinated the development of a post-summer camp field skills competency test as outlined by the Department faculty in our self-study report. (1997)

Assisted with the Academic Workshop for students on probation conducted by the Associate Dean for Instruction. (1997-present)

Provided input for the periodic review of the Agricultural Economics Department. (1997)

Provided input for the periodic review of the Entomology Department. (1998)

Co-authored “Standard II - Curriculum” for the departmental SAF Accreditation Document. (1999)

Coordinate summer advising duties with the department annually. (1987-1991, 1996-1998, 2001 - present)

Coordinate the Robinson Forest Orientation weekend for new and continuing students.(1996, 1997)

Coordinate the assignment of graduate Teaching Assistants to undergraduate forestry courses. (1996-1998)

Editor and Co-author of the Interim Status Report of the Professional Forestry Program at the University of Kentucky. Prepared for the Society of American Foresters Committee on Accreditation (2004)

Member of the Curriculum Review Team at Hocking Technical College, Nelsonville, OH (2005)

Co-Collaborator with Carol Hanley (Tracey Farmer Center) and other faculty to develop a Forest Health Curriculum under the U.S.D.A. Higher Education Challenge Grants Program (2006)

Member of the Department of Forestry’s Strategic Planning Committee (2006)

Member of the Department of Forestry’s Curriculum Revision Committee (2006)

Forestry Department’s representative (with T. Connors) at the Career Fair sponsored by the Kentucky Department of Fish and Wildlife Resources (February 24-25, 2006)

Author of the Interim Progress Report to the SAF Committee on Accreditation. Prepared for the Society of American Foresters (2006)

Attended the Southern Forestry Programs Recruiting Meeting to confer with 11 southern forestry schools and SAF to discuss recruiting needs, experiences and ideas. March 27, 2008; Knoxville, TN.

Author of the Department of Forestry’s Undergraduate Advisor’s Guide. 2012

Co-Author of the Department of Forestry’s Professional guidelines and expectations document.

Chairman of the Department of Forestry Undergraduate Program Committee (UPC). (2010 – present)

Prepare Spring, Summer and Fall semester course schedules for the department.

Consult, on a continual basis, with students and prospective students interested in Forestry. (1987-present)

Consult, on a continual basis, with graduating foresters concerning career placement. (1987-present)

Forestry Summer Field Camp Coordinator: 1995- 1997; 2005 - 2011

Duties include:

Preparation of information packages for students

Preparation of package of signed insurance documents for Forest Director

Securing and issuing safety equipment

Consulting with students concerning camp information

Opening of camp and official welcome

Help plan and coordinate “Friends of Forestry” cookout and family night

Conducting evaluations for the camp courses

Addressing, in cooperation with the Department Chair any problems and concerns that arise.

Forestry Spring Field Semester Coordinator: 2012 – present

Major duties include serving as the communication channel for students, conducting course evaluations, coordination of safety issues, and communication and collaboration with the chair with any “ad hoc” issues that might arise.

INVITED REVIEWS

Proposal reviewer, U.S.D.A. Competitive Research Grants Program, wood utilization area (1985).

Reviewer of the Second Edition of Introduction to Forest Science, R.A. Young, Editor, John Wiley & Sons (1987).

Manuscript referee for the National Symposium on Surface Mining Hydrology, Sedimentology, and Reclamation (now the National Symposium on Mining) (1985-1990).

Manuscript referee for the International Journal of Surface Mining and Reclamation.

Manuscript referee for Wood and Fiber Science

Manuscript referee for the Forest Products Journal.

Reviewer (with M.H. Pelkki) of the Forestry section of Chapter 6 in the Atlas of Kentucky, R. Ulack, Editor, University Press of Kentucky (1997).

PROFESSIONAL ORGANIZATIONS

Forest Products Society (1979-present)

Society of American Foresters (1973-present)

Xi Sigma Pi - National Forestry Honor Society (1976-present)

Gamma Sigma Delta - International Agricultural Honor Society (1977-present)

Alpha Zeta - National Agriculture Honor Society (1976-present)

COMMITTEE ASSIGNMENTS

INTERNATIONAL

Chairman of the Technical Program Assistance Committee for the 1987 Forest Products Research Society's (renamed the Forest Products Society) Annual Meeting (1986-1987).

Secretary of the Production Management Technical Interest Group of the Forest Products Research Society (1988-1990).

Secretary of the Hardwood Lumber Technical Interest Group of the Forest Products Society (1992-1994).

NATIONAL

Advisory Committee for the National Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation (renamed the National Symposium on Mining; 1985-1990).

Executive Committee for the National Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation (1987).

Chairman of the Computer Applications Technical Review Committee for the National Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation (1987).

REGIONAL

Executive Board of the Ohio Valley Section of the Forest Products Society (1988-2005).

Secretary of the Ohio Valley Section of the Forest Products Society (1986-1987, 1993-1994).

Treasurer of the Ohio Valley Section of the Forest Products Society (1994-2005).

Scholarship Committee of the Ohio Valley Section of the Forest Products Society (1992-1996).

Scholarship Committee of the Kentucky-Tennessee Section of the Society of American Foresters (1998-present).

STATE

Kentucky Forest Industries Advisory Committee (1987)

Forestry Committee of the Kentucky Forest Industries Association (1988).

UNIVERSITY OF KENTUCKY

Scholarship Selection Committee for the Academic Excellence Awards for currently enrolled and transfer students - responsible for reviewing 60 application packages (1991).

University Appeals Board. September 1, 2013 – August 31, 2015

COLLEGE OF AGRICULTURE

Scholarship Selection Committee - responsible for evaluating incoming freshman and + upperclass scholarship applications annually (1987-present).

Undergraduate Curriculum Committee (1987-1990, 2004 - present)

Teaching Advisory Committee (1987-1990)

Dean's committee to investigate agricultural alternatives to tobacco growing (1985).

Faculty steering committee for the College of Agriculture Alumni phonathon fund raising campaign (1987-1988).

Ad Hoc committee on the oral communications requirement (1988).

Planning committee for the Agriculture honors banquet (1988-1989).

Periodic internal review committee for the Department of Forestry (1996, 2001).

Chairman of the Gamma Sigma Delta Master Teacher Selection Committee (1997).

Member of the USP Revision Committee (1997).

Forestry Faculty Representative at the Agriculture Scholarship Banquet (1997 - present).

Faculty Representative to the Agriculture Alumni Board (1998).

Member of the Gamma Sigma Delta Master Teacher Selection Committee (1998).

Member of the Core Group Planning Committee for the College of Agriculture Staff Appreciation Day (2002 - present)

Periodic internal review committee of the Merchandise, Apparel, and Textiles department (2005).

Member of an *ad hoc* committee to develop guidelines for the evaluation of teaching for annual performance review of faculty.

DEPARTMENT OF FORESTRY

Undergraduate Curriculum Committee (1986-present).
Chairman (1987-1991, 1996-1999, 2001-present).

Wood Utilization Center Committee (1986-present).

Space Allocation Committee (1986-1994).

Chairman of committee to develop mission statement for the Department's periodic review by the University (1995)

Chairman of committee to determine faculty needs under the Robinson Forest Initiative (1996)

Search Committees:

Wood Utilization, Extension (1990, 1995, 2001)

Forest Management (1991, 2001, 2005, 2011)

Forest Ecology (1992)

Wood Technology, Teaching and Research (1994, 1995, 1996)

Wood Technicians, Quicksand (1996)

Conservation Biology (1996, 2013)

Forestry and Natural Resources Policy (1996, 1997, 1998, 2006, 2008)

Department Chair (1999) - Served as Committee Chairman

Forest Landscape Ecology (2013)

Review panel for research proposals, Robinson Forest Initiative (1995)

Rules and procedures committee (1996)

Edited and prepared current Rules and Procedures Document (1997)

Chairman's Advisory Committee on Merit Evaluations (1990, 1994, 1997, 2001, 2002, 2006, 2007, 2014)

Member of the Curriculum Committee, Self-Evaluation Report for re-accreditation by the Society of American Foresters (1998).

Edited and prepared the Interim Status Report of the Professional Forestry Program at the University of Kentucky for the Society of American Foresters (2004).

SERVICE ACTIVITIES

United Way Coordinator, UK Department of Forestry (1984, 1996)

Food Committee, UK College of Agriculture annual fall picnic (1984-present)

Mini-course moderator, National Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation (1984-1985)

Program committee for the 10th Resources Management Consortium at the Land Between the Lakes (1985)

Recorded an Ag tape and Ag Short Take on Hardwood Lumber Exportation for the Radio-TV service of the UK College of Agriculture (1986)

Forestry faculty representative to the Institute for Future Agricultural Leaders luncheon (1986-1987)

Faculty advisor to the UK Student Chapter of the Society of American Foresters (1986-1989)

Participant in "A Major Affair" - a University-wide program for undecided students (1989)

Faculty advisor for the 17th Resources Management Consortium at the Land Between the Lakes. Helped D.B. Wagner and R.N. Muller secure travel funds through the Agriculture Alumni Association grants (1993)

Accompanied undergraduate students to Society of American Foresters National meetings (1992 with M.H. Pelkki, 1993, 2000 with M.H. Pelkki)

Conducted seminars for Forestry (and later Natural Resource Conservation) students on job search strategies and resources (1986, 1992, 1995)

Invited speaker at UK SAVE (Students Against the Violation of the Environment) meeting (1994).

Accompanied undergraduate students of the ASFC Conclave (2010, 2011, 2012 with T.E. Connors).

OTHER MEETINGS ATTENDED

Ohio Valley Section Meetings of the Forest Products Society (1984-present).

Kentucky-Tennessee Section Meeting of the Society of American Foresters (1985, 1998).

East Kentucky Chapter Meeting of the Society of American Foresters (1986).

Kentucky Forest Industries Association Meeting (1986).

National Meetings of the Forest Products Society (1982, 1987, 1988, 1991-1994, 2005).

Agriculture and the Economic Outlook - a day of discussion presented by the UK College of Agriculture (1990).

National Meetings of the Society of American Foresters (1992, 1993, 2000).

The Tenth Annual National Environmental Conference and Career Fair; Sponsored by the Environmental Careers Organization (1994).

Successful Strategies for Recruitment and Retention: Building an Inclusive University; University of Kentucky (1996).

A New Dimension in Materials Testing; sponsored by Instron Corp., Louisville, KY (1997)

Rough Mill S.O.S. (Systems and Optimizing Strategies); sponsored by UK Cooperative Extension and KWPC. Louisville, KY (1997)

The Ninth and Tenth Annual meetings of the European Panel Products Symposium, Llandudno, Wales. (2005, 2006)

PROFESSIONAL VITAE

George Andrew Stainback

Department of Forestry
University of Kentucky
214 T.P. Cooper Building
Lexington, KY 40546-0073
Phone: 859-257-1770
Email: gdrewst02@uky.edu

ACADEMIC BACKGROUND

Doctor of Jurisprudence (J.D.), May 2006 *Florida State University*

Honors: Awarded the Deborah K. Kearney Jurisprudence Book Award for Academic Excellence

Doctor of Philosophy (Ph.D.) in Forest Resources and Conservation, December 2002

University of Florida

Specialization: Natural Resource Economics and Policy

Advisor: Dr. Janaki Alavalapati

Dissertation: Economics of Forest Carbon Sequestration in the Southeastern U.S.

Honors: Selected as the 2002 School of Forest Resources and Conservation Outstanding Dissertation

Master of Science (M.S.) in Resource Conservation, July 1998 *University of Montana*

Specialization: Resource Policy and Economics

Advisor: Dr. David Jackson

Bachelor of Science (B.S.) in Biochemistry, May 1995 *Virginia Tech*

Minors: Biology and Chemistry

Honors: cum laude

WORK EXPERIENCE

Assistant Professor of Forest and Natural Resource Policy, University of Kentucky. July 2009-Present.

Assistant Professor of Environmental Science, State University of New York Plattsburgh. August 2007-May 2009.

Visiting Assistant Professor of Economics, Georgia Southwestern State University. August 2006-May 2007.

Paid consultant: School of Forest Resources and Conservation, University of Florida. March 2005.

Paid consultant: Wildlife Conservation Society. Rwanda. July-August 2004.

Post Doctoral Fellow: Natural Resource Economics. University of Florida. August 2002-May 2003.

PUBLICATIONS

Publications Under Review

* Indicates graduate student advisee

Shrestha*, P., Stainback, G.A. & Dwivedi, P. Economic Impact of Net Carbon Payments and Wood-based Bioenergy Production in Fertilized and non-Fertilized Loblolly Pine Plantations. *Journal of Agricultural and Resource Economics*. (Status: Revise and Resubmit)

Mercer, E. D. Li, X. Stainback, G. A. & Alavalapati, J.R.R. Valuation of agroforestry in agroforestry and climate change: reducing threats and enhancing resiliency in agricultural landscapes. *Agroforestry and Climate Change: Reducing Threats and Enhancing Resiliency in Agricultural Landscapes* in T. Harin (ed.). (Status: Minor Revision)

Nepal*, S., Contreras, M. A., Stainback, G. & Lhotka, J. M. Effects of biomass market and policy incentives on economically feasible sites to establish dedicated energy crops. *Energy Policy* (Under Review)

Refereed Publications (22)

* Indicates graduate student advisee

KC*, B., Stainback, G. A., & Rayens, K. 2015. Comparison of Three Major Forest Types of Mid Hills Region of Nepal for Conservation and Local Benefits. *Small-scale Forestry*, 1-13.

Shrestha*, P., Stainback, G. A., Dwivedi, P., & Lhotka, J. M. 2015. Economic and life-cycle analysis of forest carbon sequestration and wood-based bioenergy offsets in the central hardwood forest region of United States. *Journal of Sustainable Forestry*, 34(3), 214-232.

Nepal*, S., Contreras, M. A., Lhotka, J. M., & Stainback, G. A. 2014. A spatially explicit model to identify suitable sites to establish dedicated woody energy crops. *Biomass and Bioenergy*, 71(0), 245-255.

KC*, B., Stainback, G. A. & Chhetri, B. B. K. 2014. Community users' and experts' perspective on community forestry in Nepal: a SWOT-AHP analysis. *Forests, Trees and Livelihoods*, 23(4), 1-15.

Catron*, J. F., Stainback, G. A. Lhotka, J. M., Stringer, J., & Hu, L. 2013. Financial and management implications of producing bioenergy in upland oak stands in Kentucky. *Northern Journal of Applied Forestry*, 30(4), 164-169.

K.C*. , B., & Stainback, G. A. 2013. Financial analysis of chir pine plantations for carbon offsets, timber and resin in Nepal. *Banko Janakari*, 22(2), 3-10.

- Leitch, Z. J., Lhotka, J. M., Stainback, G. A. & Stringer, J. W. 2013. Private landowner intent to supply woody feedstock for bioenergy production. *Biomass and Bioenergy*, 56(0), 127-136.
- Catron*, J., Stainback, G. A., Dwivedi, P. & Lhotka, J. M. 2013. Bioenergy development in Kentucky: A SWOT-ANP analysis. *Forest Policy and Economics*, 28(0), 38-43.
- Dwivedi, P., Bailis, R., Stainback, A. & Carter, D. R. 2012. Impact of payments for carbon sequestered in wood products and avoided carbon emissions on the profitability of NIPF landowners in the US South. *Ecological Economics*, 78(0), 63-69.
- Stainback, G., Masozera, M., Mukuralinda, A. & Dwivedi, P. 2012. Smallholder agroforestry in Rwanda: A SWOT-AHP analysis. *Small-scale Forestry*, 11(3): 285-300.
- Stainback, G. A. & Masozera, M. 2010. Payment for ecosystem services and poverty reduction in Rwanda. *Journal of Sustainable Development in Africa*, 12(3), 122-139.
- Dwivedi, P., Alavalapati, J. R. R., Susaeta, A. & Stainback, A. 2009. Impact of carbon value on the profitability of slash pine plantations in the southern United States: an integrated life cycle and Faustmann analysis. *Canadian Journal of Forest Research*, 39(5), 990-1000.
- Matta, J. R., Alavalapati, J. R. R. & Stainback, G. A. 2009. Effect of conserving habitat for biodiversity on optimal management of non-industrial private forests in Florida. *Journal of Forest Economics*, 15(4), 223-235.
- Alavalapati, J. R. R., Jose, S. Stainback, G. A., Matta, J. R., & Carter, D. 2007. Economics of cogongrass control in slash pine forests. *Journal of Agricultural and Applied Economics*, 39, 61-68.
- Alavalapati, J. R. R., Stainback, G. A. & Matta, J. R. 2006. Longleaf pine restoration. *The Longleaf Pine Ecosystem*. In S. Jose, E. J. Jokela & D. L. Miller (Eds.), (pp. 403-412): Springer New York.
- Stainback, G. A. & Alavalapati, Janaki R. R. 2005. Effects of carbon markets on the optimal management of slash pine (*Pinus elliottii*) plantations. *Southern Journal of Applied Forestry*, 29(1), 27-32.
- Stainback, G. A. & Alavalapati, J. R. R. 2004. Restoring longleaf pine through silvopasture practices: an economic analysis. *Forest Policy and Economics*, 6(3-4), 371-378.
- Stainback, G. A. & Alavalapati, J. R. R. 2004. Modeling catastrophic risk in economic analysis of forest carbon sequestration. *Natural Resource Modeling*, 17(3), 299-317.
- Stainback, G. A. Alavalapati, J. R. R., Shrestha, R. K., Larkin, S. L. & Wong, G. 2004. Improving environmental quality in south Florida through silvopasture: An economic approach. *Journal of Agricultural and Applied Economics*, 36(2), 481-489.

Alavalapati, J. R. R., Shrestha, R. K., Stainback, G. A., & Matta, J. R. 2004. Agroforestry development: An environmental economic perspective. *Agroforestry Systems*, 61-62(1), 299-310.

Stainback, G. A. & Alavalapati, J. R. R. 2002. Economic analysis of slash pine forest carbon sequestration in the southern U. S. *Journal of Forest Economics*, 8(2), 105-117.

Alavalapati, J. R. R., Stainback, G. A. & Carter, D. R. 2002. Restoration of the longleaf pine ecosystem on private lands in the US South: an ecological economic analysis. *Ecological Economics*, 40(3), 411-419.

Non-refereed Publications (6)

* Indicates graduate student advisee

Hu*, L, Stainback, G.A., Dillion, C. 2014. Economic analysis of carbon sequestration and bioenergy production under catastrophic risk and price uncertainty. P. 1-20 *in* 2014 Annual Meeting of the Southern Agricultural Economics Association. Dallas, TX.

Shrestha*, P., Stainback, G. A., Lhotka, J.M. & Hu, L. 2013. Economic and life-cycle analysis of forest carbon sequestration and bioenergy production in the central hardwood region. P. 142-153 *in* Proceedings of Southern Forest Economics Workers Workshop. Auburn, AL.

Stainback, G.A. 2011. Kentucky woodlands tax assessment project. *Kentucky Woodlands Magazine*. 6(1): 20-21.

Stainback, A. 2010. Determining timber casualty loss: examples. *Kentucky Woodlands Magazine* 5(1): 5.

Stainback, A. 2010. Determining timber casualty loss. *Kentucky Woodlands Magazine*. 4(3): 14-15.

Stainback, G.A. and J.R.R. Alavalapati. 1999. The economics of Florida slash pine and carbon sequestration. P. 51-55 *in* Proceedings of Southern Forest Economics Workers Workshop, Munn, I and Bullard, S. (eds.). Auburn, AL.

RESEARCH

Extramural Research

The Economics of Developing Host Resistance in Trees. 2015-2016. USDA Forest Service (\$70,000)

Role: Co-PI

Enhancing Climate Change Resilience in Great Lakes Region Watersheds: the Lake Kivu Catchment and

Rusizi River CRAG. 2013-2014. Wildlife Conservation Society (\$6,000).

Role: Principal subcontract investigator on a proposal funded to Birdlife International and

Wildlife Conservation Society by the MacArthur Foundation.
Development of Property Tax Assessment Guidelines for Woodland Owners in Kentucky.
2008-2010,
USDA (\$24,000).
Role: Took over as PI

Other Funding Sources

In kind and financial research support from Wildlife Conservation Society in Rwanda.
2009-present.

Other Research Efforts

Impact of risk and stumpage price volatility on the optimal management of mixed hardwood forests in Kentucky
Role: Principal investigator

Modeling site suitability for establishing dedicated energy crops in Northern Kentucky *with Dr. Marco Contreras (University of Kentucky) and Dr. John Lhotka (University of Kentucky)*
Role: Co-investigator with responsibility for assisting in the economic analysis

The socioeconomics of local communities around Nyugwe National Park, Rwanda *with Dr. Michel Masozera (Wildlife Conservation Society), Dr. Puneet Dwivedi (University of Georgia), and Dr. Gregory Parent (University of Florida)*
Role: Co-investigator with responsibility to assist in conducting focus groups, survey design and analysis of survey data

Life-cycle analysis of using mixed hardwood forests in Kentucky for bioenergy and carbon offsets *with Dr. John Lhotka (University of Kentucky) and Dr. Puneet Dwivedi (University of Georgia)*
Role: Principal investigator

Life-cycle analysis of using loblolly pine for carbon offsets and bioenergy production *with Dr. John Lhotka (University of Kentucky) and Dr. Puneet Dwivedi (University of Georgia)*
Role: Principal investigator

Effect of clearcut opening size on forest composition, structure, and economic value five decades following treatment in upland hardwood stands *with Dr. John Lhotka (University of Kentucky) and Dr. Jeff Stringer (University of Kentucky)*
Role: Co-investigator with responsibility for assisting in the economic analysis

Conservation and Socioeconomic benefits of community forests in Nepal
Role: Principal investigator

Participation of Kentucky Woodland Owners in the Woody Biomass Market *with Dr. Jeff Stringer (University of Kentucky) and Dr. John Lhotka (University of Kentucky)*
Role: Principal investigator

Sponsor: McIntire –Stennis Formula Grant, USDA National Institute of Food and Agriculture
Small-holder agroforestry in Rwanda *with Dr. Michel Masozera (Wildlife Conservation Society), Dr. Athanase Murkuralinda (World Agroforestry Center), and Dr. Puneet Dwivedi (University of Georgia)*
Role: Principal investigator

Grants submitted but not funded

Toyota Sustainable Biomass Initiative. 2013-2017, Toyota (\$840,216)
Role: Principal investigator with Dr. Jeff Stringer PI (University of Kentucky), Dr. John Lhotka PI (University of Kentucky), and Dr. Marco Contreras PI (University of Kentucky)

Assessing the economic impact of tourism development in the Greater Virunga Landscape (GVL). 2013- 2016, Dutch Embassy Rwanda (\$300,000)
Role: Principal Investigator with Dr. Michel Masozera PI (Wildlife Conservation Society) and Dr. Janaki Alavalapati PI (Virginia Tech)

Decision Support Tools to Strengthen the Role of Non-Industrial Private Forests towards climate change adaptation and mitigation. 2012-2015, USDA (\$750,000)
Role: Co-investigator with Robert Bailis PI (Yale University), Kenneth Gillingham (Yale University), and Puneet Dwivedi (Yale University).

Addressing climate change and food security through climate smart agroforestry management in Rwanda.
2011. USAID Project for Global Development Alliance (GDA) Annual Program (\$1,551,922).
Role: Co-investigator with Dr. Athanase Mukuralind (World Agroforestry Center, Rwanda) and Dr. Donat Nsabimana (National University of Rwanda)

A fuzzy logic based GIS tool for locating economically viable energy crop plantations.
2011. USDA SE Sun Grant Regional Competitive Grant (\$75,000)
Role: Co-investigator with Dr. John Lhotka PI (University of Kentucky), Dr. Songlin Fei (University of Kentucky), and Dr. Jack Schieffer (University of Kentucky)

Sustainable bioenergy coordinated agricultural project: Toward sustainable bioenergy production systems in the southeast U.S. 2010. USDA, Agriculture and Food Research Initiative Competitive Grants Program (\$45,000,000).
Role: Co-investigator on region wide proposal involving institutions and researchers from throughout the southeast. My share, along with Dr. Jack Schieffer (University of Kentucky) would have been \$450,000

Developing a Sustainable Advanced Woody Bioenergy System (SAWBS) in the southeast.
2010. USDA, Agriculture and Food Research Initiative Competitive Grants Program (\$45,000,000).
Role: Co-investigator on region wide proposal involving institutions and researchers from throughout the southeast. My share would have been \$150,000.

PRESENTATIONS AND POSTERS (19)

#Indicates presenter, * Indicates graduate student advisee

Rayens*#, K.M., Stainback, G.A. & Masozera, M. Stakeholder evaluation of the potential of market-based instruments (MBIs) for conservation in Rwanda. International Society of Forest Resource Economics Symposium, Vancouver, B.C. May 31-June 2, 2015.

Hu*#, L., Stainback, G.A. & Dillion, C. Economic analysis of carbon sequestration and bioenergy production under catastrophic risk and price uncertainty. Southern Agricultural Economics Association, Dallas, TX. February 1-4, 2014.

Shrestha*#, P., Stainback, G. A., Lhotka, J.M. & Hu, L. Economic and life-cycle analysis of forest carbon sequestration and bioenergy production in the central hardwood region. Southern Forest Economics Workshop, Auburn, AL. March 10-12, 2013.

Shrestha*#, P., Stainback, G. A., Lhotka, J.M., Dwivedi, P. & Hu, L. Carbon life-cycle and economic analysis of forests carbon sequestration and woody bioenergy production from loblolly pine forests in southern U.S. Southern Forest Economics Workshop, Auburn, AL. March 10-12, 2013.

K.C. Birendra*#, G.A. Stainback, & P. Shrestha*. Using expert and user knowledge to analyze the relative importance of issues confronting community forests in the mid hills region of Nepal. Southern Forest Economics Workshop, March 20-21, 2012, Charlotte, N.C.

Stainback, G.A.# Payment for ecosystem services (carbon payments). Forest Carbon Stock Assessment for Carbon Trading Workshop. August 15, 2011, Gitabi, Rwanda.

Stainback, G.A.# Kentucky woodlands tax assessment project. Kentucky Department of Revenue. May 24, 2011, Frankfort, KY.

Stainback, G.A.# Kentucky woodlands tax assessment project. Kentucky Chapter of the Association of Consulting Foresters Meeting. April 28, 2011, Lexington, KY.

Stainback, G.A.# & M. Masozera. Payment for ecosystem services and poverty reduction in Rwanda. Society for Conservation Biology 24th Annual Meeting. July 3-7, 2010, Edmonton, Canada.

Stainback, G.A.# Kentucky woodlands property tax assessment. KWOA Annual Meeting. April 16-17, 2010, Barren River State Park, KY.

Stainback, G.A.# Potential of stacking other ecosystem services with carbon offsets in longleaf pine. Carbon Sequestration in the Longleaf Pine Ecosystem: Current Status of Knowledge and Information Needs. February 16-17, 2010, Auburn, AL.

Stainback, G.A.# Rwanda: history and current challenges. Third World Perspective Program Seminar. January 24, 2007, Americus, GA.

Stainback, G.A.# Third world development: successes and failures. Third World Perspective Program Seminar. October 11, 2006, Americus, GA.

Stainback, G.A.# & J.R.R. Alavalapati. Reducing phosphorus runoff through silvopasture: an ecological economics approach. Southern Forest Economics Workshop. March 17-18, 2003, New Orleans, LA.

Stainback, G.A.# & J.R.R. Alavalapati. Carbon sequestration and the optimal management of slash pine forests. USDA Symposium on Natural Resource Management to Offset Greenhouse Gas Emissions. Raleigh, NC. November 19-21, 2002.

Stainback, G.A.# & J.R.R. Alavalapati. Fire risk and the economics of sequestering carbon in forests. Annual Meeting of the American Agricultural Economics Association. July 28-31, 2002. Long Beach, CA.

Stainback, G.A.# & J.R.R. Alavalapati. Economic analysis of restoring longleaf pine on private lands in the U.S. south: implications for public policy. Global Initiatives and Public Policies: First International Conference on Private Forestry in the 21st Century. March 25-27, 2001, Atlanta, GA.

Stainback, G.A.# & J.R.R. Alavalapati. Ecological-economic analysis of land values in the Mississippi Delta when environmental benefits are considered. Southern Forest Economics Workshop. March 26-27, 2000, Lexington, KY.

Stainback, G.A. & J.R.R.# Alavalapati. Value of carbon sequestration: implications for slash pine forest management in Florida. Southern Forest Economics Workshop. April 18-20, 1999, Biloxi, MS.

PROFESSIONAL SERVICE

Associate Editor. December 2009- April 2010. Central Hardwoods Conference Proceedings. Reviewed manuscripts for Journal of Forest Economics; Journal of Forest Policy and Economics; *Ambio*; Canadian Journal of Forest Research; Resources Policy; Annals of Operations Research; Restoration Ecology; Land Economics; Challenges; American Journal of Agricultural Economics; and Environmental Management

UNIVERSITY SERVICE

Natural Resource and Environmental Science Steering Committee. July 2011-present. College of Agriculture committee tasked with curriculum development for the B.S. in Natural Resources and Environmental Science. (University of Kentucky)

Graduate Curriculum Committee. August 2009-August 2011, August 2013-August 2014. Departmental committee of faculty tasked with course and curriculum changes at the graduate level and graduate student financial support. (University of Kentucky)

Forestry Research Committee. December 2010-present. Departmental committee tasked with addressing the needs of research in the department. (University of Kentucky)

College of Agriculture International Working Group. November 2011-present. College wide committee tasked with developing international programs. (University of Kentucky)

Sustainability Ambassador Program. January 2012-present. University wide committee of students, faculty and staff tasked with improving the environmental sustainability of the campus. (University of Kentucky)

Faculty Search Committee. December 2010-April 2011 Departmental committee of faculty tasked with soliciting and reviewing applications for an open faculty position in the Department. (University of Kentucky)

Recruitment Committee. May 2010. College of Agriculture committee tasked with outlining college wide policies to boost undergraduate student recruitment in the College. (University of Kentucky)

Precision Resource Management Committee. January 2010 – April 2010. College of Agriculture Committee tasked with reviewing research proposals for funding by the USDA. (University of Kentucky)

Faculty leader to develop a new master's degree. March 2008-May 2009. Responsibilities included developing a curriculum and internship proposal for a new Professional Science Master's (PSM) degree in environmental management and sustainability. (SUNY-Plattsburgh)

Campus sustainability committee. August 2008-May 2009. University wide committee composed of administrators, faculty and students tasked with finding ways to make the campus more environmentally sustainable. (SUNY-Plattsburgh)

Curriculum committee. August 2007-May 2009. Departmental committee of faculty tasked with reviewing course and curriculum changes and making recommendations to the department. (SUNYPlattsburgh)

Faculty search committee. October 2007-March 2008. Departmental committee of faculty tasked with soliciting and reviewing applications for an open faculty position in the department. (SUNY-Plattsburgh)

Curriculum Vitae

Jeffrey W. Stringer

Department of Forestry

University of Kentucky

Lexington, KY 40546-0073

stringer@uky.edu

Professor of Hardwood Silviculture and Forest Operations

Education

Ph.D. Plant Physiology/Biochemistry/Molecular Biology Program, University of Kentucky (1993)

Master of Science in Forestry, Department of Forestry, University of Kentucky (1981)

Bachelor of Science in Forestry, Department of Forestry, University of Kentucky (1979)

Forestry Pre-Professional Program, Western Kentucky University, College of Agriculture (1975-1977)

Academic and Professional Service

Professor, University of Kentucky, Department of Forestry, 2007 to present

Associate Extension Professor, University of Kentucky, Department of Forestry, 2000 to 2006

Assistant Extension Professor, University of Kentucky, Department of Forestry, 1995 - 2000

Research Specialist in Hardwood Silviculture, University of Kentucky, Department of Forestry, 1980 - 1994

Research Assistant, University of Kentucky, Department of Forestry 1978 - 1980

Forestry Consultant, 1977 – 1980

Academic Vitae

Grants

Extension Grants

Invasive Plant Cost-Share Project. Kentucky Energy and Environment, October 2014–June 2016. PI, Billy Thomas, Co-Investigator, J. Stringer. \$156,225.

Triplett Creek Stewardship Project. Kentucky Energy and Environment, October 2014–June 2016. Principal Investigator, B. Thomas, Co- Investigator, J.Stringer. \$60,000

Triplett Creek Stewardship Project. 2014–2016. Kentucky Energy and Environmental Cabinet. \$60,000. PI – B. Thomas, Co-Investigator – J. Stringer.

How to Maintain a Healthy Forest. 2014-2015. Kentucky Energy and Environmental Cabinet. \$16,000. PI – J. Stringer, Co-Investigator – B. Thomas.

Best Management Practices for Kentucky Master Loggers. 2014. Kentucky Energy and Environment Cabinet. \$20,000. PI – J. Stringer,

Restoring Native Forests and Wildlife Habitat on Mined Land at Robinson Forest, Kentucky. 2014-2016. National Fish and Wildlife Foundation. \$140,950. PI- C. Barton, Co-Investigator- J. Stringer.

Invasive Species Education (Not All Green is Good). 2013-2014. Kentucky Energy and Environment Cabinet. \$16,000. PI - J. Stringer. Co Investigator – B. Thomas.

Kentucky Woodlands Magazine, Storm Damage, Invasives. 2013-2014. Kentucky Energy and Environment Cabinet. \$16,000. PI - J. Stringer

Forest and Wood Certification. 2012-2014. USDA US Forest Service, Kentucky Environmental and Public Protection Cabinet. 45,000. PI- J. Stringer.

Forest Stewardship Public Awareness, Publicity, and Training. 2012-2014. Kentucky Environmental and Public Protection Cabinet. \$20,000. PI - J. Stringer

What's Up with White Oaks. 2012. 2012. Kentucky Energy and Environment Cabinet, Kentucky Division of Forestry. \$16,000. PI – J. Stringer. Co-Inv., B. Thomas.

Kentucky Woodlands Magazine - FireWise Issue. 2012. Kentucky Energy and Environment Cabinet, Kentucky Division of Forestry. \$16,000. Co-PI – J. Stringer, B. Thomas.

Forest Management Assistance on State Wildlife Management Areas and Private Lands Technical Assistance. 2011-2012. Kentucky Department of Fish and Wildlife Resources. \$10,000. PI – J. Stringer

Urban Vs. Rural Forest Issues. 2011. Kentucky Energy and Environment Cabinet, Kentucky Division of Forestry. \$18,300. PI – J. Stringer, Co-Investigator – B. Thomas.

Wood Borer Issues. 2011. Kentucky Energy and Environment Cabinet, Kentucky Division of Forestry. \$20,000. PI- J. Stringer, Co-Investigator – B. Thomas

Forest Certification and Forest Health. 2010-2011. Kentucky Energy and Environment Cabinet, Kentucky Division of Forestry. \$30,000. PI- J. Stringer, Co-Investigator – B. Thomas

Forest Management Assistance on State Wildlife Management Areas and Private Lands Technical Assistance. 2010-2011. Kentucky Department of Fish and Wildlife Resources. \$15,000. PI – J. Stringer

Regional Non-Native Invasive Plant Species Workshops. 2010-2011. Kentucky Energy and Environment Cabinet, Kentucky Division of Forestry. \$12,000. PI- J. Stringer

Forest Stewardship Public Awareness, Publicity, and Training. 2010-2012. Kentucky Environmental and Public Protection Cabinet. \$20,000. PI - J. Stringer

Kentucky Woodlands Magazine – Forest Certification and Forest Health Issues. 2010-2011. Kentucky Energy and Environment Cabinet, Kentucky Division of Forestry. \$30,000. PI – J. Stringer, Co-PI – B. Thomas.

Emerald Ash Borer Public Conference. 2010-2011. Kentucky Energy and Environment Cabinet, Kentucky Division of Forestry. \$35,000. P.I. - B. Thomas, Co-PI. – J. Stringer.

Forest Management Assistance on State Wildlife Management Areas and Private Lands Technical Assistance. 2009-2010. Kentucky Department of Fish and Wildlife Resources. \$15,000. PI – J. Stringer

Cane Run and Royal Spring Watershed and Basin Plan Project. 2007-2013. Kentucky Energy and Environment Cabinet. \$666,564. PI – S. Higgins, C. Agouridis, A. Gumbert. Co-Investigators -J. Stringer, L. Orsmsbee.

Economic Impact of Fire on Forest Product Values in Appalachian Regions of Kentucky and Tennessee. 2009-2010. Kentucky Energy and Environment Cabinet. \$294,000. PI – J. Stringer.

Long-Lived Wood Products: Carbon and Competitive Advantages for Hardwood Mills. USDA Forest Service. \$79,566. PI – J. Stringer, Co-PI's T. Connors, S. Bullard.

Kentucky Woodland Magazine – Degraded Stand Revitalization and Small Woodland Management Issue. 2009-2010. Kentucky Energy and Environment Cabinet. \$30,000. PI - J. Stringer.

Forest Biomass Training for Kentucky. 2008. Southern Forest Research Partnership. \$17,000. PI's T. Conners and J. Stringer.

Certified Master Logger Program. 2007-2008. NewPage Corporation. \$40,000. PI – J. Stringer

Kentucky Woodland Magazine Special Pine Management Issue. 2008-2009. Kentucky Energy and Environment Cabinet. \$20,000. PI – J. Stringer

Kentucky Woodland Magazine Special Forest Health Issue. 2008-2009. Kentucky Energy and Environment Cabinet. \$20,000. PI – J. Stringer

Forest Stewardship Public Awareness, Publicity, and Training. 2008-2010. Kentucky Environmental and Public Protection Cabinet. \$20,000. PI - J. Stringer

Silvicultural Prescriptions and Guidelines for Managing Degraded Upland Hardwood Stands. 2008. Appalachian Hardwood Forest Research Alliance \$10,000. PI- J. Stringer, Co-PI, G. Miller.

Degraded Upland Hardwood Stand Management. 2008. USDA Forest Service Northern Experiment Station. \$7,500. PI- J. Stringer.

Kentucky Woodlands Magazine II. 2007-2008. Kentucky Environmental and Public Protection Cabinet. \$30,000. PI - J. Stringer, B. Thomas.

Certified Master Logger Program. 2007-2008. NewPage Corporation. \$40,000. PI – J. Stringer

Kentucky Woodlands Magazine I. 2007. Kentucky Environmental and Public Protection Cabinet. \$16,000. PI - J. Stringer, B. Thomas.

Forest Stewardship Public Awareness, Publicity, and Training. 1999-2008. Kentucky Environmental and Public Protection Cabinet. \$90,000. Annually renewed \$10,000 per year. PI - J. Stringer

Forest Land Enhancement Program: Public Awareness, Publicity, and Training. 2004-2008. Kentucky Environmental and Public Protection Cabinet. \$52,500. PI - J. Stringer

National Fire Plan Economic Action Program for Timber Harvesting and Silvicultural Systems to Promote Forest Health in Kentucky. 2005-2007. Kentucky Environmental and Public Protection Cabinet. \$25,000. PI - J. Stringer.

Water Quality and BMPs National Web Based Learning Center. 2004-2005. University of Tennessee – National Web Based Learning Center. \$15,000 PI - J. Stringer, Co-Investigators C. Blinn, B. Jackson

Best Management Practice Education and Training for Timber Harvesting Operators, Technical Assistance Providers, and Forest Owners. 2000-2003. US EPA 319 Nonpoint Source Program. Kentucky Natural Resources Environmental Protection Cabinet. \$173,081. PI - J. Stringer.

Forest Stewardship. 1999-2001. Kentucky Natural Resources Environmental Protection Cabinet. \$10,000. PI - J. Stringer.

Environmental Education: Impacts of Harvesting Practices on Water Quality in Forested Ecosystems. 1994-2000. US EPA 319 Nonpoint Source Program - Kentucky Natural Resources Environmental Protection Cabinet. \$100,000. PI - M. Arthur, co-PI - J. Stringer.

Kentucky Logger Education in Best Management Practices and Nonpoint Source Pollution. 1995-2000. US EPA 319 Nonpoint Source Program - Kentucky Natural Resources Environmental Protection Cabinet. \$236,451. PI - J. Stringer.

Demonstration of High Technology Methods of Implementing BMPs for the Practicing Logger. 1993-1995. US EPA 319 Nonpoint Source Program - Kentucky Natural Resources Environmental Protection Cabinet. \$41,580. PI - J. Reeb, co-PI – J. Stringer.

Kentucky Master Logger Education Program. 1992- 1995. Tennessee Valley Authority. \$50,000. PI - J. Reeb, co-Investigator - J. Stringer.

Technical Multiple Disciplinary Forest Stewardship Assistance to Kentucky Nonindustrial Private Landowners. 1996-1998. Kentucky Natural Resources Environmental Protection Cabinet. \$30,000. PI - J. Stringer.

Timber Harvesting Operator Education. 1996-1999. American Forest and Paper Association, Sustainable Forestry Initiative. \$5,000. PI - J. Stringer.

Silvicultural (Agricultural Water Quality Act) Training for Technical Providers, Operators, and Forest Landowners. 1997-1998. Commonwealth of Kentucky 1990 Senate Bill 271, Water Quality Research and Education. \$50,000. PI - J. Stringer.

Forest Management and Silviculture Education Initiative: An Internship Program for County Extension Agents in Eastern Kentucky. 1995-1998. University of Kentucky, Robinson Forest Initiative. \$39,280. PI - J. Stringer, co-PI - A. Worms.

Robinson Forest Silvicultural Demonstration Area. 1995-1997. University of Kentucky, Robinson Forest Initiative. \$67,200. PI - J. Stringer, co-PI - D. Brown.

Research Grants

Effect of Silvicultural Treatments on Vertical Stand Structure in Forested Ecosystems of the Appalachian Mountain Region. 2014-2017. Forestland Group LLC. \$150,000. PIs- M. Lacki, J. Stringer, J. Lhotka. (pending)

Developing a web-based application to generate automated access routes from timber harvesting sites to emergency personnel locations. 2014. Center for Disease Control/National Institute of Occupational Safety and Health, Central Appalachian Regional Education & Research Center, \$9,638. PI – J. Stringer, co-PI – M. Contreras.

Silvicultural Approaches for Regenerating Upland Stands in the Northern Cumberland Plateau. 2009-2010. USDA Forest Service, Southern Research Station. \$14,435. PIs J. Lhotka, J. Stringer.

Evaluating Seedling Development, Stand Structure, and Understory Microenvironment Six Growing Seasons Following Midstory Removal. 2008. USDA Forest Service, Southern Research Station. \$5,683. PI – J. Lhotka, co-PI - J. Stringer.

Effectiveness of Improved Skid Trail Ephemeral Channel Crossings. 2007-2008. US Geological Survey 104b, Kentucky Water Resources Research Institute. \$4,991. PI – C. Reeves, co-PI - J. Stringer.

Assessing Invasive Exotic Plants in Urban Forests. 2006-2010. National Urban and Community Forestry Advisory Council. \$242,992 (\$121,005 federal dollars). PI - S. Fei, co-PI - T. Barnes, J. Stringer, B. Lee, W. Thomas.

Post-Mining Reforestation Demonstration Projects I-V. 2001-2008. USDA Forest Service. Total \$4,420,000. PI - D. Graves, co-PI - C. Barton, J. Ringe, J. Stringer, R. Sweigard, R. Warner.

Monitoring of Best Management Practices. 2005-2006. US EPA 319 Nonpoint Source Program. Kentucky Natural Resources Environmental Protection Cabinet. \$30,280. PI - J. Stringer.

Timber Harvesting Analysis using GPS and GIS. 2004-2007. USDA/CSREES Special Research Grants Program. \$133,909. PI - J. Stringer, co-PI - C. Barton, co-Investigators - M. Schmidt, T. McDonald.

Evaluation of Two-Aged Silviculture Options for Upland Hardwoods. 2003-2004. USDA Forest Service, Southern Experiment Station. \$5,000. PI - J. Stringer.

Silvicultural and Topographic Controls on American Chestnut Establishment. 2002-2004. USDA Forest Service, Southern Experiment Station. \$25,000. PI - C. Rhoades, co-Investigator - J. Stringer.

Carbon Sequestration on Surface Mine Lands. 2002-2004. US Department of Energy. \$1,000,000. PI - D. Graves, co-PI - C. Barton, J. Ringe, J. Stringer, R. Sweigard, R. Warner. (extended through 2006).

Effects of Riparian Zone Width and Disturbance on Water Quality and Stream Communities following Forest Harvest in Eastern Kentucky Watersheds. 2001-2004. Commonwealth of Kentucky 1990 Senate Bill 271, Water Quality Research and Education. \$165,104 PI - C. Barton, co-PI - J. Stringer, S. Grubbs, R. Kolka.

Post-Mining Reforestation Demonstration Project I. 2001-2004. USDA Forest Service. \$985,000. PI - D.H. Graves, co-PI - C.D. Barton, J. Ringe, J. Stringer, R. Sweigard, R. Warner.

Defining Perennial, Intermittent and Ephemeral Channels in Eastern Kentucky: Application to Forestry Best Management Practices. 2000-2001. US Geological Survey and Kentucky Water Resources Research Institute. \$6,000. PI - R. Kolka, co-PI - J. Stringer.

Quantifying the Costs of Forestry Best Management Practices in Kentucky. 1998-2001. Commonwealth of Kentucky 1990 Senate Bill 271, Water Quality Research and Education. \$107,900. PI - J. Stringer, co-PI - M. Pelkki, J. Ringe, M. Smidt.

An Inter-disciplinary Approach to Establish and Evaluate Experimental Reclamation of Surface Mine Soil with High Value Tree Species. 1997. Robinson Forest Initiative. \$225,000 startup, \$448,000 continuation. PI - D. Graves, co-PI - M. Pelkki, J. Ringe, J. Stringer, R. Sweigard, R. Warner, L. Wells.

Silvicultural Methods for Establishing Woody Riparian Zones. 1996-1998. USDA Natural Resource Conservation Service. \$7,000. PI - J. Stringer.

Evaluation of Current Silvicultural Best Management Practices Guidelines: Effects of Road Drainage on Hillslope Stability. 1996-1998. Robinson Forest Initiative. \$17,592. PI - D. Brown, co-PI - J. Stringer.

Genetic Consequences of Silvicultural Practices in Eastern Kentucky. 1995-1998. Robinson Forest Initiative. \$204,766. PI - D. Wagner, co-PI - J. Stringer.

Growth and Stem Quality Evaluation of Two-Aged Small Sawtimber White Oak Stands. 1994-1997. USDA Forest Service, Northeast Experiment Station. \$5,200. PI - J. Stringer.

Establishment of *Paulownia tomentosa* on Surface Mined Lands. 1994-1997. Western Pocahontas Properties. \$15,000, PI - J. Stringer, co-PI - D. Graves.

Genetic and Environmental Effects on Growth and Wood Quality of Northern Red Oak. 1994- 1996. USDA Forest Service, Northcentral Forest Experiment Station. \$10,000, PI - D. Wagner, co-PI - J. Stringer.

Assessment of the Effects of Silvicultural Prescriptions on Wildlife Communities and Associated Habitats in Daniel Boone National Forest. 1994-1996. USDA Forest Service, Daniel Boone National Forest. \$99,000. PI - M. Lacki, co-PI - J. Stringer, T. Barnes, P. Kalisz.

Efficacy of Vertical Mulching in Stimulating the Proliferation of Tree Roots in a Fragipan Soil. 1987-1988. Int. Soc. Arboriculture. \$2,500. PI - P. Kalisz, co-Investigator - J. Stringer.

Crop-tree Release of High Quality Pole and Small Sawtimber White Oak Stands. 1983-1985. USDA, Forest Service, Northeast Experiment Station. \$20,000. PI - J. Stringer, co-PI - R. Wittwer.

Teaching Summary

Instructor:

FOR 350 Forest Operations (2 hr) required course for B.S. in Forestry (annual instruction 2011 to present).

FOR 376 Silvicultural Practices (2 hr) required course for B.S. in Forestry (2001-2010).

Annual Lecturer:

NRC 320 Data Collection Technique (instructor forest measurements)

FOR 350 Silviculture (one - two lectures annually)

FOR 599 Ethics (one lecture annually)

FOR 100 Introduction to Forestry (four lectures annually)

FOR 602 Research Methods (two lectures annually)

Other Formal Courses (taught or assisted)

FOR 599 Independent Work in Forestry (instructor) 1994, 1996, 1998, 2001, 2006

FOR 379 Harvesting and Utilization of Wood (assisted 1992-1998)

FWV 262 Silviculture - Hazard Community College (assisted 1998-2000)

FWV 264 Timber Harvesting - Hazard Community College (assisted 1998-1999)

FOR 300 Forest Measurements (instructor 1990)

FOR 219 Dendrology (instructor 1993)

Extension

Primary Extension Programs and Initiatives

The following are recent and/or on-going major extension programs developed and/or are directing for timber harvesting professionals, forestry and natural resource professionals, and non-industrial private forest owners.

Forest and Wood Certification

Center for Forest and Wood Certification Founded in 2011 the Center for Forest and Wood Certification (CFWC) is focused on building forest and wood certification capacity in the eastern U.S., enabling the private sector to effectively participate and benefit from certification. The Center provides education and training programs, technical assistance, group certification, and certification management. Functionally the Center is a certification incubator building expertise and technical prowess of those participating with the Center so they can make informed decisions about their long-term involvement with certification. The Center is also focused on determining and documenting the tools that work to enable Certification, obstacles to certification and, is “geared-up” to develop market solutions to help those interested in participating in

forest and wood certification. The Center is directed by managing partners with input from stakeholders, and supported by sponsoring partners. Participants in Center programs include family and industrial forest owners, certified loggers, foresters, and primary and secondary forest industries involved in producing certified wood and wood products. The Center holds a forest management group certificate from the Forest Stewardship Council (FSC) and an Independently Managed Group Certificate from the American Tree Farm System. The Center also holds multiple chain-of-custody certificates from the FSC and the Sustainable Forest Initiative (SFI).

Forest Management and Chain-of-Custody National and regional work on forest management and chain of custody certification including work with FSC (since 1999) and SFI (since 2005). FSC involvement includes:

- Member, Lake States and Central Hardwood Regional Working Group
- Chair, Appalachia Working Group
- FSC US National Forest Management Technical Standards Committee – developed the first FSC forest management national standards.
- Member, Family Forest Working Group responsible for developing FSC US Family Forest indicators.
- Member of the FSC US Controlled Wood Working Group.

SFI involvement includes:

- Member of the Sustainable Forestry Initiative State Implementation Committee in Kentucky.

Timber Harvesting Professionals

Certified Master Logger Program (CMLP). 2007 to present. The CMLP is a third party Rainforest Alliance SmartLogging certified point-of-harvest performance based system for professional loggers in the eastern U.S (certificate designation RA-SL-003285). This program is only one of three currently operating in the U.S. providing third party certification for loggers through Rainforest Alliances, SmartLogging Program. Logging firms in the program are provided market verification of logging performance and market incentives for delivering SmartLogging Verified timber. See www.certifiedmasterlogger.com. The effort is supported by funds from NewPage Corp. Director – J. Stringer.

Kentucky Master Logger Program. 1993 to present. The Kentucky Master Logger (KML) Program is a comprehensive logger training and education program mandated as a requirement for logging in Kentucky in 2000 by the Kentucky legislature. Over 7,000 loggers have been trained since the inception of the program and over 2,500 loggers maintain KML designations. The KML programs conducts 6 to 8 three day introductory programs annually for initial KML designation and 10 to 30 one day continuing education programs annually for loggers to maintain their KML designation. Initial monetary support was obtained from the Tennessee Valley Authority and US EPA, currently the program is self-sustaining. Director and lead instructor – J. Stringer, coordinator – M. Schuster (Kentucky Division of Forestry).

Non-Industrial Private Forest Owners

Kentucky Woodland Owners Short Course. 2005 to present. Statewide continuing education program for non-industrial private forest owners. Over 600 NIPF owners attended. Supported by RREA funds and registration fees. Director and instructor – J. Stringer, coordinator – W. Thomas.

Kentucky Woodland Magazine. 2006 to present. Statewide magazine devoted to NIPF owners and aligned forestry and natural resource professionals. Subscription base: 10,300. Supported with USDA Forest Service Stewardship Funds and RREA funds. Editors – J. Stringer, and D. Olszowy (Kentucky Division of Forestry). Associate Editor – W. Thomas.

Woodlands and Water Workshops. 2001-2005. Statewide training program for water quality protection and forest management. Ten workshops per year graduating a total of 920. Supported by US EPA 319 nonpoint source funds and the Kentucky Division of Water. Director – J. Stringer, coordinators - V. Hilpp, A. Thompson, and D. Dillaway.

Forestry and Natural Resource Professionals

Professional Forestry Workshops Program. 2002 to present. Multi-state continuing education program for forestry and natural resource professionals in Kentucky, Tennessee, and surrounding states. One to three multi-day training workshops are conducted annually. Over 700 have participated since program inception. Supported with USDA Forest Service Stewardship Funds. Directors – J. Stringer, and W. Clatterbuck (University of Tennessee).

Professional Forestry Notes. 2006 to present. Regional technical extension series publications on silviculture. Eight publications printed or in-press. Supported by USDA Forest Service Stewardship Funds. Editors - W. Clatterbuck and J. Stringer.

Timber and Water Training Program. 1995–2002. Continuing education program for water quality and timber harvesting. Over four hundred forest industry and forestry and natural resource personnel trained. Supported by US EPA funding. Director and instructor – J. Stringer.

Extension Magazines, Videos and Web Sites

- * Winner, Award for Excellence, Southern Extension Forest Resource Specialists.
- ** Winner, Award for Outstanding Forestry Communications from the National Woodland Owners Association and USDA Extension Service.

Newsletter and Magazine Editor

- Certified Master Logger News. 2009 to present. Cooperative Extension Service, University of Kentucky, Department of Forestry. Editor – J. Stringer.
- * The Kentucky LogJam. 1995 to present. Cooperative Extension Service, University of Kentucky, Department of Forestry. Editor - J. Stringer.

- * Kentucky Woodlands Magazine. 2006 to present. Cooperative Extension Service, University of Kentucky, Department of Forestry. Editors - J. Stringer and D. Olszowy.

Extension Videos

Executive Producer/Director

- Stringer, J. 2000. Measurement Techniques for Best Management Practices Implementation. Cooperative Extension Service, University of Kentucky VFR-1359. 17min.
- * Stringer, J. 1999. Effects of Timber Harvesting on Water Quality and Aquatic Habitat: Kentucky Timber Harvesting Training Series. Cooperative Extension Service, University of Kentucky VFR-1358. 10min.
- * Stringer, J. 1999. Best Management Practices for Timber Harvesting Roads, Trails, and Landings: Kentucky Timber Harvesting Training Series. Cooperative Extension Service, University of Kentucky VFR-1356. 16min.
- * Stringer, J. 1999. Streamside Management Zones: Kentucky Timber Harvesting Training Series. Cooperative Extension Service, University of Kentucky VFR-1357. 14:20min.

Scripted

- Stringer, J., W. Thomas. 2012. Basal Bark Treatment. Cooperative Extension Service, University of Kentucky. 2:36 min.
- Stringer, J., W. Thomas. 2012. Chainsaw Removal and Cut Stump Treatment. Cooperative Extension Service, University of Kentucky. 4:51 min.
- Stringer, J., W. Thomas. 2012. Control Treatments Overview. Cooperative Extension Service, University of Kentucky. 3:19 min.
- Stringer, J., W. Thomas. 2012. Crown Classes. Cooperative Extension Service, University of Kentucky. 3:14 min.
- Stringer, J., W. Thomas. 2012. Foliar Treatment. Cooperative Extension Service, University of Kentucky. 2:48 min.
- Stringer, J., W. Thomas. 2012. Frill Treatment. Cooperative Extension Service, University of Kentucky. 2:19 min.
- Stringer, J., W. Thomas. 2012. Girdling Treatment. Cooperative Extension Service, University of Kentucky. 3:00 min.
- Stringer, J., W. Thomas. 2012. Growing Stock. Cooperative Extension Service, University of Kentucky. 3:45 min.
- Stringer, J., W. Thomas. 2012. Growth Rates and Tree Ages. Cooperative Extension Service, University of Kentucky. 3:34 min.
- Stringer, J., W. Thomas. 2012. Hack and Squirt Treatment. Cooperative Extension Service, University of Kentucky. 3:53 min.
- Stringer, J., W. Thomas. 2012. Measuring Tree Diameter. Cooperative Extension Service, University of Kentucky. 7:50 min.
- Stringer, J., W. Thomas. 2012. Measuring Tree Volume. Cooperative Extension Service, University of Kentucky. 4:40 min.
- Stringer, J., W. Thomas. 2012. Taking a Sample Inventory Plot. Cooperative Extension Service, University of Kentucky. 6:51 min.
- Stringer, J., W. Thomas. 2012. Size Classes and Management Considerations. Cooperative Extension Service, University of Kentucky. 14:48 min.

- Stringer, J., W. Thomas. 2012. Measuring Tree Height. Cooperative Extension Service, University of Kentucky. 8:42 min.
- Stringer, J., W. Thomas. 2012. Tree Injector Treatment. Cooperative Extension Service, University of Kentucky. 3:06 min.
- Stringer, J., W. Thomas. 2012. Tree Vigor. Cooperative Extension Service, University of Kentucky. 7:48 min.
- Stringer, J., W. Thomas. 2012. Woodland Density. Cooperative Extension Service, University of Kentucky. 7:49 minutes
- * Stringer, J. 2002. What is Forestry? Section 3 – Shopping in the Forest. Cooperative Extension Service, University of Kentucky. 11 min.
- ** Graves, D., and J. Stringer. 1992. Paulownia Production and Cultivation. Cooperative Extension Service, University of Kentucky. VFR-0021. 13:12min.

World Wide Web Pages Designed, Developed, and/or Managed

- 2013 Kentucky Timber Damage. Cooperative Extension Service, University of Kentucky, Department of Forestry. www.kytimberdamage.net (developed)
- 2009-2012 Kentucky Ice Damage. Cooperative Extension Service, University of Kentucky, Department of Forestry. www.kyicedamage.net (developed)
- 2008 Certified Master Logger Program. Cooperative Extension Service, University of Kentucky, Department of Forestry. www.certifiedmasterlogger.com (developed, and managed)
- 2000 Kentucky Master Logger Program: the official web page of the Kentucky Master Logger Program. Cooperative Extension Service, University of Kentucky, Department of Forestry. www.masterlogger.org (Concept, Developed, and Managed)
- 2006 University of Kentucky, Department of Forestry, Cooperative Extension Service. University of Kentucky, Cooperative Extension Service. www.ukforestry.org (team project Forestry Extension)

Extension Device and Software Conceived, Designed and Produced

- Minnesota BMP Logging Gauge. 2001. Cooperative Extension Service, University of Kentucky, Department of Forestry. J. Stringer.
- Logging BMP Gauge. 2000. Cooperative Extension Service, University of Kentucky, Department of Forestry. J. Stringer.
- TREEGRAD©: USFS Tree Grading Training Program. 1993. University of Kentucky, Department of Forestry. J. Stringer, D. Cremeans.

Extension Publications

- * external peer reviewed

Book Chapter

- Stringer, J. 2009. Intermediate Hardwood Stand Management, pp. 161-182, In: Woodlands Management Course: A Guide to Improving Our Forests, Ed. Hardin, P. The Forest Landowner Foundation, Atlanta GA.
- Fei, S.L., Kong, K., Stringer, J., and D. Bowker. 2009. Invasion Pattern of Exotic Plants in Forest Ecosystems, pp. 59-69, In: Invasive Plants and Forest Ecosystems, Ed. Kohli, R.K., Jose, S., Singh, H.P., D.R. Batish. CRC Press, NY, USA.

Reports

Anderson, K., Bomford, M., Cagle, J., Homes, K., Montross, M., Moore, F., Stanks, K., Stringer, J., Taylor, E., and B. Thomas. 2009. Final Report from the Executive Task Force on Biomass and Biofuels Development in Kentucky . Office of the Governor, Commonwealth of Kentucky. 67pp.

Extension Series - Regional-Multi-State / Professional Forestry Notes

Professional Forestry Notes are regionally peer reviewed extension publications of Southern Forestry Extension as well as extension series publications of the University of Kentucky and University of Tennessee.

- * Clatterbuck, W.K., Stringer, J.W., and Tankersley, L. 2011. Uneven-age Management in Mixed Species, Southern Hardwoods: Is it Feasible and Sustainable? Professional Hardwood Notes, Southern Regional Extension Forestry SREF-FM-016 and University of Kentucky, Cooperative Extension Service, FOR-119: 15pp.
- * Stringer, J., Clatterbuck, W., and Seifert, J. 2009. Site Preparation and Hardwood Tree Planting Guide. Professional Forestry Note #7. Professional Hardwood Notes, Southern Regional Extension Forestry SREF-FM-014 and University of Kentucky, Cooperative Extension FOR-107: 37pp.
- * Miller, G., Stringer, J., and Merker, D. 2007. Technical Guide for Crop Tree Release. Professional Hardwood Notes. Southern Regional Extension Forestry SREF-FM-011 and University of Kentucky Cooperative Extension FOR-106. 23pp.
- * Stringer, J. 2006. Oak Shelterwood: A Technique to Improve Oak Regeneration. Professional Hardwood Notes. Southern Regional Extension Forestry SREF-FM-05 and University of Kentucky Cooperative Extension FOR-100. 7pp.
- * Stringer, J. 2006. Two-Age System and Deferment Harvests. Professional Hardwood Notes. Southern Regional Extension Forestry SREF-FM-08 and University of Kentucky Cooperative Extension FOR-103. 12pp.

Extension Series and Extension Fact Sheets

- Stringer, J., B., Ammerman, and B. Thomas. 2014. "Forestry". Eds. K. Heidemann, W. Snell. 2014-2015 Agricultural Situation and Outlook. University of Kentucky, College of Agriculture. Lexington, KY. 13.
- *Stringer, J., Thomas, B., Ammerman, B., and A. Davidson. 2014. Kentucky Forestry Economic Report 2013-2014. Cooperative Extension Service, University of Kentucky, Department of Forestry. FORFS 14-01.8pp.
 - Stringer, J., Thomas, B., Ammerman, B., and A. Davidson. 2013. Kentucky Forestry Agriculture Economic Summary 2013-2014. Cooperative Extension Service, University of Kentucky, Department of Forestry. FORFS 13-07.1pp
 - Stringer, J. and R. Williams. 2013. Selling Black Walnuts in Kentucky – 2013. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 13-06. 1pp.
 - *Stringer, J., Thomas, B., Ammerman, B., and A. Davidson. 2013. Kentucky Forestry Economic Report 2012-2013 Executive Summary. Cooperative Extension Service, University of Kentucky, Department of Forestry. FORFS 13-04.1pp.

- *Stringer, J., Thomas, B., Ammerman, B., and A. Davidson. 2013. Kentucky Forestry Economic Report 2012-2013. Cooperative Extension Service, University of Kentucky, Department of Forestry. FORFS 13-03.11pp.
- Stringer, J. 2013. Hardwood Tree Grading Key. Cooperative Extension Service, University of Kentucky, Department of Forestry. FORFS13-01.1pp.
- Stringer, J. and R. Williams. 2012. Selling Black Walnuts in Kentucky – 2012. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 12-11. 1pp.
- *Stringer, J., Ammerman B., Facker, C., and J. Collins. 2012. Cutting and Hauling Ash Logs: Forestry Emerald Ash Borer – Industry Note May 2012. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 12-05. 2pp.
- *Stringer, J. 2012. Storm Damage – Timber Salvage Decisions. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 12-04. 3pp.
- *Stringer, J. 2012. Storm Damage - Safety in the Woods. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 12-03. 3pp.
- *Stringer, J., Stainback, G., and B. Ammerman. 2011. Forestry. In The Kentucky Agricultural Economic Outlook for 2012. Ed. Powers, L., and K. Burdine. University of Kentucky, Cooperative Extension Service. 4pp.
- *Ammerman, B., Stringer, J.W., and Fackler, C. 2010. Forestry Emerald Ash Borer – Industry Note February 2010: Shipping and Hauling Hardwood Firewood. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 10-01. 3pp.
- *Ammerman, B., Stringer, J.W., and Fackler, C. 2009. Forestry Emerald Ash Borer – Industry Note August 2009: EAB Treatments for Ash Lumber, Firewood, Logs, and Sawmill Residuals. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 09-10. 3pp.
- *Ammerman, B., Stringer, J.W., Fackler, C. and T. Conners.2009. Forestry Emerald Ash Borer – Industry Note August 2009: Shipping Ash Lumber and Other Ash Products. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 09-09. 3pp.
- *Stringer, J., Ammerman, B., Fackler, C. and J. Collins.2009. Forestry Emerald Ash Borer – Industry Note July 2009: Cutting and Hauling Ash Logs. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 09-07. 2pp.
- *Stringer, J. 2009. Ice Damage – Safety in the Woods. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 09-01. 2pp.
- *Stringer, J. 2009. Ice Damage – Timber Salvage Decisions. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 09-02. 2pp.
- *Stringer, J. 2009. Ice Damage – Managing Woodland Damage and Health. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 09-03. 2pp.
- *Stringer, J. 2008. Timber Trespass and Theft – Quick Reference. Cooperative Extension Service, University of Kentucky, FORFS 08-03.2pp.
- *Stringer, J. 2008. Timber Trespass and Theft. Cooperative Extension Service, University of Kentucky FOR-109. 10pp.
- Hill, D., and Stringer, J. 1997-2008. Selling Black Walnuts in Kentucky. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS (revised annually). 2pp.

- Thomas, W., Stringer, J., Conners, T., Hill, D., and Barnes, T. 2007. Kentucky Forest Fact Sheet. Cooperative Extension Service, University of Kentucky FOR-53. 2pp.
- * Stringer, J. 2006. Oak Shelterwood: A Technique to Improve Oak Regeneration. Cooperative Extension Service, University of Kentucky FOR-100. 7pp.
 - * Stringer, J. 2006. Two-Age System and Deferment Harvests. Cooperative Extension Service, University of Kentucky FOR-103. 12pp.
 - * Stringer, J. 2003. Use of the Two-Aged System for Regenerating Oaks. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 03-07. 6pp.
 - Stringer, J. 2003. Forestry Education Programs. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 03-08. 2pp.
 - * Stringer, J., and Green, J. 2001. Removal of Fencerow Black Cherry. Cooperative Extension Service, University of Kentucky, College of Agriculture, Department of Forestry FORFS 01-04. 2pp.
 - * Stringer, J., and Hilpp, V. 2000. Forestry Practices and Stream Ecosystems: the Effects of Nonpoint Source Pollution From Silvicultural and Timber Harvesting Activities. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 01-05. 8pp.
 - Stringer, J. 2000. Kentucky's Logging BMP Gauge. Forest Resources Association Technical Release 00-R-20. 2pp.
 - * Stringer, J., and Lowe, L. 2000. How Logging Inspections Work. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 00-6. 4pp.
 - * Stringer, J., and Lowe, L. 2000. Logger Questions and Answers: Kentucky Forest Conservation Act. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 00-2. 4pp.
 - * Stringer, J., and Lowe, L. 2000. Landowner Questions and Answers: Kentucky Forest Conservation Act. University of Kentucky, Cooperative Extension Service, Department of Forestry FORFS 00-5. 4pp.
 - * Stringer, J., Thompson, A., and Perkins, C. 2000. Kentucky Forest Stewardship Water Quality Plan. Forest Stewardship Series. Cooperative Extension Service, University of Kentucky FOR-96. 12pp.
 - * Stringer, J. 1999. Woodland Owners Training Manual for Determining Forestry Best Management Practices in Kentucky. Cooperative Extension Service, University of Kentucky FOR-72. 19pp.
 - * Stringer, J., Sole, J., Stipes, D., Howell, M., and Perkins, C. 1999. Definition of Conservation Practices in Kentucky: An Interagency Landowner Assistance Technical Publication. Cooperative Extension Service, University of Kentucky FOR-93. 4pp.
 - * Stringer, J., Sole, J., Stipes, D., Howell, M., and Perkins, C. 1999. Financial Assistance Guide for Conservation Practices in Kentucky: an Interagency Landowner Assistance Technical Publication. Cooperative Extension Service, University of Kentucky FOR-94. 5pp.
 - * Stringer, J. 1999. Herbicides for Small-Scale Forestry Operations. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 99-9. 4pp.
 - Stringer, J. 1999. A Simple Technique for the Application of Forestry Herbicides with a Backpack Sprayer. University of Kentucky, Cooperative Extension Service FORFS 99-6. 2pp.

- * Stringer, J., Szymanski, M., and Foley, D. 1999. Tax Options for Timber Revenue. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 99-2. 4pp.
- Stringer, J. 1999. 1998 Kentucky Master Logger Program Fact Sheet. University of Kentucky, Cooperative Extension Service, Department of Forestry FORFS 99-12. 1pp.
- Stringer, J., Queary, T., and Smidt, M. 1999. Timber Harvesting Fatalities in Kentucky 1994-1997. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 98-17. 2pp.
- **Stringer, J., Lowe, L., Smidt, M., and Perkins, C. 1998. Field Guide to Best Management Practices for Timber Harvesting in Kentucky. Cooperative Extension Service, University of Kentucky FOR-69: 71pp.
- **Stringer, J., and Perkins, C. 1998. Kentucky Forest Practice Guidelines of Water Quality Management. Cooperative Extension Service, University of Kentucky FOR-67. 110pp.
- * Stringer, J. 1998. Determining Best Management Practices for Timber Harvesting Operations in Kentucky: A Training Manual for Loggers. Cooperative Extension Service, University of Kentucky FOR-70. 11pp.
- Stringer, J., and Hilpp, V. 1998. Updates to Kentucky's Forest Practices Guidelines for Water Quality Management. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 98-3. 2pp.
- * Stringer, J., and Taylor, L. 1998. Erosion from Logging Roads and Skid Trails: Case Study Data from Robinson Forest. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 98-15. 2pp.
- Stringer, J., and Smidt, M. 1998. Introduction to Hickory "Stick" Harvesting and Markets in Kentucky. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 98-14. 4pp.
- * Stringer, J., and Stipes, D. 1998. Water Quality and BMP Regulations for Forestry Operations in Kentucky. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 98-12. 2pp.
- Stringer, J., and Smidt, M. 1998. Marketing Hickory "Sticks" in Kentucky: Preliminary Analysis for Eastern Kentucky. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 98-10. 4pp.
- Stringer, J. 1998. Woody Plant and Wild Flower Identification Form. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 98-1. 2pp.
- Stringer, J., and Queary, T. 1997. Logging Fatalities in Kentucky. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 97-1. 2pp.
- * Stringer, J., and Queary, T. 1997. Outline of Kentucky's Timber Harvesting BMP Implementation Survey. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 97-3. 2pp.
- * Stringer, J., and Queary, T. 1997. Kentucky's Timber Harvesting BMP Implementation Study: Preliminary Results. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 97-4. 2pp.
- Stringer, J., and Queary, T. 1997. 1997 Kentucky Master Logger Program Fact Sheet. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 97-5. 2pp.
- * Stringer, J. 1997. Herbicide Prescriptions for Controlling Competing Vegetation in Christmas Tree Plantings in Kentucky. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 97-6. 3pp.

- Stringer, J., and Hilpp, V. 1997. Timber and Water Training Continuing Education for Natural Resource Professionals. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 97-7. 5pp.
- * Stringer, J. 1997. Selected Statutes and Regulations Impacting Silvicultural Operations in Kentucky. Cooperative Extension Service, University of Kentucky, Department of Forestry FORFS 97-9. 6pp.
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- Stringer, J. 2014. Forest Certification for Forest Owners in the Eastern U.S. Forestry and Natural Resources Webinars. May 7, 2014.
- Stringer, J. 2013. Hardwood Silviculture. Master Tree Farmer. March-April. Cooperative Extension Service, Clemson University.
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- Stringer, J. and Jackson, B. 2006. Forestry Best Management Practices. Master Tree Farmer II. Satellite Forestry Conference. February – March 2006. Cooperative Extension Service, Clemson University.
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Extension Invited Presentations

Web Conferences / Webinars / Virtual Conferences

- Certification for Forest Owners. Forestry and Natural Resource Webinars. Southern Regional Webinar Series. www.forestrywebinars.net. May 2014.
- Hardwood Forest Management. Natural Resources Opportunities for Landowners – A Southern Regional Webinar Series: Release the Potential of Your Land. November 2012.
- Site Preparation for Hardwoods. Capital Ideas. Alabama Treasure Forest. January 2011.

Sustainable Forests, Wood Products, and Buildings - An Overview of Certification Systems. USFS Sustainable Operations Summit. November 2010.

Common Forest Conditions and Prescriptions. NRCS/KDF Joint Farm Bill Forestry Practices Workshops. September 2010.

Improving Hardwoods Through Crop Tree Release. Forestry and Natural Resource Webinars. Southern Regional Extension Forestry. www.forestrywebinars.net. June 2010.

Hardwood Regeneration Options for Private Woodlands. Forestry and Natural Resource Webinars. Southern Regional Extension Forestry. www.forestrywebinars.net. April 2010.

Face-To-Face Meetings / Workshops (Not including County Extension Presentations)

Forestry Economic Outlook and Insect and Disease Update. Green River Logger Council Meeting, Hartford, KY, Nov. 1, 2014

Forest Biomass – Logistics and Potentials. Second Annual National Bioenergy Day. Murray, KY, Oct. 22, 2014.

Forest and Chain-of-Custody Certification at Forest Certification: From the Woods to the Mills and Beyond, Rogersville, AL, July 31, 2014.

Forest Certification Systems and Chain-of-Custody at Forest Certification: From the Woods to the Mills and Beyond, Tifton GA, Apr. 10, 2014.

Rehabilitation of Degraded Hardwood Stands. Society of American Foresters, Flatwoods WV, April 1, 2014.

Forest Certification Systems and Chain-of-Custody at Forest Certification: From the Woods to the Mills and Beyond, Columbiana, AL, January 16, 2014.

Threats to Kentucky's Timber. 94th Annual Meeting of the Kentucky Farm Bureau, Louisville, KY. Dec. 5, 2013.

Forest Certification Systems and Chain-of-Custody at Forest Certification: From the Woods to the Mills and Beyond, Athens GA, Dec. 3, 2013.

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Forest Certification Systems and Chain-of-Custody at Forest Certification: Forests, Labels, Mills and More Workshop, Quincy FL, Oct. 17, 2013.

Forest Certification Systems and Chain-of-Custody at Forest Certification: From the Woods to the Mills and Beyond, Athens GA, Dec. 3, 2013.

Forestry Economic Report. 37th Governor's Conference on Energy and the Environment. September 18, 2013. Lexington Convention Center, Lexington, KY.

Silvicultural Prescriptions for Degraded Stands. USFS SILVA Oak Workshop. Venton Furnace Experimental Forest, OH. September 12, 2013.

Low Quality Stand Prescriptions. USDA Forest Service Silvicultural Certification Training: PASS Local Mountain Module, Southern Research Station, Asheville, NC. June 2013.

Kentucky Forestry Economic Report. Annual Meeting of the Kentucky Woodland Owner Association, April 10, 2013. Blue Licks State Park, Carlisle, KY.

Kentucky Forestry Economic Report. Annual Meeting of the Kentucky Forest Industry Association, April 4, 2013. Lexington, KY.

Forestry Economic Report and Outlook 2012-2013. Commodity Press Conference. 2012 Annual Meeting of Farm Bureau. Louisville, KY

Building Sustainable Supply Chains: Strategic FM and CoC Development. Forest Stewardship Council Southeast Meeting: FSC in the Southeast United States A Maturing Market. Atlanta, GA. October 24, 2012.

Building Sustainable Certification through Supply Chain Integration. Society of American Foresters 2012 Annual Meeting. Spokane, WA. October 26, 2012.

Certified Working Forests – A Model for Conservation Easements. Society of American Foresters 2012 Annual Meeting. Spokane, WA. October 26, 2012.

Individual Tree and Bush Control for Rights of Ways. Montgomery Co. September 14, 2012.

Certification – Logging Business Participation. Virginia Forestry Summit. Wintergreen, VA. April 27, 2012.

Damaged Timber Management. Farm Disaster Resources. Morgan Co. April 24, 2012.

Clean Water Act – The Supreme Court and Forestry in Kentucky and Tennessee. January 24, 2012. Kentucky/Tennessee Society of American Foresters 2012 Annual Meeting. Lexington, KY.

Building Sustainable Certified Supply Chains. January 5, 2012. FSC Procurement Group Meeting. Princeton, WV.

Chain-of-Custody Group Certification Program. September 22, 2011. Forest Resource Association, Appalachian Region Annual Meeting. Gettysburg, PA.

Harvesting Woody Biomass in Kentucky. July 12,13,14, 2011. Princeton, London, and Morehead, KY. 301 attendees.

Silviculture Prescriptions: Natural Regeneration and Intermediate Treatments. Robinson Forest. April 2011.

Timber Marketing. Ohio Valley Woodland and Wildlife Program. Carrollton, KY. March 2011.

Potential Impact on Kentucky’s Forest Resources. Opportunities and Challenges of Woody Biomass for Meeting Kentucky’s Bioenergy Needs. Lexington, KY. February 2011.

Forest Certification. Southern Group of State Foresters, Management Chiefs Annual Meeting. Gainesville, FL. December 2010.

Forest and Woodland Certification. Kentucky Association of Consulting Foresters 2010 Annual Meeting. Lexington, KY November 2010.

Silvicultural Prescriptions for Degraded Stands. USFS Bent Creek Experimental Forest. Asheville, NC. July 2010

Degraded Stand Management. USFS Regional Silvicultural Certification Module. Asheville, NC. June 2010.

Forest, Wood, and Logging Certification in Kentucky. East Kentucky Society of American Foresters. Morehead, KY. May 2010.

Certified Logging Programs. Certification, Biomass, and Carbon: Forests and Forestry in a New Age. Kentucky/Tennessee Society of American Foresters. Lexington, KY. January 2010.

Biomass, Safety and Timber Theft Updates for Logger. Green River Logging Council. Hartford, KY. October 2009.

Silvicultural Prescriptions for Degraded Stands. USFS Ohio Oak Silvah Workshop. Athens, OH. June 2009.

Introduction to Streamside Management Zone Hydrologic Study. Society of American Foresters East Kentucky Chapter. Quicksand, KY, May 2009.

Silvicultural Prescriptions for Degraded Hardwood Stands. Annual Meeting of the Appalachian Hardwood Manufactures, Incorporated. Princeton, WV, May 2009.

Certified Forest and Wood. Annual Meeting of the Kentucky Woodland Owners Association, Warsaw, KY, March 2009.

Certified Master Logger Program. Certification for Kentucky Forests and Products, Lexington, KY, January 2009.

Global and Economic Ramifications of Certification. Certification for Kentucky Forests and Products, Lexington, KY, January 2009.

Carbon Credits for NIPF Owners, Joint Meeting Southern Forestry Extension and Southern Group of State Foresters Management Chiefs, Athens GA, December 2008

Timber Marketing and Theft, Kentucky Farm Bureau, Louisville, KY, December 2008

Timber Theft, Kentucky House Legislative Task Force on Forestry, Frankfort, KY, November 2008

Certified Master Logger Program. Tennessee Forestry Association. October 2008.

Basics of Oak Regeneration and Mid-Story Removal Indiana SAF. August, 2008.

Oak Shelterwood Methods for White and Black Oak. Indiana SAF. August, 2008.

Low Quality Stand Prescriptions. USDA Forest Service Silvicultural Certification Training: PASS Local Mountain Module, Southern Research Station, Ashville, NC. May 2008.

Degraded Stand Management Options. USDA Forest Service, Southern Region Upland Hardwood Silviculture Training Workshop. Ashville, NC. (annually 1997-2008).

Regeneration and Best Management Practices. USDA Forest Service, National Silviculture Certification School. Robinson Forest. April 2008

Crop Tree Release. Ohio River Valley Woodland and Wildlife Workshop. Highland Heights, KY. March 2008.

Marketing Timber. Kentucky Farm Bureau Annual Meeting. Louisville, KY, December 2007.

Research on Two-Age Management Alternatives for Cumberland Plateau Forests. Scientific Foundations of Conservation Planning in the Cumberland Plateau and Mountains. Knoxville, TN, November 2007.

Southern Group of State Foresters. Water Quality Monitoring Working Group. Robinson Forest, October 2007.

Kentucky Master Logger Program. Best Management Practices for Logging and Timber Harvest Planning Workshop. Ohio Division of Forestry, Portsmouth, OH. October 2007.

Balancing Science and Technology Transfer between Cooperative Extension and the Southern Research Station. USDA Forest Service Southern Station. Hot Springs AK. August 2007.

Crop Tree Release and Timber Stand Improvement. KY Woodland Owners Association Annual Meeting. Blue Licks State Park. March 2007.

Managing Timber to Maximize Income. Ohio River Valley Woodland and Wildlife Workshop. Lawrenceburg, IN. March 2007.

Hardwood Management Options for Wildlife. Kentucky Chapters of the Wildlife Society and American Fisheries Society Annual Meeting. Caneyville, KY. February 2007.

Practicing Forestry in the Future in Kentucky. Kentucky/Tennessee Society of American Foresters. Jackson, TN. January 2007.

Low Quality Stand Prescriptions. USDA Forest Service Silvicultural Certification Training: PASS Local Mountain Module, Southern Research Station, Ashville, NC. May 2006.

One Pass Forest Management Practice. Annual Meeting of the Kentucky Woodlands Owners Association. Harrodsburg, KY. March 2006.

Silvicultural Prescriptions for Degraded Stands. USDA Forest Service, SILVAH: Oak Ecology and Silviculture Workshop. Brookville, PA. September 2005.

Kentucky's Forest Stewardship Program. Non-Federal Forest Lands: Partnerships for the 21st Century. National Association of State Foresters. Atlanta, GA. June 2005.

Oak Regeneration: Fire, Herbicides, and other Control Measures. Annual meeting Kentucky Woodland Owners Association. Mammoth Cave, KY. April 2005.

Forest Planning on the Daniel Boone National Forest. Society of American Foresters, Kentucky-Tennessee Annual Meeting, Kingsport, TN. January 2005.

Kentucky Forests: Woods Overview and Management Options. National Farmers Union 2004 Agroforestry Workshop Series. Jackson, KY. November 2004.

Healthy Forests – Healthy Watersheds. 2004 Kentucky Watershed Roundtable. Lexington, KY. July 2004.

Silviculture for Low Quality Stands. USDA Forest Service, PASS - Silviculture Certification Workshop. Asheville, NC. July 2004.

Low Quality/Degraded Stand Management. USDA Forest Service Silviculture School, Bent Creek, Asheville, NC. July 2003 and July 2004.

Development, Delivery, and Evaluation of a Multi-Client Forestry BMP Education Program. USDA/CSREES National Water Quality Conference: Integrating Research, Extension, and Education. Clearwater, FL. January 2004.

A Comparison of Forest Certification Systems. USDA Forest Service Southern Roundtable on Sustainable Forests. Charleston, SC. November 2003.

Forestry BMPs for Private Forest Owners. 62 Annual Forest Landowners Conference. Forest Landowners Association. Asheville, NC. May 2003.

Forestry Education Programs in Kentucky. 2003 Annual Conference of the Kentucky Woodland Owners Association. Bernheim Forest, KY. April 2003.

Forestry BMPs for Tree Farmers. National Tree Farm Association Annual Meeting. Asheville, NC. November 2002.

Low Quality Stand Management. USDA Forest Service Hardwood Silviculture Workshop, Jamison, AL. October 2002.

Herbicides for Individual Tree Treatments. Kansas Forest Service Workshop for Field Foresters. Emporium, KS. October 2002.

Introduction to Forest Certification. Forest Certification: Its Changing. Annual Kentucky/Tennessee Society of American Foresters. January 2002. Pineville, KY.

Forest Certification Systems in the U.S. Kentucky/Tennessee Society of American Foresters. Pineville, KY. January 2002.

Crop Tree Release. Kansas Forest Service Landowner Field Day. Emporium, KS. October 2002.

Basic Application Equipment. Annual Meeting of the Vegetation Management Association of Kentucky. March 2001.

Best Farm Management Practices. Breaking New Ground: Managing Change. Kentucky Women Involved in Agriculture. November 2000.

Forestry BMPs and Water Quality. Working Toward Solutions: Extension Water Quality Conference. Southern Rural Development Center. Raleigh, NC. April 1999.

Oak Regeneration with Two-Age Methods. Oak Regeneration Workshop. A State of the Art. Knoxville, TN. April 1999.

The What's and Why of Best Management Practices. Annual Meeting of the Kentucky Woodland Owners Association. Lake Barkley. March 1999.

Water Quality and Forestry. Income Opportunities for Woodlot Owners. Ft. Mitchell, KY. March 1999.

Implementation and Effectiveness of Timber Harvesting BMPs in Kentucky. Kentucky/-Tennessee Society of American Foresters Annual Meeting. Jackson, TN. January 1999.

Continuing Logger Education In Kentucky. National Meeting of the American Pulpwood Association, National Logger Education Forum. New Orleans, LA. January 1998.

Mechanisms for Sharing Extension Innovations. Central Hardwood Extension Workshop. Nashville, IN. June 1997.

Presentation Technologies. Central Hardwood Extension Workshop. Nashville, IN. June 1997.

Kentucky's Best Management Practices for Silviculture. Annual Meeting of the Kentucky Woodland Owners Association. Fleming Co. February 1997.

Logging Farm Woodlots-Using BMPs and Kentucky Master Loggers. Kentucky Farm Bureau 77th Annual Convention. December 1996.

GPS/GIS/Laser Sampling in Forestry. Symposium on Information Technologies in Natural Resource Management. Louisville, KY. August 1996.

Kentucky's Master Logger Program. American Pulpwood Association, Logger Education Forum. Atlanta, GA. March 1996.

Logger Education in Kentucky. Enhancing Logger Education - Partnerships at Work. USDA/CSREES Indianapolis, IN. February 1996.

Paulownia Plantation Cultivation. American Paulownia Association Annual Meeting Knoxville, TN. 1990.

The State of Black Walnut Research. National Walnut Council, Kellog, MI. June 1989.

Paulownia Plantation Establishment and Cultivation. Royal Paulownia: A Cash Crop for the Future, Jackson, TN. 1989.

Extension Poster Presentations

Thomas, W., Stringer, J., and Fei, S. 2010. Influencing Woodland Management Using Web-Based Technology. 17th Central Hardwood Forest Conference. In Press.

Thomas, W., Stringer, J., and J. Cox. 2008. Research and Demonstration of Control Methods for Amur (Bush) Honeysuckle in the Bluegrass. University of Kentucky, [Invasive Species Conference, Lexington, KY, December 12-13, 2008](#).

Fei, S., Thomas, B., and Stringer, J. 2007. Empowering Forestry Extension with Geospatial Technology. Society of American Foresters Annual Meeting. Portland, OR. October 2007.

Stringer, J. 1997. Broad-Based Programming in Silviculture. 1997 State Extension Conference, Lexington, KY, January 1997.

Stringer, J. 1995. Kentucky Master Logger Program. Annual Meeting of the Kentucky Forest Industries Association, March 1995.

Stringer, J. 1994. The Kentucky Master Logger Program. Kentucky's Forests: Thinking Beyond Today, 19th Annual Governor's Conference on the Environment. Louisville, KY. September 1994.

Stringer, J. 1994. Stewardship Incentive Program and the Kentucky Master Logger Program. Kentucky Wood Expo. London, KY. September 1994.

Stringer, J., Kimmerer, T., and Dunn, J. 1992. Decline of Oak Sawtimber. Kentucky Forest Industries Association Annual Meeting. Louisville, KY. March 1992.

Extension Education and Trainings Produced and/or Instructed

Education Programs for Woodland Owners

Fall Woodland Owner Webinar Series. Webinar program for 15 counties. Sept. – Dec. 2012
Harvesting Woody Biomass in Kentucky. July 12,13,14, 2011. Princeton, London, and Morehead, KY. 301 attendees.

Fall Woodland Owner Webinar Series. Webinar program for 17 counties. Sept. – Dec. 2010

Fall Woodland Owner Webinar Series. Webinar program for 15 counties. Sept. – Dec. 2009

Master Tree Farmer – Risk and Risk Management. Webinar/DVD based Program for 11 counties. Feb-Mar 2009.

Training for Foresters and Natural Resource Professionals

Forestry and Natural Resource Webinar Series

Hardwood Regeneration Options for Private Woodlands. Forestry and Natural Resource Webinar Series, www.forestrywebinars.net, April 2010, 133 attended. Total \$149625 valued to participants.

Crop Tree Release. Forestry and Natural Resource Webinar Series, www.forestrywebinars.net, May 2010, 123 attended.

Professional Forestry Workshops – Webinars

Hardwood Tree Grading Workshops. October 2013. Forsythe, GA. 35 participants.

Hardwood Tree Grading Workshops. October 2013. Texarkana, TX. 40 participants.

Hardwood Tree Grading Workshops. October 2013. Robinson Forest 35 participants.

Kentucky Invasive Species Workshops. August 2010. Robinson Forest, Princeton, Lexington. 83 participants.

Silvicultural Prescriptions for Degraded Hardwood Stands. Webinar, May 2009.

Invasive Shrub Cost Share Training. Centra Webinar. March 2009. 35 participants.

Professional Forestry Workshops Series

Forest and Wood Certification. Jackson, KY. Aug 2012 (31)

Forest and Wood Certification. Dawson Springs, KY. Aug 2012 (15)

Forest and Wood Certification. Elizabethtown, KY. Aug 2012 (24)

Basic Forestry. Robinson Forest, KY. June 2011 (19)

Basic Forestry. Elizabethtown, KY. June 2011 (21)

Basic Forestry. Princeton, KY. Pennyrile State Forest, KY. June 2011 (10)

Invasive Species, Identification and Control. Lexington, KY. August 2010 (45)

Invasive Species, Identification and Control. Madisonville, KY. August 2010 (25)

Invasive Species, Identification and Control. Robinson Forest, KY. July 2010 (35)

Timber Sale Administration. Kentucky Department of Fish and Wildlife Resources. Pennyrile State Forest, KY. May 2010. (20)

Timber Sale Administration. Morehead, KY. Kentucky Department of Fish and Wildlife Resources. May 2010 (20)

Level II Silviculture Training. Kentucky Division of Forestry, Frankfort, KY. April 2010.

(6)

Certification, Biomass, Carbon: Forests and Forestry in a New Age. Lexington, KY. January 2010. (143).

Hardwood Plantings- Site Preparation and Competition Control. Lexington, KY. December 2009. (75)

Hardwood Plantings- Site Preparation and Competition Control. Pennyryle State Park, Dawson, Springs, KY. December 2009. (35)

Silvicultural Prescriptions for Degraded Hardwood Stands. Appalachian Hardwood Manufactures, Inc. May 2009. (18)

Level II Silviculture Training. Kentucky Division of Forestry, Frankfort, KY. April 2009. (12)

*Pesticide Application for Forestry. University of Kentucky, Lexington, KY. December 2008. (16)

Level II Silviculture Training. Kentucky Division of Forestry, Robinson Forest, KY. April 2008.

Oak Regeneration and Management. Radisson Hotel, Lexington KY. October 2007.

Applied Hardwood Silviculture for Kentucky. Kentucky Division of Forestry, Pennyryle State Forest, KY. April 2007.

Professional Training in Artificial Regeneration. University of Tennessee, Caryville, TN. May 2006.

Applied Hardwood Silviculture. Kentucky Division of Forestry, Robinson Forest, KY. April 2006.

Professional Training in Artificial Regeneration. University of Tennessee, Jackson, TN. March 2006

Professional Training in Artificial Regeneration. University of Tennessee, Carthage, TN. March 2006

Applied Hardwood Silviculture for Kentucky. University of Kentucky, Pennyryle, KY. September 2005.

Hardwood Silviculture for Western Kentucky and Tennessee. University of Kentucky and University of Tennessee, Pennyryle, KY. February 2005

Hardwood Silviculture for Western Kentucky and Tennessee. University of Kentucky and University of Tennessee, Jackson, TN. January 2005.

Level II Silviculture Training. Kentucky Division of Forestry, Pennyryle, KY. September 2004.

Hardwood Silviculture for Eastern Tennessee and Kentucky. University of Kentucky and University of Tennessee, Oak Ridge, TN. September 2004.

Hardwood Silviculture for Eastern Tennessee and Kentucky. University of Kentucky and University of Tennessee, Crossville, TN. September 2004.

Level II Silviculture Training. University of Kentucky, Pennyryle, KY. September 2003.

Site Preparation for Tree Planting. University of Kentucky and University of Tennessee, Winchester, KY. January 2003.

Site Preparation for Hardwood Establishment. University of Kentucky and University of Tennessee, Princeton, KY. January 2003.

Site Preparation for Tree Planting. University of Kentucky and University of Tennessee, Elizabethtown, KY. January 2003.

Site Preparation for Hardwood Tree Planting. University of Kentucky and University of Tennessee, University of Kentucky, Research and Education Center, Princeton, KY. August 2002.

Site Preparation for Hardwood Tree Planting. University of Kentucky and University of Tennessee, University of Tennessee, West Tennessee Experiment Station. Jackson, TN. August 2002.

Hardwood Silviculture for Eastern Kentucky and Tennessee. University of Kentucky and University of Tennessee, Robinson Forest, KY. April 2002.

In-Service Training for County Agents

County Agent Evaluations

Year	# Agents	Overall Program Score (1-3)	Dept. Avg.	College Avg.
2005	30	2.56	2.30	2.42
2006	42	2.95	2.61	2.76
2007	83			
2008	67			
2009	55			
2010	83			
2011	10			

Agriculture and Natural Resource Annual Update: Ice Damage. Fall 2009. Bowling Green
 Agriculture and Natural Resource Annual Updates: Timber Sales and Pricing. Fall 2008
 Agriculture and Natural Resource Annual Updates: Forestry Programming. Fall 2007
 Agriculture and Natural Resource Annual Updates: Forestry Programming. October 2006
 Winchester, KY.

Forestry in Eastern Kentucky I: Basic Training for County Agents. April 2006. Robinson Forest.

Forestry in Eastern Kentucky II: Timber and Wildlife Management. May 2006. Robinson Forest.

Forestry in Eastern Kentucky III: Timber Utilization and marketing. August 2006. Kingsport, TN.

Kentucky/Tennessee Forestry Workshop for Agriculture and Natural Resource Agents. April – May 2004. Robinson Forest.

Advanced Forestry Training for Eastern Kentucky I: Regeneration. May 1997. Robinson Forest, KY.

Advanced Forestry Training for Eastern Kentucky II. June 1997. Robinson Forest, KY.

Advanced Forestry Training for Eastern Kentucky III. July 1997. Robinson Forest, KY.

Advanced Forestry Training for Eastern Kentucky IV. August 1997. KY and OH.

Advanced Forestry Training for Eastern Kentucky V. September 1997. Robinson Forest, KY.

Basic Forestry for Eastern Kentucky. Introduction to the Forests of Eastern Kentucky. September 1996. Robinson Forest, KY.

Forestry Products Industries in Eastern Kentucky. November 1996. KY and OH.

Basic Silviculture for Eastern Kentucky. December 1996. Robinson Forest, KY..

Basic Forestry Training for West Kentucky. September 1996. Princeton, KY.

Basic Forestry Training for Eastern Kentucky IV. September 1995. Robinson Forest, KY

Basic Forestry Training for Eastern Kentucky III. August 1995. Robinson Forest, KY.

Basic Forestry Training for Eastern Kentucky II. June 1995. Robinson Forest, KY.

Basic Forestry Training for Eastern Kentucky I. May 1995. Robinson Forest, KY.

Summary of Woodland Owner and Logger Workshops: personally directed and conducted)

- 2013: 21 training days.** Eight three day programs for Kentucky Master Logger Program, two CEC KML programs and three woodland owner field days.
- 2012: 23 training days.** Eight three day programs for Kentucky Master Logger Program, four CEC KML programs, and three woodland owner field days.
- 2011: 16 training days.** Eight three day programs for Kentucky Master Logger Program, two CEC KML programs and three field days for woodland owners.
- 2010: 13 training days.** Six three day programs for the Kentucky Master Logger Program and three field days for woodland owners.
- 2009: 14 training days.** Six three day programs for the Kentucky Master Logger Program and five field days for woodland owner including Ice Damage Workshops.
- 2008: 14 training days.** Six three day programs for the Kentucky Master Logger Program and two woodland owner field days.
- 2007: 11 training days.** Six one-day program for the Kentucky Master Logger Program and five landowner field days.
- 2006: 21 training days.** 15 one-day programs for the Kentucky Master Logger Program and six landowner field days including the Kentucky Woodland Owner Short Course.
- 2005: 19 training days.** 10 one-day programs for the Kentucky Master Logger Program and nine field days for landowners including the Kentucky Woodland Owner Short Course.
- 2004: 31 training days.** 10 one-day programs for the Kentucky Master Logger Program and 21 field days for landowners including the Kentucky Woodland Owner Short Course.
- 2003: 31 training days.** 16 one-day programs for the Kentucky Master Logger Program and 15 field days for landowners.
- 2002: 27 training days.** 18 one-day programs for the Kentucky Master Logger Program and three field days for landowners, 6 professional forestry trainings.
- 2001: 33 training days.** 20 one-day programs for the Kentucky Master Logger Program, 13 field days and workshops for landowners including the Woodland and Water Short Course Program.
- 2000: 19 training days.** 16 one-day programs for the Kentucky Master Logger Program and three field days for landowners including the Woodland and Water Short Course Program.
- 1999: 33 training days.** 20 one-day programs for the Kentucky Master Logger Program, 13 field days and workshops for landowners including the Woodland and Water Short Course Program.
- 1998: 37 training days.** 14 one-day programs for the Kentucky Master Logger Program, four two-day Timber and Water Training Programs, 13 field days and workshops for

landowners,

and two one-day Cooperative Extension In-Service trainings.

1997: 38 training days. 12 one-day programs for the Kentucky Master Logger Program, seven

two-day Timber and Water Training Programs, four field days and workshops for landowners,

and four two-day Cooperative Extension Service In-Service trainings.

1996: 34 training days. Seven, one-day programs for the Kentucky Master Logger Program,

Five two-day Timber and Water Training Programs, 13 field days and workshops for landowners, and two two-day Cooperative Extension Service In-Service trainings.

1995: 17 training days. Eight one-day programs for the Kentucky Master Logger Program, and

four two-three day Cooperative Extension Service In-Service trainings.

1994: 11 training days. 10 one-day programs for the Kentucky Master Logger Program, and one

Cooperative Extension Service In-Service training.

1993: Nine training days. Five one-day programs for the Kentucky Master Logger Program,

and four field days and workshops for landowners.

1992: Six training days. One one-day program for the Kentucky Master Logger Program and

five field days and workshops landowners.

Extension Radio and TV

Regular Extension Radio Series – three per year. Cooperative Extension Service, College of Agriculture. 1994-2011.

Timber Talk – Four Invited Presentations. Reynolds Forestry Service, Magnolia, AK. 2000-2011.

Forest Management and Logging in Eastern Kentucky - 1.5 hour call-in, Whitesburg, Appalshop, 1999.

Salvage Cutting in National Forests, 30 min. special program, WUKY-TV. 1995.

Forest Management in Eastern Kentucky and Best Management Practices for Timber Harvesting, WYMT-TV. 1995.

Extension Press Releases

Trees and Storm Damage. Cooperative Extension Service, University of Kentucky. January 2013.

Woodland Owners Can Protect Land from Timber Trespass, Theft. Cooperative Extension Service, University of Kentucky. January 2008

Pilot Logging Program Has Possibilities. Cooperative Extension Service, University of Kentucky. January 2008.

Logging in Kentucky. Cooperative Extension Service, University of Kentucky. April 2000.

Plan Now for Winter Trees. Cooperative Extension Service, University of Kentucky. August 1999.

Master Logger Training Focused on Long Term Improvements for Kentucky Timber Industry. Cooperative Extension Service, University of Kentucky. April 1999.

Logging and Water Quality in Kentucky-UK Researchers Complete Survey. Cooperative Extension Service University of Kentucky. October 1997.

Three Steps to Profitable Woodland Management. Prairie Farmer. September 1997.

Improve the Value of Your Woodlands. Cooperative Extension Service, University of Kentucky. August 1997.

4-H and Other Youth Activities

May 1997	Junior Forestry Field Day, Rowan Co. (57)
August 1997	4-H Teen Environmental Summit, Erlanger, KY (25)
September 1997	Junior Forestry Field Day, Dawson Springs, KY (77)
January 1996	Forestry in Kentucky, Presentation to Leslie Co. 4-H Youth (16)
May 1996	Junior Forestry Field Day, Rowan Co. (54)
May 1996	Junior Forestry Field Day, London (47)
September 1996	Junior Forestry Field Day, Mammoth Cave (64)
September 1996	Forest Evaluation and Forestry Bowl (Senior Forestry Judging) Leadership Center, Jabez (65)

Other Professional Meetings (Extension and Research) Organized

Society of American Foresters Annual Meeting, Silviculture and Forest Ecology Track Chair, Honolulu, HI. November 2011.

Certification for Kentucky Forests and Products. Lexington, KY. January 2009.

2003 State Extension Specialist and Associates Meeting and Annual Kentucky Association of State Extension Professionals Meeting. Clark Co. Extension Office. March 2003.

Forest Certification: It's Changing. KY/TN Society of American Foresters. Pineville, KY. January 2002.

Forest Certification - A Landowner Update. East U.S. Satellite Workshop. Broadcast from studios at Auburn University. December 2001.

Forestry Leadership Workshop. KY/TN Society of American Foresters. Nashville, TN, January 2001.

Master Tree Farmer 2000. State Coordinator. Southwide Satellite Broadcast. KY. February-March 2000.

Fire, People and the Central Hardwood Landscape. Organizational Committee. Richmond, KY. March 2000.

National Walnut Council Meeting. Program Chair. Lexington, KY. August 1999.

12th Central Hardwood Forest Conference. Program Chair. Lexington, KY. February-March 1999.

Kentucky Forest Resource Professional Training. Director. Kentucky Division of Forestry, Dawson Springs, KY. September 1997.

Hardwood Silviculture Extension Workshop. Co-Chair. Nashville, IN. June 1997.

National Cooperative Extension Logger Education Workshop. Co-Chair. Louisville, KY. June 1997.

Management Practices for Silvicultural Operators in Kentucky. Chair. Lake Barkley, KY. September 1996.

Research

Graduate Students - Major Advisor

- Patterson, C. In progress. Expanding Gap Management. M.S. in Forestry (Co-Advisor)
- Bowker, D. 2013. GPS/GIS Monitoring of Timber Harvesting Impacts on Sediment Delivery. M.S. in Forestry
- Reeves, C. 2012. Skidding Options for Headwater Streams in Steep Terrain. M.S. in Forestry.
- Perry, J. 2010. Efficacy and Costs of Site Preparation Treatments for Natural Regeneration of Upland Hardwood Stands. M.S. in Forestry.
- Cecil, L. 2009. Pre-Commercial Stand Growth Dynamics on Surface Mined Lands in Eastern Kentucky. M.S. in Forestry.
- Lewis, J. In Progress. Multi-Level Spatial Analysis of Natural Canopy Disturbances in Eastern Deciduous Forests. M.S. in Forestry.
- Cook, B. 2006. Invasion Dynamics of Woody Plants on Surface Mines in Eastern Kentucky. M.S. in Forestry. (non-thesis option).
- Dillaway, D. 2005. Effects of Oak Shelterwood and Mid-Story Removal on *Quercus alba* and *Quercus velutina*. M.S. in Forestry
- Shouse, S. 2001. Cost Analysis of Timber Harvesting Best Management Practices. M.S. in Forestry

Committee Member – Masters of Science in Forestry and PhD, University of Kentucky

- Prativa Shrestha. In Progress. Carbon Life-Cycle and Economic Analysis of Forests Carbon Sequestration and Woody Bioenergy Production (MS in Forestry).
- Catron, J. 2012. Cost-Benefit Analysis and Stakeholder Opinions of Bioenergy Production from Private Kentucky Forestland. (MS in Forestry)
- Leitch, J. 2013. Private Landowner Intent to Supply Forest Biomass for Energy in Kentucky. (MS in Forestry)
- Devine, K. 2011. Invasive Species Occurrence Associated with Timber Harvesting. (MS in Forestry)
- Shouse, M. 2010. *Identifying Spatial Patterns of Exotic Plants in Urban Ecosystems*. (MS in Forestry)
- Parrot, D. 2013. Effects of Midstory Removal on Natural and Underplanted White Oak (*Quercus alba* L.) and Black Oak (*Quercus velutina* L.) Seedlings. (MS in Forestry)
- Witt, E. In Progress. Barton Evaluating Streamside Management Zone Effectiveness in Appalachian Forested Watersheds. (PhD)
- Peilin, Y. 2010. Change of Forest Composition in the Eastern United States in Last Two Decades. (MS in Forestry)
- Spaulding, H. 2010. Forests of the future: Simulating the effects of exotic invasive species on forest structure and composition. (MS in Entomology)
- Clark, H. In progress. The Movement of Invasive Exotic Plant Species through Remnant Bluegrass Forest Systems with a Focus on Amur Honeysuckle. (MS in Forestry)
- Royce, J. 2007. The Effects of Prescribed Fire on Fuels and Seedling Dynamics in East Kentucky. (MS in Forestry)
- Cherry, A. 2006. Hydrochemical Characterization of Ten Headwater Catchments in Eastern Kentucky. (MS in Forestry)
- Cotton, C. 2006. Developing a Method of Site Quality Evaluation for *Quercus Alba* and *Liriodendron tulipifera* in the Eastern Kentucky Coal Field. (MS in Forestry)

- Green, S. 2005. The Effects of Prescribed Fire on Stand Structure, Canopy Cover and Seedling Populations in Oak Dominated Forests on the Cumberland Plateau, KY. (MS in Forestry)
- Svec, J. 2003. Flow Duration of Hydrologic Channels in Eastern Kentucky. (MS in Forestry)
- Brosi, S. 2000. American Chestnut Seedling Establishment in the Knobs and Eastern Coalfield Regions of Kentucky. (MS in Forestry)
- Hilpp, G. 1997. Multiple Product Volume Equations for Yellow-poplar in Eastern Kentucky. (MS in Forestry)
- Swank, D. 1997. An Analysis of the Effects on Hillslope Hydrological Processes by Forest Roads in Eastern Kentucky. (MS in Forestry)

Research Publications

Refereed

- Schweitzer, C., Clark, S.L., Gottschalk, K.W., Stringer, J., and R. Sitzlar. 2014. Proactive Restoration: Planning, Implementation, and Early Results of Silvicultural Strategies for Increasing Resilience against Gypsy Moth Infestation in Upland Oak Forests on the Daniel Boone National Forest, Kentucky. *J. For.* 112(●):000–000
- Craig, J.M., Lhotka, J.M., and J.W. Stringer. 2014. Evaluating Initial Responses of Natural and Underplanted Oak Reproduction and a Shade-Tolerant Competitor to Midstory Removal. *For. Sci.* 60(2): IN PRESS
- Lhotka, J.M., and J.W. Stringer. 2013. Forest edge effects on *Quercus* reproduction within naturally regenerated mixed broadleaf stands. *Canadian J. For. Res.* 43: 911-918.
- Parrot, D., Lhotka, J.M., and J.W. Stringer. 2013. The Effect of Soil Scarification on *Quercus* Seedling Establishment within Upland Stands of the Northern Cumberland Plateau. *North. J. Appl. For.* 30(3): 125-130.
- Leitch, Z.J., Lhotka, J.M., Stainback, G.A., and J.W. Stringer. 2013. Private Landowner Intent to Supply Woody Feedstock for Bioenergy Production. *Biomass and Bioenergy* (56) 127-136.
- Parrott, D., Lhotka, J., Stringer, J., and Dillaway, D. 2012. Seven-Year Effects of Midstory Removal on Natural and Underplanted Oak Reproduction. *North. J. Appl. For.* 29(4): 182-190.
- Witt, E. L., C. D. Barton, J. W. Stringer, R. K. Kolka, and D. W. Bowker. 2012. Evaluating best management practices for ephemeral channel protection following forest harvest in the Cumberland Plateau. *South. J. Applied For.* 37(1): 36-44.
- Witt, E.L., Barton, C.D., Stringer, J.W., Bowker, D.W., and R.K. Kolka. 2010. Evaluating Best Management Practices for Ephemeral Channel Protection Following Forest Harvest in the Cumberland Plateau - Preliminary Findings. In Proceedings 17th Central Hardwood Forest Conference. USDA Forest Service GTR-NRS-P-78:365-374. (referred proceedings).
- Bowker, D.W. and J. W. Stringer. 2010. Efficacy of Herbicide Treatments for Controlling Residual Sprouting of Tree-of-Heaven (*Ailanthus altissima*). In Proceedings 17th Central Hardwood Forest Conference. USDA Forest Service GTR-NRS-P-78:128-133. (referred proceedings).
- Schweitzer, C. J., Gottschalk, K.W., Stringer, J.W., Clark, S.L., and D.L. Loftis. 2010. Using Silviculture to Sustain Upland Oak Forests Under Stress on the Daniel Boone

- National Forest, Kentucky. In Proceedings 17th Central Hardwood Forest Conference. USDA Forest Service GTR-NRS-P-78:476-489. (referred proceedings).
- Parrott, D.L., Lhotka, J.M., and J.W. Stringer. 2010. Effects Of Midstory Removal On Underplanted Black Oak (*Quercus Velutina*) And White Oak (*Quercus Alba*) In The Western Cumberland Plateau. In Proceedings 17th Central Hardwood Forest Conference. USDA Forest Service GTR-NRS-P-78:270-276. (referred proceedings).
- Oswalt, C.M., Stringer, J.W., and J.A. Turner. 2008. Shifts in relative stocking of common tree species in Kentucky from 1975 to 2004. In Proceedings 16th Central Hardwood Forest Conference. USDA Forest Service e-GTR NRS P-24: 194-203. (refereed proceedings)
- Dillaway, D., Stringer, J., and Reiske-Kinney, L. 2007. Light availability influences root carbohydrates, and potentially vigor, in white oak advance regeneration. *Forest Ecology and Management* 250:227-233.
- Dillaway, D., and Stringer, J. 2007. Effects of shade on the growth of natural and artificially established white oak (*Quercus alba* L) regeneration. In Proceedings 15th Central Hardwood Forest Conference. USDA Forest Service e-GTR SRS-101: 638-643. (refereed proceedings)
- Svec, J., Kolka, R. and Stringer, J. 2005. Defining perennial, intermittent, and ephemeral channels in eastern Kentucky: application to forestry best management practices. *Forest Ecology and Management* 214: 170-182.
- Miller, G., and Stringer, J. 2004. Effect of crown release on tree grade and dbh growth of white oak sawtimber in eastern Kentucky. In Proceedings 14th Central Hardwood Forest Conference. USDA Forest Service GTR NE-316: 37-44. (refereed proceedings)
- David, A., Wender, B., Weis, P., Stringer, J. and Wagner, D. 1998. A new seed trap design. *Tree Planters Notes* (peer reviewed section) 48(1-2): 35-37.
- Stringer, J., Wagner, D., Schlarbaum, S. and Houston, D. 1995. An analysis of phenotypic selection in natural stands of northern red oak (*Quercus rubra* L.). In Proceedings 10th Central Hardwood Forest Conference. March 1995. Morgantown, WV. USDA Forest Service GTR NE-148: 226-237pp. (refereed proceedings)
- Stringer, J. 1995. Fungicide treatment increases sprouting percent and sprout growth from *Paulownia tomentosa* root cuttings. *Tree Planters' Notes* (peer reviewed section) 45 (3): 95-100.
- Stringer, J. 1995. Sprouting and growth of *Paulownia tomentosa* root cuttings. *Tree Planters' Notes* (peer reviewed section) 45(3): 101-103.
- Stringer, J. and Kimmerer, T. 1993. Refixation of xylem sap CO₂ in *Populus deltoides*. *Physiologia Plantarum* 89: 243-251.
- Kalisz, P., Stringer, J., and Wells, R. 1993. Vertical mulching of trees in pastures: effects on roots and water status. *Journal of Arboriculture* 20(3): 141-145.
- Ringe, J., Graves, D., and Stringer, J. 1989. Economics of sawmill residues in the establishment of black locust biomass plantations on surface mines. *International Journal of Surface Mining* 3: 201-205.
- Kalisz, P., Stringer, J., Volpe, J., and Clark, D. 1988. Trees as monitors of tritium in soil water. *Journal of Environmental Quality* 17: 62-70.
- Olson, J., Fackler, and Stringer, J. 1988. Quality of air-dried paulownia lumber. *Forest Products Journal* 39: 75-80.
- Stringer, J., Kimmerer, T., Overstreet, J., and Dunn, J. 1988. Oak mortality in eastern Kentucky. *Southern Journal of Applied Forestry* 13(2): 86-91.

- Kalisz, P., Stringer, J., and Hill, D. 1988. Growth of young black walnut plantations in Kentucky. *Northern Journal of Applied Forestry* 6(1): 17-20.
- Stringer, J., Kalisz, P., and Volpe, J. 1988. Deep tritiated water uptake and predawn xylem water potentials as indicator of vertical rooting extent in a *Quercus-Carya* forest. *Canadian Journal of Forest Research* 19(5): 627-631.
- Liu, C., Stringer, J., and McLaren, D. 1988. Tree grades in a hypothetical hardwood forest. pp. 196-200, IN: Proc. Seventh Central Hardwood Forest Conference. Carbondale, IL. (refereed proceedings)
- Stringer, J., and Olson, J. 1987. Radial and vertical variation in stem properties of juvenile black locust (*Robinia pseudoacacia*). *Wood and Fiber Science* 19: 59-67.
- Stringer, J., Shain, L., and Wittwer, R. 1987. Growth and survival of eastern cottonwood. *Southern Journal of Applied Forestry* 11: 73-76.
- Stringer, J. 1986. A practical method for *Paulownia tomentosa* production. *Tree Planters' Notes* 37(2): 8-11.
- Stringer, J., and Carpenter, S. 1986. Energy yield of black locust biomass. *Forest Science* 32: 1049-1057.
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- Stringer, J., and R. Wittwer. 1985. Release and fertilization of black walnut in natural stands. pp. 62-67 IN: Proceedings 5th Central Hardwoods Forest Conference. University of Illinois, Urbana, IL. 299pp.
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- Stringer, J., and D. Powell. 1982. Kentucky's hardwood resource. *Journal of Forestry* 80: 485-488.

Non-Refereed

- Craig, J., Lhotka, J., and J. Stringer. 2013. Six-year effect of midstory removal on white oak growth and biomass distribution and seedling response one year post-clipping. In Proceeding 17th Biennial Southern Silvicultural Research Conference. USDA Forest Service e-GTR SRS 203. 19-20.
- Bowker, D., Stringer, J., Barton, C., and S. Fei. 2010. GPS and GIS Analysis of Mobile Harvesting Equipment and Sediment Delivery to Streams During Forest Harvest Operations on Steep Terrain. In: Fueling the Future, Proceedings of the 33rd Annual Meeting of the Council on Forest Engineering. 2010 Jun 6-9. Auburn, AL. (CD – Council on Forest Engineering)
- Witt, E. L., C. D. Barton, J. W. Stringer, D. W. Bowker, and R. K. Kolka. 2009. Evaluating Best Management Practices for Ephemeral Channel Protection during Forest Harvest in the Cumberland Plateau-Preliminary Findings. Presentation at the 2009 American Society of Agricultural and Biological Engineers Annual International Meeting, Reno, NV. Paper no. 095840.
- Reeves, C., J. Stringer, C. Barton, and C. Agouridis. 2008. Sedimentation rates of temporary skid trail headwater stream crossings. In: Addressing Forest Engineering Challenges of the Future, Proceedings of the 31st Annual Meeting of the Council on

- Forest Engineering. 2008 Jun 25-28. Charleston, SC. (CD – Council on Forest Engineering)
- Stringer, J., and Cecil, L. 2007. Thinning guidelines from crown area relationships for young hardwood plantations. In Proceedings 14th Biennial Southern Silviculture Conference. USDA Forest Service e-GTR SRS 121. 389-392.
- Stringer, J. 2006. Effect of ground skidding on oak advance regeneration. In Proceedings 13th Biennial Southern Silvicultural Research Conference. USDA Forest Service GTR SRS-92: 535-537.
- Dillaway, D., and Stringer, J. 2006. Release of suppressed oak advance regeneration. In Proceedings 13th Biennial Southern Silvicultural Research Conference. USDA Forest Service GTR SRS-92: 283-286.
- Shouse, S., Stringer, J., Smidt, M., Pelkki, M., Ringe, J., and Kolka, R. 2001. Machine and labor time required to implement Kentucky's skid trail erosion control and revegetation BMPs. In Proceedings 24th Annual Meeting Council on Forest Engineering, Appalachian Hardwoods: Managing Change (cd).
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- Stringer, J., and Taylor, L. 1999. Effects of leaf litter depth on acorn germination. Proceedings, 12th Central Hardwood Forest Conference, USDA Forest Service GTR SRS-24: 289-290.
- Stringer, J. 1999. Development of advanced oak regeneration from two-age reserve trees. In Proceedings 12th Central Hardwood Forest Conference, USDA Forest Service GTR SRS-24: 291-293.
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- Stringer, J. 1998. Two-aged silvicultural systems: diameter distribution and predictive models for determining minimum reserve tree diameters. Proceedings, Ninth Biennial Southern Silviculture Research Conference, USDA Forest Service GTR SRS-20: 143-147.
- Stringer, J. 1998. Establishment of paulownia plantations using float tray seedlings. In Proceedings Ninth Biennial Southern Silviculture Research Conference, USDA Forest Service GTR SRS-20: 238-241.
- Stringer, J. 1991. Wood properties of black locust (*Robinia pseudoacacia*): physical, mechanical, and quantitative chemical variability. pp. 197-207, IN: Black Locust: Biology, Culture and Utilization. Michigan State University. 277pp.
- Stringer, J., Miller, G., and Wittwer, R. 1988. Costs to apply crop-tree release in small sawtimber white oak stands. USDA Forest Service RP NE-620. 5pp.
- Stringer, J., Olson, J., and Carpenter, S. 1982. Variation in wood properties of nine black locust clones. pp. 166-171, IN: Proceedings, Seventh North American Forest Biology Workshop. University of Kentucky, Lexington, KY. 467pp.
- Stringer, J. and Carpenter, S. 1982. Energy content of black locust growing on surface-mined land. pp. 243-248 IN: Proceedings, Symposium on Surface Mining Hydrology, Sedimentology, and Reclamation. Lexington, KY.

Editor

Fei, S., Lhotka, J., and Stringer, J. 2011. Proceedings, 17th Central Hardwood Forest Conference. Lexington, KY. USDA Forest Service GTR NRS-P-78.

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Departmental Research Seminars

Ten research seminars in the University of Kentucky's Department of Forestry Seminar Series through 2013.

RESEARCH POSTERS, ABSTRACTS, AND PRESENTATIONS

Adkins, J.K., Barton, C.D., Stringer, J.W., Grubbs, S. 2014. Assessment of streamside management zone efficacy for conserving benthic macroinvertebrate communities following timber harvest in Eastern Kentucky headwater catchments. Presentation at Symposium on Forestry Best Management Practice Effectiveness in the Eastern US, National Council for Air and Stream Improvement, Inc., Society of American Foresters, Virginia Tech, Blacksburg, VA.

Reeves, C., Stringer, J.W., Bowker, D., Barton, C., Agouridis, C. 2014. Effectiveness of Elevated Skid Trail Headwater Stream Crossings in the Cumberland Plateau. Presentation at Symposium on Forestry Best Management Practice Effectiveness in the Eastern US, National Council for Air and Stream Improvement, Inc., Society of American Foresters, Virginia Tech, Blacksburg, VA.

Witt, E., Barton, C., Stringer, J.W., Cherry, A., Kolka, R. 2014. Influence of variable streamside management zone configurations on water quality following forest harvest. Presentation at Symposium on Forestry Best Management Practice Effectiveness in the Eastern US, National Council for Air and Stream Improvement, Inc., Society of American Foresters, Virginia Tech, Blacksburg, VA.

Devine, K., Fei, S., Stringer, J.W., Barton, C. 2014. The Effect of Microsite on Invasive Species Colonization Associated with the use of Timber Harvesting BMPs. Presentation at Symposium on Forestry Best Management Practice Effectiveness in the Eastern US, National Council for Air and Stream Improvement, Inc., Society of American Foresters, Virginia Tech, Blacksburg, VA.

Witt, E., Barton, C., Stringer, J.W., Cherry, A., Kolka, R. 2014. Impact of forest harvest with variable streamside management zone configurations on hydrologic response in perennial headwater streams in eastern KY. Poster presentation at Symposium on Forestry Best Management Practice Effectiveness in the Eastern US, National Council for Air and Stream Improvement, Inc., Society of American Foresters, Virginia Tech, Blacksburg, VA.

Bowker, D., Stringer, J.W., Barton, C. 2014. Forest harvest equipment movement and sediment delivery to streams. Poster presentation at Symposium on Forestry Best Management Practice Effectiveness in the Eastern US, National Council for Air and Stream Improvement, Inc., Society of American Foresters, Virginia Tech, Blacksburg, VA.

Contreras, Parrott, Stringer. 2013. Quantifying potential benefits of implementing computer generated skid-trail networks. IUFRO

- Lhotka, J.M., and J.W. Stringer. 2013. Forest edge effects on oak regeneration in gap-based silvicultural systems. Presentation National Society of American Foresters Meeting. Charleston, WV.
- Lhotka, J.M., and J.W. Stringer. 2012. Formulating an Expanding-Gap Regeneration System for *Quercus* Dominated Stands of the Central Hardwood Forest Region. Poster 2012 National Society of American Foresters Meeting. Spokane, WA.
- Witt, E.L., C. D. Barton, J. W. Stringer, and R. K. Kolka. November 2010. Impact of Streamside Management Zone Width and Canopy Retention on Hydrologic Response Following Forest Harvest in Appalachian Headwater Streams. Presentation at the 2010 American Water Resources Association Annual Water Resources Conference, Philadelphia, PA.
- Thomas, W.R., and J. Stringer. 2011. Influencing Woodland Management using Web-Based Technology. In Proceedings 17th Central Hardwood Forest Conference. USDA Forest Service GTR-NRS-P-78:671-672.
- Parrott, D., J. Lhotka, and J. Stringer. (2011) Impact of ice damage on overstory canopy structure and oak reproduction established following a midstory removal. In Proceedings 16th Biennial Southern Silvicultural Research Conference (BSSRC) February 15-17, 2011 Charleston, SC
- Witt, E.L., C. D. Barton, J. W. Stringer, and R. K. Kolka. (November, 2010). Impact of Streamside Management Zone Width and Canopy Retention on Hydrologic Response Following Forest Harvest in Appalachian Headwater Streams. Presentation at the 2010 American Water Resources Association Annual Water Resources Conference, Philadelphia, PA.
- Witt, E. L., C. D. Barton, J. W. Stringer, D. W. Bowker, and R. K. Kolka. June 2009. Evaluating Best Management Practices for Ephemeral Channel Protection during Forest Harvest in the Cumberland Plateau-Preliminary Findings. Presentation at the 2009 American Society of Agricultural and Biological Engineers Annual International Meeting, Reno, NV. Paper no. 095840.
- Bowker, D., Stringer, J., Barton, C., and S. Fei. 2010. GPS and GIS Analysis of Mobile Harvesting Equipment and Sediment Delivery to Streams During Forest Harvest Operations on Steep Terrain. In Proceedings 17th Central Hardwood Forest Conference. USDA Forest Service GTR-NRS-P-78:648-649.
- Stringer, J. 2007. Research on Two Age Management Alternatives for Cumberland Plateau Forests. Scientific Foundations of Conservation Planning in the Cumberland Plateau and Mountains. Knoxville, TN. November 2007.
- Reeves, C., Stringer, J., Barton, C., and C. Agouridis. Society of American Foresters Annual Meeting. Portland OR, October 2007.
- Michels, O., Smidt, M., and Stringer, J. 2007. GPS and GIS application and analysis of timber harvesting operations on steep terrain. Southern Region Council on Forest Engineering, Hot Springs, AK. April 2007.
- Stringer, J. 2007. Performance of high value tree plantings on loose spoil regimes in eastern Kentucky. The Paulownia Research Symposium, American Paulownia Association. Hazard, KY. April 2007.
- Stringer, J. 2006. Effect of ground skidding on oak advance regeneration. 13th Biennial Southern Silvicultural Research Conference. USDA Forest Service, Memphis, TN. February 2006.

- Stringer, J., Dillaway, D., and Loftis, D. 2006. Oak shelterwood: a silvicultural tool for successfully regeneration oaks. Proceedings of the Annual Meeting of the Society of American Foresters. Pittsburg PA. (cd)
- Cecil, L., and Stringer, J. 2006. Stem diameter and horizontal crown area correlations for hardwood tree seedlings planted on reclaimed surface-mines in eastern Kentucky. 15th Central Hardwood Forest Conference. Knoxville, TN.
- Fie, S., Stringer, J., and Steiner, K. 2006. Influential factors of potential oak regeneration in the Appalachians. IUFRO Oak Silviculture Conference. Stevens Point, WI. September 2006.
- Perry, J., and Stringer, J. 2005. Comparison of site preparation alternatives for natural hardwood regeneration. 13th Biennial Southern Silvicultural Research Conference. USDA Forest Service, Knoxville, TN.
- Dillaway, D., and Stringer, J. 2005. Response of white and black oak seedlings to a mid-story removal. Proceedings of the Ninth Workshop on Seedling Physiology and Growth Problems in Oak Plantings. USDA Forest Service GTR NC-292. 4.
- Stringer, J. 2005. Harvest survivability of oak advance regeneration. In: Proceedings of the Ninth Workshop on Seedling Physiology and Growth Problems in Oak Plantings. USDA Forest Service GTR NC-292. 26.
- Dillaway, D., and Stringer, J. 2004. Response of white oak and black oak to a mid-story removal. Proceedings of the Ninth Seedling Physiology and Problems in Oak Plantings. USDA Forest Service GTR NC-292. 27.
- Stringer, J. 2004. Harvest survivability of oak advance regeneration. In Proceedings of the Ninth Seedling Physiology and Problems in Oak Plantings. USDA Forest Service GTR (poster and abstract in press).
- Kolka, R., Svec, J., and Stringer, J. 2003. Streamflow duration prediction: application to forestry BMPs. Soil Science Society of America Conference. Denver, CO. (abstract published).
- Svec, J., R. Kolka, and Stringer, J. 2002. Stream classification: perennial, intermittent, and ephemeral channels in eastern Kentucky and implications for streamside management zones. Proceedings Kentucky Water Resources Symposium, Lexington, KY.
- Svec, J., Kolka, R., and Stringer, J. 2002. Defining perennial, intermittent and ephemeral channels in eastern Kentucky: application to forestry best management practices. Proceedings Forestry Best Management Research Symposia. Atlanta, Georgia. (Compact disc) Ed. J. Shepard, National Council for Air and Stream Improvement.
- Stringer, J., and Queary, T. 2002. Voluntary implementation and effectiveness measures for timber harvesting BMPs on non-industrial private forest lands in Kentucky. Proceedings Forestry Best Management Research Symposia. Atlanta, Georgia (cd) Ed. J. Shepard, National Council for Air and Stream Improvement.
- Stringer, J., Shouse, S., Smidt, M., Pelkki, M., Ringe, J., and Kolka, R. 2002. BMP costs associated with erosion control measures for skid trails. Proceedings Forestry Best Management Research Symposia. Atlanta, Georgia. (cd) Ed. J. Shepard, National Council for Air and Stream Improvement.
- Stringer, J. 1999. Two-age systems for eastern hardwoods. National Society of American Foresters Meeting. Portland, OR.
- Wagner, D., David, D., and Stringer, J. 1999. Simple sequence repeat loci in white oak (*Quercus alba*). Proceedings Plant and Animal Genome Conference VIII. San Diego, CA.

- Fogler, E., David, D., Stringer, J., Patel, R., and Wagner, D. 1999. Simple sequence repeat markers of interspecific hybridization of white oak (*Quercus alba*). Proceedings Plant and Animal Genome Conference VIII. San Diego, CA.
- Stringer, J. 1997. Use and effectiveness of timber harvesting BMPs in Kentucky. Nonpoint Source Pollution Conference, Lexington, KY.
- Stringer, J., and Graves, D. 1996. Tree shelters overcome initial establishment problems for containerized seedlings of *Paulownia tomentosa* over a wide range of planting conditions. Proceedings of the Tree Shelter Conference, USDA Forest Service GTR NE-221: 74.
- Stringer, J., and Wagner, D. 1994. Analysis of the TVA and NC-99 northern red oak provenance test series. North Central Fine Hardwoods Tree Improvement Cooperative Annual Meeting. West Lafayette, IN.
- Stringer, J. 1994. Oak mortality on the Cumberland plateau. 1994. New Technology for Practical Forestry, K/T SAF Annual Winter Meeting. Corbin, KY.
- Stringer, J. 1993. Groundfire effects in a sapling-sized oak-maple stand. pp. 514-515, IN: Proceedings of the Ninth Central Hardwoods Forest Conference, USDA Forest Service GTR NC-161.
- Stringer, J., Kimmerer, T., and Dunn, J. 1992. Decline of oak sawtimber. Kentucky Forest Industries Association Annual Meeting, Louisville, KY.
- Stringer, J., and Cremeans, D. 1991. TREEGRAD: a grading program for eastern hardwoods. Eighth Central Hardwood Forest Conference Pennsylvania State University, College Station, PA.
- Stringer, J. 1991. New research in paulownia plantation establishment. Third Annual Paulownia Conference on Paulownia Production. Paducah, KY.
- Stringer, J. 1991. Wood properties of black locust. International Conference on Black Locust: Biology, Culture, and Utilization. Michigan State University, East Lansing, MI.
- Stringer, J., and Kimmerer, T. 1991. Remetabolism of respiratory CO₂ in woody plants. Annual Meeting of the Southern Section of the American Society of Plant Physiologists. Lexington, KY.
- Stringer, J., Kimmerer, T., and MacDonald, B. 1989. Translocation of respired CO₂ and its re-fixation in *Populus deltoides*. International Union of Forestry Research Organizations Workshop "Dynamics of Ecophysiological Processes in Tree Crowns and Forest Canopies". Rhinelander WI, USA.
- Stringer, J., Kimmerer, T., and MacDonald, B. 1989. Remetabolism of transpirational ethanol by the leaves of eastern cottonwood (*Populus deltoides*). International Union of Forestry Research Organizations Workshop Dynamics of Ecophysiological Processes in Tree Crowns and Forest Canopies. Rhinelander, WI.
- Stringer, J., and Kimmerer, T. 1989. Transport and use of CO₂ in the xylem Sap of *Populus deltoides*. American Society of Plant Physiologists Annual Meeting. Indianapolis, IN.
- Stringer, J., Liu, C., and McClaren, D. 1989. A key for hardwood tree grading. Seventh Central Hardwood Forest Conference. Carbondale, IL.
- McLaren, D., Stringer, J., and Liu, C. 1988. A methodical approach for hardwood tree grading. pp.297, IN. Proceedings Seventh Central Hardwood Forest Conference. Carbondale, IL. 313pp. .
- Stringer, J., Kimmerer, T., Dunn, J. 1987. Oak mortality in eastern Kentucky. Sixth Central Hardwood Forest Conference. Knoxville, TN.

Academic Awards and Recognition

Awards

- 2012 2012 Henry Hardtner Award for Forest Sustainability**, Southern Group of State Foresters
- 2012 Award for Excellence in Forestry (over 35 years)**. Kentucky/Tennessee Society of American Foresters
- 2011 Gold Award for Excellence for Extension Publication**. A peer award from the Sponsored by Southern Region Extension Forestry.
- 2011 Outstanding Graduate Student Poster**, 16th Biennial Southern Silvicultural Research Conference (BSSRC) February 15-17, 2011 Charleston, South Carolina
- 2010 High Impact Research/Extension Program Award**, College of Agriculture for Streamside Management Zone Project PI's C. Barton, J. Stringer
- 2010 Laura Clay Award** – Kentucky Women in Agriculture for the collaborative project Agriculture Development Team Training for Afghanistan
- 2010 University of Kentucky, Commonwealth Collaborative Award** for the Cane Run Watershed Assessment and Restoration Initiative
- 2010 Silver Award for Excellence for Newsletter or Series of Articles**. A peer award from the Sponsored by Southern Region Extension Forestry.
- 2009 Gold Award for Excellence for Exceptional Programming in the Area of Shortcourse Production**. A peer award from the Sponsored by Southern Region Extension Forestry.
- 2009 National Family Forests Education Award** – joint award from the National Associate of Woodland Owners and National Association of University Forestry Resource Programs
- 2009 University of Kentucky Work Life Supervisor of the Year** - finalist
- 2008 Fellow Society of American Foresters**
- 2008 University of Kentucky Forestry Graduate Student Award of Excellence** for Christopher Reeves, MS Student.
- 2008 Gold Award for Excellence with High Distinction for Exceptional Programming in the Area of Extension Publications**. A peer award from the Sponsored by Southern Region Extension Forestry.
- 2006 Outstanding Student Paper Award, Biennial Southern Silviculture Research Conference** for Dillaway, D., and Stringer, J. Release of suppressed oak advance regeneration. Presented at the 13th Biennial Southern Silvicultural Research Conference in Memphis, TN.
- 2005 University of Kentucky, Commonwealth Collaborative Award** (for the Surface Mine Reforestation Initiative)
- 2004 University of Kentucky, Faculty Futures Award** - The Kentucky Forestry Best Management Practices Board. Kentucky Natural Resources and Environmental Protection Cabinet.
- 2003 Governors Award for Environmental Excellence in Forestry** - The Kentucky Forestry Best Management Practices Board. Kentucky Natural Resources and Environmental Protection Cabinet.
- 2002 Extension Forester of the Year** - sponsored by the Forest Landowners Association for “Commitment to and Delivery of Excellent Learning Experiences While Achieving A Superior Standard of Continuing Education and Assistance to Forest Landowners”.

- 2002 National Technical Writing Award** - sponsored by the Forest Resources Association for: Stringer, J. 2002. Kentucky's Logging BMP Gauge. Forest Resources Association Technical Release 00-R-20. 2pp.
- 2002 Appalachian Regional Technical Writing Award** - sponsored by the Forest Resources Association for Stringer, J. 2002. Times and Costs for Skid Trail Retirement and Revegetation.
- 2001 Student Paper Award, Council of Forest Engineering** for; Shouse, S., Stringer, J., Smidt, M., Pelkki, M., Ringe, J., and Kolka, R. 2001. Machine and Labor Time Required to Implement Kentucky's Skid Trail Erosion Control and Revegetation BMPs. Proceedings of 24th Annual Meeting Council on Forest Engineering, Appalachian Hardwoods: Managing Change.
- 2001 Award for Excellence for Multi-State or Regional Project** - sponsored by Southern Region Extension Forestry for the Master Tree Farmer 2001 Satellite Workshop.
- 2001 Award for Excellence for Exceptional Programming in the Area of Extension Video** - sponsored by Southern Region Extension Forestry for the Hardwood Management Section of the Master Tree Farmer Program by Stringer, J., and Clatterbuck, W.
- 2001 Award for Excellence for Exceptional Programming the Area of Extension Newsletter** - sponsored by Southern Region Extension Forestry for the Kentucky LogJam Newsletter, Cooperative Extension Service, University of Kentucky, Department of Forestry. Ed. J. Stringer.
- 2001 Appalachian Regional Technical Writing Award** -sponsored by the Forest Resources Association for; Stringer, J. 2000. Kentucky's Logging BMP Gauge. Forest Resources Association Technical Release 00-R-20. 2pp.
- 2000 Outstanding New Specialist Award**, Association of Kentucky Extension Specialists.
- 2000 Award for Excellence for Exceptional Programing in the Area of Video-** sponsored by Southern Region Extension Forestry for the Kentucky Timber Harvesting Training Series: Effects of Timber Harvesting on Water Quality and Aquatic Habitat; Best Management Practices for Timber Harvesting Roads, Trails, and Landings; Streamside Management Zones. Executive Producer J. Stringer. Cooperative Extension Service, University of Kentucky. .
- 1999 Outstanding Program Award**, Kentucky Master Logger Program. Association of Kentucky Extension Specialists.
- 1999 Award for Excellence for Exceptional Programming in the area of Extension Publication or Series** - sponsored by Southern Region Extension Forestry for; Stringer, J., Perkins, C., Lowe, L., Smidt, M. Field Guide to Best Management Practices for Timber Harvesting in Kentucky. University of Kentucky, Cooperative Extension Service. FOR-69. 71pp.
- 1999 Award for Excellence for Exceptional Programming in the area of Extension Publication or Series** - sponsored by Southern Region Extension Forestry for; Stringer, J., and Perkins, C. 1998. Kentucky Forest Practice Guidelines of Water Quality Management. University of Kentucky, Cooperative Extension Service. FOR-67. 110pp.

- 1994** **Governors Award for Environmental Excellence in Forestry** - The Kentucky Master Logger Program. Kentucky Natural Resources and Environmental Protection Cabinet.
- 1985** **Forestry Outstanding Service Award (under 35)**. Awarded by the Kentucky/Tennessee Society of American Foresters.
- 1981** **Forester of the Year**. Zi Sigma Pi. University of Kentucky Student Chapter.

Other Professional Recognition

2000. Featured in The Ag Magazine 2000. University of Kentucky, College of Agriculture 1(2): pp.2-5.
1997. Featured in the KIOSH section of Odyssey: the magazine of University of Kentucky Research. XV (1):28p.
1999. Featured in the Society of American Foresters Recruitment Video: Foresters: Growing Forests for Our Future.
1998. Featured in Business Monday section of the Herald-Leader Newspaper.

Professional Membership

- Society of American Foresters CF
 Association of Kentucky Extension Specialists
 Association of Natural Resource Extension Professionals
 Kentucky Forest Industries Association (Associate Member)
 Kentucky Woodland Owners Association
 National Woodland Owners Association
 Forest Landowners Association
 Forest Guild
 Forest Stewardship Council
 American Paulownia Association
 National Walnut Council
 Vegetation Management Association of Kentucky
 International Union of Forestry Research Organizations, Whole Plant and Canopy Processes Working Groups
 Gamma Sigma Delta
 Xi Sigma Pi
 Kentucky Woodworkers Association

Professional Service

Board, Appointments, Professional Elected Offices – National/Regional

- FSC-US Controlled Wood Working Group** – appointed member 2012 – 2013.
- Hardwood Tree Improvement and Research Center** (US Forest Service, Purdue University) 2005 to present.
- U.S. Forest Stewardship Council National Family Forest Working Group** – appointed member 2007-2009
- Forest Landowners Association** – board member 2005–2007
- U.S. Forest Stewardship Council, National Technical Standards Committee** – appointed member 2000-2005

Society of American Foresters – Daniel Boone National Forest Task Force – appointed chair 2003-2004
U.S. Forest Stewardship Council Appalachian Working Group – appointed chair 2002-2003
Society of American Foresters Kentucky/Tennessee Society – elected chair 2001
U.S. Forest Stewardship Council Lakes States and Central States Working Group - appointed member 1999 -2003
Biennial Southern Silvicultural Conference - invited steering committee 1997
Society of American Foresters (Kentucky/Tennessee) - elected secretary/treasurer 1997
National Walnut Council - silviculture committee 1990-1993, university research committee – chair 1994-1996

Board, Appointments, Professional Elected Offices – Kentucky

Kentucky Farm Bureau Federation – Forestry Committee – invited member 2010
Kentucky Forestry Best Management Practices Board – elected chair 2006-2009
Kentucky Forestry Best Management Practices Board - governor appointment 1998 to present
Kentucky Agriculture Water Quality Authority/Silviculture Committee - appointed member 1999 to present
Natural Resource Conservation Service – State Technical Committee – UK representative, 2007 to present
Association of Kentucky Extension Specialists – elected chair 2003
Kentucky Forest Health Task Force – charter member 2005 to present
Vegetation Management Association of Kentucky – invited advisory board member 1998 to present
Kentucky Woodland Owners Association – appointed board member 2005 to present
Kentucky Forest Stewardship Coordinating Committee – invited member 2000 to present
American Forest and Paper Association, Sustainable Forestry Initiative Kentucky State Implementation Committee - invited member 2000 to present
Kentucky Forest Industry Association – invited communication committee member 2000 to present
Kentucky Agricultural Water Quality Authority – invited technical advisor 1996-1999
Society of American Foresters East Kentucky Chapter – elected chair 1996
Kentucky Woodworkers Association – elected president 1987-1990

Reviewer

USDA Forest Service Northern Research Station
USDA Forest Service Southern Research Station
Northern Journal of Applied Forestry
Southern Journal of Applied Forestry
Physiologia Plantarum
Journal of Bioelectrics
Tree Physiology
International Journal of Surface Mining
USDA Nat. Res. Initiative Comp. Grants Program Forest/Rangeland/Crop/Aquatic Ecosystems

Program
Central Hardwood Forest Conference Proceedings

Administrative Assignments

University

Academic Area Advisory Committee for the Extension Title Series, 2012-2013

College

Extension Promotion and Tenure Committee 2014-2015
Robinson Forest Technical Committee, chair, 2005 to present
Department of Forestry Chair search committee, 2009- 2010
Robinson Center for Appalachian Resource Sustainability Implementation and
Development Committee, 2009 to present
Natural Resources Planning Committee, member 2007-2008
Department of Forestry Chair search committee, 2002 - 2004
Extension Team Leader Goal 4 Government Performance Review Act, 2002-2003
Renewable Resource Extension Act (3-D) Reporting, 2001 to present
Barnhart Fund for Excellence, committee member 2001

Department

Faculty Search Committee 2014-2015 Chair, Extension Wildlife (extension)
Extension Associate Search Committee 2014-2015, Primary Forest Industry
Forestry Extension Committee – Chair, 2001 to present
Faculty Search Committee 2013 – Forest Landscape Ecologist (teaching/research)
Faculty Search Committee 2011 – Aquatic Ecologist (teaching/research)
Forestry Research Committee 2010 - Member
Faculty Search Committee 2010 - Chair, forest and natural resource management
(teaching/research)
Forestry Representative – Assistant to Interim Chair 2009-2010
Forestry Representative – National Association of University Forest Resource Programs
2009-2010
Faculty Search Committee chair, Forest Hydrologist (teaching/research)
Faculty Search Committee chair, silviculture (teaching/research)
Faculty Search Committee chair, timber harvesting specialists (extension)
Search Committee member, Cooperative Extension wood products specialist
Search Committee member, Cooperative Extension staff assistant

Non-Academic and Community Service

Administrator, Caragua Baptist Seminary Inc. 501(c)(3) providing overseas missions
support for Seminario Batista Caragua, Caraguatatuba, Brazil. www.cbseminary.org,
www.sbcaragua.org. 2013 to present.

Mentor for the Lexington Rescue Missions Life Renewal Program (now Nehemiah House at
the Lighthouse Ministries). 2000 to present.

Deacon and Deacon Chair, Gardenside Baptist Church, Lexington, KY. 1998 to present.

Director of Men's Ministries, Gardenside Baptist Church, Lexington, KY. 1995 to present.

Lexington/Fayette County Government: Public Works Avon Landfill and Tree Evaluation, 1998

Lexington/Fayette County Government: Parks and Recreation, Research for Removal of Invasive Exotic Species from Raven Run Nature Sanctuary, 1996-1997

Lexington/Fayette County Government: Monitoring of Commercial Wood Composting Facilities 1994-1997

International Science Fair, Botany Judge, Louisville, Kentucky

Kentucky Forestry Forums, Moderator Regional Forums for the Kentucky Division of Forestry, 1995-1996

2012 FACULTY ANNUAL PERFORMANCE REVIEW CURRICULUM VITAE
(Period of Review 2011 – 2012)
DEPARTMENT OF FORESTRY, COLLEGE OF AGRICULTURE

DAVID B. WAGNER

- Associate Professor: Originally appointed 1 June 1986 as Assistant Professor; promoted 1 July 1992 to Associate Professor.
- Average DOE for Period of Review: 56.75% Resident Instruction; 43.25% Special Assignments (Director of Graduate Studies, Assessment Coordinator)
- Current DOE: 60% Resident Instruction; 40% Special Assignments (Director of Graduate Studies, Assessment Coordinator).

TEACHING AND ADVISING

<u>Courses taught:</u>	<u>No. of</u> <u>Students</u>	<u>Student Evaluations of Teaching</u> <u>(Dept., College & Univ. Means in Parentheses)</u>
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2010 Fall (included because fall 2012 evaluations by students are not yet available)

FOR 100-001 (Introduction to Forestry, 3 credits)	15	4.0 (Dept. 3.6; College 3.5; University 3.4)
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FOR 110-001 (Issues in Natural Resources, 1 credit; one of the students was a Donovan Scholar auditor)	13	3.7 (Dept. 3.6; College 3.5; University 3.4)
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FOR 601 (Research Methods in Forestry, 3 credits)	10	3.9 (Dept. 3.6; College 3.5; University 3.4)
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FOR 770-001 (Forestry Seminar: University Forestry Teaching, 1 credit)	2	No evaluations (due to small class size)
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2011 Spring

ABT/BIO/ENT/FOR 461-001 (Introduction to Population Genetics, 3 credits)	27	3.6 (Dept. 3.7; College 3.5; University 3.4)
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FOR 100-001 (Introduction to Forestry, 3 credits)	19	3.7 (Dept. 3.7; College 3.5; University 3.4)
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FOR 399-001 (Field-Based Education in Forestry, 1 credit; student was Logan Nutt)	1	No evaluations (due to small class size)
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FOR 770-001 (Forestry Seminar: University Forestry Teaching, 1 credit)	3	No evaluations (due to small class size)
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NRC 399-001 (Experiential Education in Natural Resources, 1 credit; student was Eric Hope)	1	No evaluations (due to small class size)
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<u>Courses taught:</u>	<u>No. of Students</u>	<u>Student Evaluations of Teaching (Dept., College & Univ. Means in Parentheses)</u>
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2011 Fall

FOR 110-001 (Issues in Natural Resources, 1 credit)	19	3.2 (Dept. 3.5; College 3.5; University 3.4)
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FOR 399-002 (Field-Based Education in Forestry, 1 credit; student was Luke Biscan)	1	No evaluations (due to small class size)
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FOR 601-001 (Research Methods in Forestry, 3 credits)	8	3.4 (Dept. 3.5; College 3.5; University 3.4)
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FOR 602-001 (Renewable Natural Resources in a Global Perspective, 3 credits)	15	3.7 (Dept. 3.5; College 3.5; University 3.4)
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As the coordinator and principal instructor, I was responsible for approximately 80% of the instructional workload of this team-taught course.

FOR 770-001 (Forestry Seminar: University Forestry Teaching, 1 credit)	2	No evaluations (due to small class size)
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2012 Spring

ABT/BIO/ENT/FOR 461-001 (Introduction to Population Genetics, 3 credits)	24	3.7 (Dept. 3.5; College 3.5; University 3.4)
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FOR 100-001 (Introduction to Forestry, 3 credits)	44	3.3 (Dept. 3.5; College 3.5; University 3.4)
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FOR 399-001 (Field-Based Education in Forestry, 1 – 3 credits; see Teaching Portfolio for details)	9	No evaluations (due to nature of the course)
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FOR 770-001 (Forestry Seminar: University Forestry Teaching, 1 credit)	1	No evaluations (due to small class size)
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2012 Fall (evaluations by students are not yet available)

FOR 100-001 (Introduction to Forestry, 3 credits)	16	Ongoing – teaching evaluations not yet available
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FOR 110-001 (Issues in Natural Resources, 1 credit)	23	Ongoing – teaching evaluations not yet available
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FOR 601 (Research Methods in Forestry, 3 credits)	6	Ongoing – teaching evaluations not yet available
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FOR 770-001 (Forestry Seminar: University Forestry Teaching, 1 credit)	2	Ongoing – teaching evaluations not yet available
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Undergraduate advising:

2011: Spring (5 advisees); Summer/Fall (5 advisees)

2012: Spring (4 advisees); Summer/Fall (3 advisees in July; expecting 7 advisees during fall)

Activities with students outside the classroom:

Numerous face-to-face consultations and contacts/responses by telephone, e-mail, and traditional correspondence with prospective M.S. (Forestry) students.

Teaching & learning improvement:

- College of Agriculture, UK, Spring Teaching Workshop (5/11/2011)
- Teaching and Technology Fair, College of Agriculture, UK (10/7/2011)
- UK Advising Network Meeting (10/7/2011)
- Where Is the Cloud and What Does It Mean for Higher Education? (UK, 12/14/2011)

OTHER DOCUMENTED ACCOMPLISHMENTS AND CONTRIBUTIONS

Department of Forestry Seminar Series: I coordinated the overall schedule for this seminar series each fall and spring semester (for many years until Dr. Lhotka took over in summer 2012).

Departmental Teaching Assistant Orientation, Training & Evaluation: The Department of Forestry currently has one paid Teaching Assistantship position each semester. We also have an additional MS FORE student (or two or three) involved each semester in helping to teach undergraduate courses while they fulfill the “instructional experience” requirement of the MS FORE degree program. I coordinate and implement our TA orientation, training, and evaluation program (and the Provost-required reporting thereof to the Graduate School).

Continued Instruction of Teaching Course: During the summer and fall of 2006, together with the Forestry Graduate Program Committee and several of the Department’s M.S. and Ph.D. students, I developed a “university forestry teaching” course, in consultation with the College’s Associate Dean for Academic Programs and faculty of the Department of Community & Leadership Development. This new course was offered for the first time in spring 2007 (as FOR 770-003, with me as the instructor), and it has been taught every spring and fall semester since (as a section of FOR 770). The course has been well received, *i.e.* although the “teaching” section of FOR 770 is an elective, since it became available in 2007 most MS FORE students have taken the course while fulfilling their “instructional experience” degree requirement. Consequently, I continue to teach this course every spring and fall semester.

Development of New Course for BS FORE Curriculum Revision: I developed a new 1st – year “issues” course (in a format vaguely similar to GEN 100). It was taught for the first time in fall 2009 as GEN 109-002 (the course is now on the books officially as part of our revised curriculum, as FOR 110). Forestry students in the new BS FORE curriculum take this course as a fall semester “forestry companion” to GEN 100. The first offering of this 1-credit course met once per week for 50 minutes throughout the semester. This infrequent meeting pattern appeared to me to be insufficient to capture the attention of 1st – year students. As a result of

a suggestion from Dr. Lynne Rieske-Kinney, I changed the course for fall 2010 to meet twice per week, 50 minutes per meeting, for the first half of the semester. The twice-a-week meeting pattern seemed to help our newest students engage with the course and their new degree program. However, because this meeting pattern caused the course to be completed by the mid-point of the fall semester, students didn't appear to me to have sufficient time to prepare one of the most significant assignments (presentation of a Journal of Forestry article on an issue of current importance). Thus, beginning in fall 2011, I changed the course so that it meets twice per week for the first ¼ of the semester and twice per week for the final ¼ of the semester. During the intervening "sabbatical," I meet individually with each student to discuss the article the student will present during the final ¼ of the semester, and each student submits to me a draft presentation for review. Although the students didn't rate my teaching as highly in 2011 as in 2010, I felt that student learning was much improved by the individual attention I was able to give them in 2011 (although it meant more work for the students!).

SERVICE AND RECOGNITION

Special assignments:

- Director of Graduate Studies (Forestry Graduate Program, appointed 24 May 2002)
- Assessment Coordinator (BS FORE & MS FORE, beginning 1 January 2009) – I routinely receive feedback that the University, SACS examiners, and University-hired outside consultants rate the assessment plans, activities, and reports for the Forestry degree programs as "a good example," in the top tier of University of Kentucky assessment programs.

Associate editorship: *Journal of Heredity* (1995 - present)

Requests for Materials:

- Shared degree program assessment plans with Michigan Technological University, at request of Margaret Gale, Dean, School of Forest Resources & Environmental Science (September 2011)
- Shared course plans and learning contract samples for Appalachian Regional Reforestation Initiative field-based course (FOR 399) with West Virginia University – see Teaching Portfolio for details (spring 2012)

Invited reviews:

- Graduate Women in Science Fellowships
- Manuscript reviews for: *Canadian Journal of Forest Research*, *Journal of Heredity*

Committees, Programs, and Boards:

Department of Forestry:

Undergraduate Program Committee (Member, 1986 - present); Forestry Graduate Program (Member, 1986 - present); Forestry Graduate Program Committee (Director of Graduate Studies, May 2002 – present); Seminar Committee (Member, 2011 – present).

College of Agriculture:

Steering Committee for Stream and Watershed Science Graduate Certificate (Member, 2011 – present); Department of Forestry Periodic Review Committee (Chair, 2011 – 2012); Crop Science Graduate Program (Member, 1986 – present); Graduate Curriculum Committee (Member, 2002 – 2012); Review Committee for Advanced Genetic Technologies Special Grant (April 2006 – present).

University of Kentucky:

Plant Physiology / Biochemistry / Molecular Biology Graduate Program (Member, 1986 - present); Center for Ecology, Evolution, and Behavior (Member, 1992 - present).

National:

Journal of Heredity Editorial Board (Member, 1995 – present); Pool of potential review panel members recommended by the National Association of University Forest Resource Programs for the Agriculture and Food Research Initiative.

PROFESSIONAL DEVELOPMENT

Professional Meetings/Workshops Attended:

- 9th Biennial Conference on University Education in Natural Resources, Colorado State University, Ft. Collins, CO, 22 – 24 March 2012.
- See also section above on “Teaching & learning improvement.”

In-service training:

- Assessment Improvement Plans Open Lab, UK (5/12/2011)
- Blackboard Outcomes Training, UK (Associating Courses in Blackboard Outcomes and Curriculum Mapping in Bb Outcomes – Part I; 9/6/2011)
- Blackboard Outcomes Training, UK (Evaluating Student Artifacts using Bb Outcomes; 9/27/2011)
- Educational Testing Service Presentation on GRE Revised General Test, UK (10/3/2011)
- Do You Know What SACS Accreditors REALLY Expect in Assessment? (Webinar, 10/4/2011)
- The Other Side of Assessment (Webinar by University of Phoenix, 11/17/2011)
- Graduate School Fellowship Presentation, UK (12/20/2011)
- Workshop: Open Lab on Program Assessment (UK Office of Assessment), 5/14/2012
- What’s New in Blackboard 9.1 SP8? (UK, 7/19/2012)

Membership in Professional Organizations: American Genetic Association (1995 - present); International Union of Forestry Research Organizations (Working Party on Molecular Genetics – 2.04.06, 1985 – present; Working Party on Education – 6.15.00, 2007 - present); Xi Sigma Pi (National Forestry Honor Society, 1987 - present).

NARRATIVE STATEMENT

My professional role consists of instruction and special assignments, the latter as Director of Graduate Studies (Forestry Graduate Program) and Assessment Coordinator (BS FORE and MS FORE degree programs). In my opinion, this distribution of effort enables me to focus on activities in which I can contribute most usefully to programs of the Department, College and University. Going forward, the teaching component of these activities includes:

- ABT/BIO/ENT/FOR 461 (a course in my academic specialty, *i.e.* population genetics)
- FOR 100 (an elective introductory course)
- FOR 110 (an issues-based course that incoming forestry students encounter during their first fall semester in the BS FORE curriculum)
- FOR 601 (Research Methods in Forestry, required of all 1st-year MS FORE students)
- FOR 602 (Renewable Natural Resources in a Global Environment, required of all MS FORE students)
- a “teaching course” section of FOR 770 (Forestry Seminar)
- an occasional genetic diversity section of FOR 770
- occasional supervision of internship students in FOR 399 and NRC 399

In teaching, my overall goal is to maximize student learning. I seek to achieve this by continuing to add and strengthen active learning components in my courses, as well as by revising course modules frequently to maintain relevance. Frequent attendance at teaching workshops and symposia help alert me to fresh ideas for improvement. I think my undergraduate advisees and our graduate students know that my door is open and that I will work hard with them not only to solve problems as they arise, but also to try to prevent them in the first place. I am committed to maintaining continuity in the Forestry Graduate Program, and in both of the Department’s degree programs generally, by serving as Director of Graduate Studies and Assessment Coordinator as long as the Department desires.

I continue to use active learning approaches in my courses. In particular, I have turned most class sessions of my undergraduate courses into open forums in which the emphasis is placed on addressing specific comments and questions that students write beforehand. I focus the in-class discussion each day on a specific topic by requiring that students must aim their written comments and questions at reading assigned for the day.

I have been teaching FOR 601 (Research Methods in Forestry) every fall semester for nearly a decade, ensuring that this required core course is available to all M.S. (Forestry) students early in their academic program. Topics include the nature and history of science, research funding and proposals, peer review, experimental design, and communication of science (to peers, as well as to non-technical audiences). Students deliver oral presentations, conduct some of their work in small teams, and participate in a poster session (time permitting, depending on class size each semester). Additionally, we conduct several mock research proposal peer review panels. Despite its heavy workload, the course has been generally well received by students, and it has attracted students from outside the Forestry Graduate Program (including occasional Ph.D. students). I plan to continue to teach FOR 601 well into the future, thereby maintaining stability for this fundamental course of the M.S. (Forestry) degree program.

FOR 602 (Renewable Natural Resources in a Global Perspective) became a team-taught course for the first time in fall 2003, with me as its coordinator. As such, I typically arrange for 10 or more faculty members to participate in the course, each for one to four class sessions. The course was modified for fall 2005 (it is taught only in fall semesters of odd-numbered years) by limiting the team-teaching phase to approximately the beginning half of the semester. The second portion of the semester, for which I am entirely responsible, focuses on development, oral delivery, and peer review of student-written term papers. Student evaluations of the revised course have been favorable, and we continue to use the new format. I am committed long-term to coordinating FOR 602, which is a required core course for the M.S. (Forestry) degree.

During 2011 and 2012, as Director of Graduate Studies and Assessment Coordinator for the Department of Forestry, I helped guide the Forestry Graduate Program to progress in several areas. In particular, drafting of assessment rubrics was completed for all four M.S. (Forestry) student learning outcomes. Also, in 2011 we completed our first full cycle of assessment of all learning outcomes. In coordinating the MS FORE assessment process, I have tried hard to involve all graduate faculty, as well as student representatives, in (a) development of student learning outcome statements, assessment plan, and rubrics, and (b) decision making based on assessment results. The M.S. (Forestry) assessment program is routinely identified by the University, SACS examiners, and University-hired outside consultants as an excellent example, rated in the top tier of University of Kentucky assessment programs.

I hope to continue to serve as Director of Graduate Studies, to maintain long-term stability and continuity in the Forestry Graduate Program. Such stability should help to enhance the academic experiences of our students, who ultimately will have important impacts as natural resource decision-makers of the future. Such stability may also be particularly important as new opportunities arise (*e.g.*, if/when a graduate program in natural resources is developed and/or we join with other institutions in offering cooperative online graduate education). Plans for Forestry Graduate Program Committee activities during the current (fall 2012) semester include evaluation of our assistantship stipend rates, graduate course offerings, graduate student excellence awards program, and TA needs for undergraduate courses.

As Assessment Coordinator for the Department of Forestry, I helped guide the development and implementation of an assessment plan not only for MS FORE, but also for the BS FORE degree program. The undergraduate assessment plan is complex, because the degree program is accredited by the Society of American Foresters and involves at least 23 student learning outcomes in eight knowledge/skill areas. Nonetheless, we established an assessment plan before the University's deadline in late 2009, and we are well underway in implementing the plan. The faculty discussions that have occurred as a result of creating the assessment plan, drafting necessary rubrics, and interpreting assessment results, have been productive and have led to feedback from the University, SACS examiners, and University-hired outside consultants that routinely identifies the B.S. (Forestry) assessment program as exemplary, rated in the top tier of University of Kentucky assessment programs. I think it is apparent that the assessment process will lead to deliberate, continuous, and effective improvements in our teaching and, more importantly, in student learning.

CURRICULUM VITAE

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EDUCATION

Ph.D. 2005 Forestry, University of Missouri-Columbia
M.S. 2000 Ecology, Institute of Botany, Chinese Academy of Science, Beijing, China
B.S. 1997 Geography, Shaanxi Normal University, Xi'an, China

EMPLOYMENT

July 2010 – Present: Research Scientist, PI of Disturbance Ecology Group, Institute of Applied Ecology, Chinese Academy of Sciences
May 2012 – January 2014: Adjunct Research Assistant Professor, Department of Natural Resources and Environmental Science, University of Nevada-Reno
May 2008 – June 2010: Postdoctoral Research Fellow, University of Nevada-Reno
January 2006 – April 2008: Research Associate, University of Missouri-Columbia

REFEREED PUBLICATIONS

(* indicates corresponding author when not the first author)

43. Liu, Z., **Yang, J.***. 2014. Quantifying ecological drivers of ecosystem productivity of the early-successional boreal Larix gmelinii forest. **Ecosphere**, 5(7), art84-art84.
42. Fang, L., **Yang, J.*** 2014. Atmospheric effects on the performance and threshold extrapolation of multi-temporal Landsat derived dNBR for burn severity assessment. **International Journal of Applied Earth Observation and Geoinformation** 33:10-20.
41. Zhao F., He H., Dai L., **Yang, J.*** 2014. Effects of human disturbances on Korean pine coverage and age structure at a landscape scale in Northeast China. **Ecological Engineering** 71: 375-379.
40. Xiang, X., Shi, Y., **Yang, J.**, Kong, J.J., Lin, X., Zhang, H., Zeng, J., Chu, H., 2014 Rapid recovery of soil bacterial communities after wildfire in a Chinese boreal forest. **Scientific Reports** 4.
39. Zhang, Y., Yu, G., **Yang, J.**, Wimberly, M. C., Zhang, X., Tao, J., Jiang, Y., Zhu, J. 2014. Climate-driven global changes in carbon use efficiency. **Global Ecology and Biogeography** 23(2):144-155.
38. Wu, Z., He, H.S., **Yang, J.**, Liu, Z., Liang, Y. 2014 Relative effects of climatic and local factors on fire occurrence in boreal forest landscapes of northeastern China. **Science of the Total Environment** 493: 472-480.
37. Liang, Y., He, H.S., Wu, Z., **Yang, J.** 2014 Effects of environmental heterogeneity on predictions of tree species' abundance in response to climate warming. **Environmental Modelling & Software** 59:222-231.
36. Loudermilk, E.L., Stanton, A., Scheller, R.M., Dilts, T.E., Weisberg, P.J., Skinner, C., **Yang, J.** 2014 Effectiveness of fuel treatments for mitigating wildfire risk and sequestering

- forest carbon: A case study in the Lake Tahoe Basin. **Forest Ecology and Management** 323:114-125.
35. Zhao, F., **Yang, J.** *, He, H. S., Dai, L. 2013. Effects of Natural and Human-Assisted Regeneration on Landscape Dynamics in a Korean Pine Forest in Northeast China. **PLoS ONE**, 8(12).
 34. Wang, W. J., He, H. S., Spetich, M. A., Shifley, S. R., Thompson III, F. R., Larsen, D. R., Fraser, J.S., **Yang, J.** 2013. A large-scale forest landscape model incorporating multi-scale processes and utilizing forest inventory data. **Ecosphere**, 4(9), art106.
 33. Cai, W., **Yang, J.***, Liu, Z., Hu, Y., Weisberg, P.J. 2013. Post-fire tree recruitment of a boreal larch forest in Northeast China. **Forest Ecology and Management**. 307: 20-29.
 32. Liu, Z., **Yang, J.***, He, H. 2013. Identifying the threshold of dominant controls on fire spread in a boreal forest landscape of Northeast China. **PLoS ONE** 8(1):e55618. DOI:10.1371/journal.pone.0055618
 31. Loudermilk, E. L., Scheller, R. M., Weisberg, P. J., **Yang, J.**, Dilts, T. E., Karam, S. L., Skinner, C. 2013. Carbon dynamics in the future forest: The importance of long-term successional legacy and climate-fire interactions. **Global Change Biology** 19(11): 3502-3515.
 30. Hanberry B.B., **Yang, J.**, He, H. 2013. Evaluating functions to describe point patterns. **Community Ecology** 14(1): 1-7.
 29. **Yang, J.**, Kong, J-J., Liu, B. 2013. A review of effects of fire disturbance on understory vegetation in boreal coniferous forest. **Chinese Journal of Plant Ecology** 37 (5): 474-480. (*In Chinese with English abstract*).
 28. Liu, Z., **Yang, J.**, He, H. 2012. Studying the effects of fuel treatment based on burn probability on a boreal forest landscape. **Journal of Environmental Management** 115:42-52.
 27. Liang, Y., He, H.S., **Yang, J.**, Wu, Z.W. 2012. Coupling ecosystem and landscape models to study the effects of plot number and location on prediction of forest landscape change. **Landscape Ecology** 27: 1031-1044.
 26. Liu, Z., **Yang, J.***, Chang, Y., Weisberg, P.J., He, H.S. 2012. Spatial patterns and drivers of fire occurrence and its future trend under climate change in a boreal forest of Northeast China. **Global Change Biology** 18: 2041-2056.
 25. **Yang, J.**, Weisberg, P.J., Bristow, N. 2012. Landsat remote sensing approaches for monitoring long-term tree cover dynamics in semi-arid woodlands: comparison of vegetation indices and spectral mixture analysis. **Remote Sensing of Environment** 119: 62-71.
 24. Cai, W-H., **Yang, J.***, Liu, Z-H., Hu, Y-M., Liu, S-J., Jing, G-Z., Zhao, Z-F. 2012. Controls of post-fire tree recruitment in Great Xing'an Mountains in Heilongjiang Province. **Acta Ecologica Sinica** 32(11): 3303-3312. (*In Chinese with English abstract*).
 23. Hanberry, B.B., **Yang, J.**, Kabrick, J.M., He, H.S. 2012. Adjusting forest density estimates for surveyor bias in historical tree surveys. **The American Midland Naturalist** 167(2): 285-306.
 22. Liu, Z., He, H.S., **Yang, J.** 2012. Emulating natural fire effects using harvesting in an eastern boreal forest landscape of Northeast China. **Journal of Vegetation Science** 23: 782-795.
 21. Dilts, T.E., Weisberg, P.J., **Yang, J.**, Olson, T.J., Turner, P.L., and Condon, L.A. 2012. Using historical general land office survey notes to quantify the effects of irrigated agriculture on land cover change in an arid lands watershed. **Annals of the Association of American Geographers** 102(3): 531-548.

20. **Yang, J.**, He, H.S., Shifley, S.S., Thompson, F.R., Zhang, Y. 2011. An innovative computer design for modeling forest landscape change in very large spatial extents with fine resolutions. **Ecological Modelling** 222 (15): 2623-2630.
19. **Yang, J.**, Dilts, T.E., Turner, P.L., Condon, L.A, and Weisberg, P.J. 2011. Longitudinal- and transverse-scale environmental influences on riparian vegetation across multiple levels of ecological organization. **Landscape Ecology** 26: 381-395.
18. Zhao, F., **Yang, J.***, Liu, Z., Dai, L., He, H.S. 2011. Balancing multiple objectives of a classification-based forest management in Changbai Mountains, China. **Environmental Management** 48(6):1136-1147. (*Corresponding author)
17. He, H.S., **Yang, J.**, Shifley S.R., Thompson F.R., 2011. Challenges of forest landscape modeling-Simulating large landscapes and validating results. **Landscape and Urban Planning** 100 (4): 400-402.
16. Zhang, Y., He, H.S., Shifley, S.R., **Yang, J.**, Palik, B.J. 2011. Evaluating the effects of alternative forest management plans under various physiographic settings using historical records as a reference. **Journal of Environmental Management** 92 (6): 1618-1627.
15. Hanberry, B.B., Fraver, S., He, H. S., **Yang, J.**, Dey, D.C., Palik, B.J. 2011. Spatial pattern corrections and sample sizes for forest density estimates in historical tree surveys. **Landscape Ecology** 26: 59-68.
14. Dilts, T.E., **Yang, J.**, Weisberg, P. J. 2010. The Landscape Similarity Toolbox: new tools for optimizing the location of control sites in experimental studies. **Ecography** 33: 1097-1101.
13. Wang YQ, Zhou Y, **Yang J**, He HS, Zhu Z, Ohlen D. 2009. Simulation of short-term post-fire vegetation recovery by integration of LANDFIRE data products, DNBR data and LANDIS modeling. **Annals of GIS** 15:47-59.
12. Zhang Y., He, H. S. , Dijk, W. D., **Yang, J.**, Shifley, S. R., Palik, B. J. 2009. Integration of satellite imagery and forest inventory in mapping dominant and associated species at a regional scale. **Environmental Management** 44:312-323.
11. Miranda B. R., Sturtevant, B. R., **Yang, J.**, Gustafson, E.J. 2009. Comparing fire spread algorithms using equivalence testing and neutral landscape models. **Landscape Ecology** 24:587-598.
10. Sturtevant B. R., Miranda, B.R., **Yang, J.**, He, H.S., Gustafson, E.J. 2009. Studying fire mitigation strategies in multi-ownership landscapes: balancing the management of fire-dependent ecosystems and fire risk. **Ecosystems** 12: 445-461.
9. Shifley, S.R., **Yang, J.**, He, H.S. 2009. Modeling fire and other disturbance processes using LANDIS. In: Hutchinson, Todd F., ed. Proceedings of the 3rd fire in eastern oak forests conference; 2008 May 20-22; Carbondale, IL. Gen. Tech. Rep. NRS-P-46. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station: 107-115.
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7. **Yang, J.**, H. S. He, B. R. Sturtevant, B. R. Miranda, and E. J. Gustafson. 2008. Comparing effects of fire modeling methods on simulated fire patterns and succession: a case study in the Missouri Ozarks. **Canadian Journal of Forest Research** 38:1290-1302.
6. Zhang Y, He, H. S., **Yang, J.** 2008. The wildland-urban interface dynamics in the southeastern U.S. from 1990 to 2000. **Landscape and Urban Planning** 85:155-162.
5. **Yang, J.**, He, H.S., Shifley, S.R., Gustafson, E.J. 2007. Spatial patterns of modern period human-caused fire occurrence in the Missouri Ozark Highlands. **Forest Science** 53:1-15.

4. Syphard, A. D., **Yang, J.**, Franklin, J., He, H. S., Keeley, J. E. 2007. Calibrating forest Landscape model to simulate high fire frequency in Mediterranean-type shrublands. **Environmental Modelling & Software** 22:1641-1653.
3. He, H. S., W. Li, B. R. Sturtevant, **J. Yang**, B. Z. Shang, E. J. Gustafson, and D. J. Mladenoff. 2005. LANDIS, a spatially explicit model of forest landscape disturbance, management, and succession —LANDIS 4.0 User's Guide. Gen. Tech. Rep. USDA Forest Service, North Central Research Station NC-263.
2. **Yang, J.**, He, H.S., Gustafson, E.J. 2004. A hierarchical fire frequency model to simulate temporal patterns of fire regimes in LANDIS. **Ecological Modelling** 180:119-133.
1. **Yang, J.**, Chi, H., Mo. M. 2002. Vegetation classification of multispectral remotely sensed data using neural network. **Journal of Plant Ecology** 26: 185-188. (*In Chinese*)

GRANTS

- Jian Yang. 2013. Excellent Young Scientist Award. National Natural Science Foundation of China (NSFC). RMB 1,000,000 (~ \$160,712). (PI)
- Jian Yang. 2013. Influence of wildfire on understory vegetation's structure, function, and dynamics in a Chinese boreal forest. National Natural Science Foundation of China (NSFC). RMB 840,000 (~ \$134,998). (PI)
- Jian Yang. 2011. Responses of fire disturbance and forest NPP to climate change in Great Xing'an Mountains. National Natural Science Foundation of China (NSFC). RMB 400,000 (~ \$64,285). (PI)
- Jian Yang. 2010. Fire disturbance and forest landscape dynamics in the northeastern China under a global change context. Hundred Talent Program, Chinese Academy of Sciences. RMB 2,700,000 (~ \$433,922). (PI)
- Robert M. Scheller, Peter J. Weisberg, Jian Yang, Alison Stanton, Carl N. Skinner. 2010. Management options for reducing wildfire risk and maximizing carbon storage under future climate changes, ignition patterns, and forest treatments. Southern Nevada Public Land Management Act (SNPLMA) \$309,140. (Co-PI)
- Susan Earnst, Douglas Shinneman, Peter Weisberg, Jian Yang. 2009. Quantifying vulnerability of quaking aspen woodlands and associated bird communities to global climate change in the northern Great Basin. National Climate Change and Wildlife Science Center (NCCWSC), USGS. \$857,652. (Co-PI)
- Hong S. He and Jian Yang. 2007. "Making R&D Fire and Fuel Simulation Technology Accessible to Regional National Forests". US Forest Service. \$44,400. (Co-PI)

TEACHING and TRAINING

- Co-taught a graduate level course "*Data analysis approaches in ecology (with examples from the R statistical programming language)*" at Institute of Applied Ecology, Chinese Academy of Sciences with Dr. Peter J. Weisberg in year 2013.
- Taught a graduate level course "*Landscape Ecology and GIS Applications*" at University of Missouri-Columbia in 2007.

- Guest lectured various senior undergraduate courses (*Remote Sensing for Natural Resources and Environmental Sciences, Forest and Range Ecology, Advanced Analysis Methods in Natural Resources and Environmental Science, Natural Resource Biometrics, Forest Information Systems, Beginning GIS for Natural Resources*) covering GIS, remote sensing, and quantitative analysis for natural resources.
- Committed to the mentoring and training of graduate students and staff scientists in natural sciences (currently supervising 3 PhD students and 2 assistant scientists).

PROFESSIONAL SERVICES

Technical reviewer

Landscape Urban and Planning, Landscape Ecology, PLoS ONE, Ecology, Ecological Applications, Canadian Journal of Forest Research, International Journal of Wildland Fire, Forest Ecology and Management, Environmental and Ecological Statistics, Environmental Management, International Journal of GIS, Remote Sensing

Editor

Ecological Processes, Journal of Arid Land

Membership

Association of American Geographers
International Association for Landscape Ecology

ORAL PRESENTATIONS

- Yang, J.** 2014. Young Ecologist Summit of 2014 Annual Conference of Ecological Society of China. September 18, 2014. Shenyang, China (Invited).
- Yang, J.** 2014. Changbai Mountain International Eco-forum. Changbai Forest Reserve Bureau. September 12, 2014. Changbai Mountain, China (Invited).
- Yang, J.** 2014. Research Salon of Principals, Models, and Practices of Landscape Ecology. Nanjing University. August 5, 2014. Nanjing, China (Invited)
- Yang, J.** 2014. International workshop of spatial technology applications in environment management. Osaka University and Hokkaido University, March 24, 2014. Sapporo, Japan (Invited).
- Yang, J.** 2013. Progress of forest landscape models. Peking University. October 15, 2013. Beijing, China (Invited).
- Yang, J.** 2013. Disturbance drives forest ecosystem and landscape dynamics in northern Chinese forests. University of Saskatchewan. October 3, 2013. Saskatoon, Canada (Invited).
- Yang, J.** 2013. Keynote speech for the 7th conference of International Association of Landscape Ecology-China Chapter. September 15, 2013. Changsha, China (Invited).
- Yang, J., Z. Liu, and W-H. Cai.** 2012. How climate change affects fire disturbance in Chinese boreal forests and its implications in tree recruitment and succession. The 4th International EcoSummit. September 30, 2012. Columbus, OH.
- Weisberg, P.J., **J. Yang**, and T. Dilts. 2012. Remote sensing applications to quantify landscape change in semi-arid woodlands. ForestSAT 2012 Conference. September 11, 2012. Corvallis, OR.
- Loudermilk, E.L., R.M. Scheller, P.J. Weisberg, **J. Yang**, A.E. Stanton, C. Skinner, T. Dilts. Climate change and landscape legacy effects on forest carbon dynamics and wildfires in the Lake Tahoe Basin. Ecological Society of America 97th Annual Meeting. August, 2012. Portland, OR.

- Yang, J.**, P. J. Weisberg, T. Dilts, L. Loudermilk, R. Scheller, A. Stanton, and C. Skinner. 2012. Predict future spatial distribution of fire occurrence in the Lake Tahoe Basin in response to climate change. Tahoe Science Consortium - Manager's Workshop. May 22, 2012. Incline Village, NV.
- Yang, J.**, Z. Liu, and W-H. Cai. 2012. Response of fire disturbance to climate change, and its implications in succession and management of Chinese boreal forests. The 27th US-IALE Annual Symposium. April 8, 2012. Newport, RI.
- Shinneman, D., **J. Yang**, P. J. Weisberg, and S. L. Earnst. 2012. Vulnerability of aspen and associated bird communities to climate change in the northern Great Basin. The 27th US-IALE Annual Symposium. April 8, 2012. Newport, RI.
- Yang, J.** and P.J. Weisberg. 2011. Use of Remote Sensing to monitor woodland dynamics in a semiarid landscape. The 8th IALE World Congress. August 18, 2011. Beijing, China.
- Yang, J.** and P.J. Weisberg. 2011. Spatio-temporal patterns of post-disturbance tree cover dynamics in a semiarid landscape. The 26th US-IALE Annual Symposium. April 3, 2011. Portland, OR.
- Yang, J.**, P.J. Weisberg, and T. Dilts. 2009. Integrating R with ArcGIS for Mapping Riparian Vegetation Distribution along the Walker River. The 19th Annual Nevada GIS Conference. May 19, 2009. Reno, NV.
- Yang, J.**, P.J. Weisberg, and T. Dilts. 2009. Predicting Riparian Vegetation Distribution in Response to Groundwater Decline at the Landscape Level. The 24th US-IALE Annual Symposium. April 12, 2011. Snowbird, UT.
- Yang, J.** 2007. Assessing and Modeling Fire Risk on the Mark Twain National Forest. The 1st Mark Twain National Forest and Northern Research Station Fire Workshop. April 24, 2007. Rolla, MO.
- Yang, J.** 2007. Simulating Landscape Influences on Occurrence and Spread of Forest Wildfires in a Modern Surface Fire Regime. The 22th Annual Symposium of US-IALE. April 9, 2007. Tucson, AZ.
- Wang, Y. Q., Y. Y. Zhou, **J. Yang**, and H. S. He. 2007. Simulation of Post-fire Vegetation Recovery Using LANDIS Modeling. The 22th Annual Symposium of US-IALE. April 9, 2007. Tucson, AZ.
- Yang, J.** and H. S. He. 2006. Integrating Mechanism and Empirical Approaches to Model Wildfire. International Workshop of Forest Landscape Modeling. June 20, 2006. Beijing, China.
- Yang, J.** and H. S. He. 2006. Spatial pattern of human-caused fire occurrence in the Central Hardwood Forest, Missouri. The 21th Annual Symposium of US-IALE. March 28, 2006. San Diego, CA.
- Lu, Z., H. S. He, C. M. Cowell, and **J. Yang**. 2006. A Method for Developing a Decision Support System for Forestry Management. The annual meeting of the Southwestern Division of the Association of American Geographers (SWAAG). Norman, OK.
- Yang, J.**, H. S. He, B. R. Sturtevant, and E. J. Gustafson. 2005. Modeling the Effects of Forest Succession on Fire Occurrences with the Consideration of Fire Spread Behavior. The 20th Annual Symposium of US-IALE. March 12, 2005. Syracuse, NY.
- Sturtevant, B. R., B. R. Miranda, R. M. Scheller, and **J. Yang**. 2005. Modeling Forest Dynamics with LANDIS – Addressing Scaling Issues in Both Space and Time. North American Forest Ecology Workshop. June, 2005. Ontario, Canada.
- Yang, J.**, H. S. He, and S. R. Shifley. 2004. Modeling the Effects of Forest Succession on the Pattern of Wild Fire Occurrence in the Ozark Highlands, MO with a Hierarchical Fire Frequency Model. The 5th Winemiller Symposium, Conference on New Developments

of Statistical Analysis in Wildlife, Fisheries, and Ecological Research. October 13, 2004. Columbia, MO.

Yang, J. and He, H. S., 2004. VFS – Simulate and Visualize Fire Spread at Landscape Scale. Software/Modeling Demonstration and SWAP Meet at the 19th Annual Symposium of US–IALE. March 30, 2004. Las Vegas, NV.

Yang, J., H. S. He, and E. J. Gustafson. 2003 A Hierarchical Statistical Approach to Simulate the Temporal Patterns of Forest Fire Disturbance. The 18th Annual Symposium of US–IALE. April 2, 2003. Banff, Canada.

COMPUTER SKILLS

Programming Language:

Python, IDL, Fortran, C, C++, Visual Basic

Scientific Software:

S-Plus and R, MATLAB, Mathematica

GIS and RS:

ArcGIS ModelBuilder, ENVI, ERDAS Imagine

Appendix 2-B

Department of Forestry
Professional Staff Curricula Vitae

CURRICULUM VITAE

Bobby Ammerman

130 Robinson Road
University of Kentucky
Department of Forestry
Quicksand, KY 41339
(859) 257-9511 ext. 256 (office)
(859) 666-2215 (fax)
bammerma@uky.edu

Extension Associate Technical Advisor for the Secondary Wood Industry

B.S., Industrial Technology with Specialization in Wood Products Manufacturing, Eastern Kentucky University, 1990

Professional Experience:

Sixteen years as Extension Associate; Technical Advisor Secondary Wood Industry with the University of Kentucky (1998-current)

Five years as Plant Manager for Red River Hardwoods, Clay City, Kentucky (1993-1998).

One year with Dimensional Hardwoods as Production Manager, Paris, Kentucky (1991-1992).

Teaching:

FOR 359: Forest Operations and Utilization, co-instructor; course objectives were to teach the students a working knowledge of roundwood and lumber quality for harvesting trees, Timber harvesting methods, and utilization and conversion of trees to lumber to finished products; coordinated, planned, and lead instructor for the industry tour component; Spring Field Semester 2015.

FOR 359: Forest Operations and Utilization, co-instructor; course objectives were to teach the students a working knowledge of roundwood and lumber quality for harvesting trees, Timber harvesting methods, and utilization and conversion of trees to lumber to finished products; coordinated, planned, and lead instructor for the industry tour component; Spring Field Semester 2014.

FOR 359: Forest Operations and Utilization, co-instructor; course objectives were to teach the students a working knowledge of roundwood and lumber quality for harvesting trees, Timber harvesting methods, and utilization and conversion of trees to lumber to finished products; coordinated, planned, and lead instructor for the industry tour component; Spring Field Semester 2013.

FOR 359: Forest Operations and Utilization, co-instructor; course objectives were to teach the students a working knowledge of roundwood and lumber quality for harvesting trees, Timber harvesting methods, and utilization and conversion of trees to lumber to finished products; coordinated, planned, and lead instructor for the industry tour component; Spring Field Semester 2012.

FOR 379: Utilization and Harvesting of Wood, co-instructor; course objectives were to teach the students a working knowledge of roundwood and lumber quality for harvesting trees, Timber harvesting methods, and utilization and conversion of trees to lumber to finished products; 06/13/2011 – 06/17/2011.

FOR 379: Utilization and Harvesting of Wood, co-instructor; course objectives were to teach the students a working knowledge of roundwood and lumber quality for harvesting trees, Timber harvesting methods, and utilization and conversion of trees to lumber to finished products; 06/14/2010 – 06/18/2010.

FOR 379: Utilization and Harvesting of Wood, co-instructor; course objectives were to teach the students a working knowledge of roundwood and lumber quality for harvesting trees, Timber harvesting methods, and utilization and conversion of trees to lumber to finished products; 06/15/2009 – 06/19/2009.

FOR 379: Utilization and Harvesting of Wood, co-instructor; course objectives were to teach the students a working knowledge of roundwood and lumber quality for harvesting trees, Timber harvesting methods, and utilization and conversion of trees to lumber to finished products; 06/09/2008 – 06/14/2008.

FOR 379: Utilization and Harvesting of Wood, co-instructor; course objectives were to teach the students a working knowledge of roundwood and lumber quality for harvesting trees, Timber harvesting methods, and utilization and conversion of trees to lumber to finished products; 06/11/2007 – 06/15/2007.

FOR 379: Utilization and Harvesting of Wood, co-instructor; course objectives were to teach the students a working knowledge of roundwood and lumber quality for harvesting trees, Timber harvesting methods, and utilization and conversion of trees to lumber to finished products; 06/12/2006 – 06/16/2006.

FOR 379: Utilization and Harvesting of Wood, co-instructor; course objectives were to teach the students a working knowledge of roundwood and lumber quality for harvesting trees, Timber harvesting methods, and utilization and conversion of trees to lumber to finished products; 06/13/2005 – 06/17/2005.

Publications:

Editor and contributor of the Kentucky Wood E-News; publication dates: January 2014, August, 2014, October 2014, March 2015, August 2015, & September 2015.

Jeff Stringer, Billy Thomas, Bobby Ammerman, Alison Davis; Kentucky Forestry Economic Impact Report 2014; FORFS 15-03; spring 2015; 9pp.

Authors and contributors; Bobby Ammerman, Rosalee Bradley, Carroll Fackler, Larry Lowe, Christopher Nevins, Stewart West, Renee Williams; Forest Products Industries of Kentucky; FORFS 14-02; May 2014; 337pp.

Jeff Stringer, Billy Thomas, Bobby Ammerman, Alison Davis; Kentucky Forestry Economic Impact Report 2013 - 2014; FORFS 14-01; spring 2014; 8pp.

Jeff Stringer, Billy Thomas, Bobby Ammerman, Alison Davis; Kentucky Forestry Economic Impact Report 2012 - 2013; FORFS 13-03; spring 2013; 13pp.

Jeff Stringer, Christopher Reeves, Bobby Ammerman; Woodland Certification; article in the Kentucky Woodlands Magazine; volume 5 issue 3 December 2010 6pp.

Ammerman, B., Stringer, J.W., and Fackler, C. 2010. Forestry Emerald Ash Borer – Industry Note February 2010: Shipping and Hauling Hardwood Firewood. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 09-10. 3pp.

Bob Bauer, Bobby Ammerman, Jeff Stringer, Mark Schuster, Billy Thomas; Kentucky's Forest Industry - Down But Not Out; article in the Kentucky Woodlands Magazine; volume 4, issue 2 August 2009. 2pp.

Ammerman, B., Stringer, J., and Fackler, C. 2009. Forestry Emerald Ash Borer – Industry Note August 2009 EAB Treatments for Ash Lumber, Firewood, Logs, and Sawmill Residuals. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 09-10. 3pp.

Ammerman, B., Stringer, J., Fackler, C., and T. Connors. 2009. Forestry Emerald Ash Borer – Industry Note August 2009 Shipping Ash Lumber and Other Ash Products. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 09-09. 3pp.

Stringer, J., Ammerman, B., Fackler, C., and J. Collins. 2009. Forestry Emerald Ash Borer – Industry Note July 2009: Cutting and Hauling Ash Logs. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 09-07. 2pp.

Ammerman, B., Fackler, C., and J. Collins. 2009. Forestry Emerald Ash Borer – General Industry Note June 2009: The State of Kentucky Has Issued a Regional Quarantine on Ash Products and Hardwood Firewood. Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 09-06. 2pp.

Ammerman Bobby. 2008. Introduction to Internet Marketing. 2008 Cooperative Extension Service, University of Kentucky, Department of Forestry, FORFS 08-01. 8pp

Ammerman, Bobby, Fackler, Carroll, Lowe, Larry, Metzger, Timothy, Nevins, Christopher. 2007. Secondary Wood Industry Directory. FORFS 07-18. 165pp.

Ammerman, Bobby, Fackler, Carroll, Lowe, Larry, Metzger, Timothy, Nevins, Christopher. 2007. Primary Wood Industries of Kentucky, FORFS 07-14. 166pp.

Fackler, Carroll, Ammerman, Bobby. 2006. Ohio Valley Lumber Drying Association 2006 Membership Directory FOR-OVLDA 05-01. 24pp.

Ammerman, Bobby. 2006rev. Forklift "Train the Trainer" Training Manual. FORTM 06-1. 36pp.

Mitchell, Phillip H., Wiedenback, Jan, Ammerman, Bobby. 2005. Rough Mill Improvement Guide for Managers and Supervisors. Gen. Tech. Rep. NE 329. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeast Research Station. 60p.

Presentations & Consultations:

Industry Training Programs:

FSC Chain of Custody Logger Training, instructor, Technical Training Program; Training designed to educate logger operators on how to purchase, manufacture, and sell FSC roundwood stock. Developed written working procedures for the two firms attending the training. Glenville, GA and Perry, FL. conducted on July 1 & 2 in 2015. 8 people attending, 100% improvement in knowledge gained. \$ impacted (earned or saved) per year to TBD. Two firms represented.

2014 - The UK Wood Utilization Entrepreneurship Development Program; This program includes participation from the UK Wood Utilization Center, staff at Robinson Center for Appalachian Resource Sustainability, and UK Department of Forestry Extension. The goal of the project is to use the facilities and expertise at the UK Wood Utilization Center to help local entrepreneurs develop new sustainable long-term businesses in wood products. My role in this effort has been as project leader and the designing/engineering, and assisting with the construction of prototypes and mentoring of the entrepreneur. We have worked with seven different entrepreneurs since 2010. In 2013 we used the same procedures that we used to the Pet Swing idea to help with the development of Carl Jackson's Beehive. John at Chery Ridged produced and sold nearly \$38,000 worth of products in 2014.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, Four trainings conducted in 2014. 12 people attending, 80% improvement in knowledge gained. \$879,968.00 impacted (earned or saved) per year. Five firms represented.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders

on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, Four trainings conducted in 2013. 14 people attending, 80% improvement in knowledge gained. \$1,555,502.00 impacted (earned or saved) per year. Six firms represented.

2012 The UK Wood Utilization Entrepreneurship Development Program. This program includes participation from the UK Wood Utilization Center, staff at Robinson Center for Appalachian Resource Sustainability, and UK Department of Forestry Extension. The goal of the project is to use the facilities and expertise at the UK Wood Utilization Center to help local entrepreneurs develop new sustainable long-term businesses in wood products. My role in this effort has been as project leader and the designing/engineering, and assisting with the construction of prototypes and mentoring of the entrepreneur. We have worked with seven different entrepreneurs during 2012, John Marcum of Cherry Ridge Wood Products, Walter Alexander of Kentucky Hardwood Flooring, Morgan Smith a local woodworker, Carl Jackson who is trying to developed a new bee hive concept, Jeff Clair with the Mountain Banjo, Cary Briggs, and Tony and Djauna VanDine of the original pet swing. The concept of the program is to lower the risk of a normal start-up and then later, as production levels warrant the entrepreneur can then purchase their own equipment and space to move his operation from the Wood Center to his own space. Cherry Ridge is currently located in the WUC and using the space to manufacture wood products. Kentucky Hardwood Flooring has used the Center to manufacture reclaimed flooring from used horse fencing for market testing. We have helped Tony and Djauna with the development of their concept idea of the original Pet Swing LLC. I took their original idea and further developed a set of working drawings to manufacture their first and second production models of the pet swing. Cherry Ridge has manufactured their original prototypes and it is our desire for Cherry Ridge to manufacture these items once the concept reaches production. John has produced and sold nearly \$14,000 worth of products in 2012.

2011- 2012 “Got Cedar” Workshop Series - The Got Cedar Workshops Series was targeted at Kentucky’s private landowners in central Kentucky with eastern redcedar on their property. It was designed to educate landowners about the eastern redcedar resource and provide information that will help them manage and market it. The workshop series was a partnership of the UK Forestry Extension, local county extension agents and their offices, the Kentucky Division of Forestry, Kentucky Association of Consulting Foresters, and companies in the redcedar industry. 70 people attended the workshops impacting 3,340 acres. Exit evaluations showed that participants had a 53.83% improvement in knowledge gained and 93.2% indicated that the workshops will help them better manage their woodlands. The long-term impacts from this program will result in participants’ enhanced ability to address a variety of woodland related issues, resulting in: increased revenue, increased woodland productivity, and improved woodland. One workshop was conducted in the current year, April 30, 2012 at the Kenton County Extension Office.

2011 “Got Cedar Now What” Workshop Series The Got Cedar Workshops Series was targeted at Kentucky’s private landowners in central Kentucky with eastern redcedar on their property. It was designed to educate landowners about the eastern redcedar resource and provide information that will help them manage and market it. The workshop series was a partnership of the UK Forestry Extension, local county extension agents and their offices, the Kentucky Division of Forestry, Kentucky Association of Consulting Foresters, and companies in the redcedar industry.

These workshops were conducted on March 24, 2011 at the Franklin County Extension Office and April 12, 2011 at the Bracken County Extension Office. Two hundred and fifteen people attended the workshops impacting 12,028 acres. Exit evaluations showed that participants had a 45.85% improvement in knowledge gained and 91.21% indicated that the workshops will help them better manage their woodlands. The long-term impacts from this program will result in participants' enhanced ability to address a variety of woodland related issues, resulting in: increased revenue, increased woodland productivity, and improved woodland health

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 7 people attending, 60% improvement in knowledge gained. 5/18/11 & 5/19/11. \$644,991.00 impacted (earned or saved) per year.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 5 people attending, 63% increase in knowledge gained. 4/05/11 & 4/06/11. \$707,354.40 impacted (earned or saved) per year.

Emerald Ash Workshop Series facilitated and sponsored by the University of Kentucky's Department of Forestry Extension Staff. Five of those workshops occurred in summer/fall of 2010:

May 20th in Morehead, KY

July 12th, 2010 London, KY

August 23rd, Owenton, KY

September 18th, The Kentucky Wood Expo, Madisonville, KY

October 1, Mountain Ag Field Day, RCARS, Jackson, KY

These workshops were attended by 122 people.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 2 people attending, 60% knowledge gained. 12/9/10 & 12/10/10. \$345,714.00 impacted (earned or saved) per year.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 7 people attending, 86% improvement in knowledge gained. 12/17/09 & 12/18/09. \$1,153,165.20 impacted (earned or saved) per year.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 2 people attending, 5/29/09 & 5/30/09. \$147,094.00 impacted (earned or saved) per year.

Wood Machining Defects Associated with Moisture Content, presentation, topics included various types of machining defects related to moisture content and their possible cures, how to avoid these problems in kiln, and who may be to blame. Ohio Valley Lumber Drying Association 2009 Spring Meeting. Japer, IN, 22 people attending, 4/16/09.

Certification for Kentucky Forests & Products Seminar, presentation on the “Global & Economic Ramifications of Certification”, topics included, the origin of certification, what certification means, why organizations need certification, and problems it will cure (illegal logging), Lexington, KY, Fayette County Extension Office, 110 registered, 1/27/09

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 3 people attending, 10/02/08 & 10/03/08. \$585,816.00 impacted (earned or saved) per year.

Introduction to Internet Marketing, presentation, marketing products on the internet, ecommerce, and developing websites; 2008 Robinson Forest Field Day. Quicksand, KY, 18 people attending, 9/25/08.

What is Forestry, presentation, Forest Conservation act, Forest Inventories, careers in forestry, products made from trees, economic impacts of forestry in Kentucky, and wood properties; 2008 Robinson Forest Field Day. Quicksand, KY, 27 youth attending, 9/26/08.

FRU/THC RANGER/TECHNICIAN Level II Training Course, presentation, Secondary Wood Industry; creating a cutting bill, calculating yield, processing costs, and the Primary and Secondary Directories. Quicksand, KY, 6 people attending, 08/20/08

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 6 people attending, 12/13/07 & 12/14/07. \$906,048.00 impacted (earned or saved) per year.

Woodworking Machine Tooling and Gluing Seminar, presentation, Technical Training Program; Program designed to educate supervisors, managers, and mill operators on methods for using and determining appropriate tooling and for identifying machining defects and proper corrective methods. Louisville, KY, 27 people attending, 9/6/07 - 9/7/07.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 5 people attending, 08/30/07 & 08/31/07. \$853,149.00 impacted (earned or saved) per year.

FRU/THC RANGER/TECHNICIAN Level II Training Course, presentation, Secondary Wood Industry; creating a cutting bill, calculating yield, processing costs, and the Primary and Secondary Directories. Quicksand, KY, 24 people attending, 08/26/07

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 4 people attending, 08/02/07 & 08/03/07. \$306,583.00 impacted (earned or saved) per year.

Introduction to Hardwood Lumber Grades, presentation, Technical Training Program; Training designed to cover the fundamentals of hardwood lumber inspection and to give the attendees the opportunity for hands-on application of the rules. Jeffersonville, KY, 2 people attending, 05/17/07

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 3 people attending, 03/22/07 & 03/23/07. \$202,989.00 impacted (earned or saved) per year.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 5 people attending, 01/25/07 & 01/26/07. \$1,031,236.00 impacted (earned or saved) per year.

Blue Print Reading for The Wood Industry, presentation, Introduction to blueprint reading as it applies to the woodworking industry. Objectives are that upon completion of this training the students should be able to effectively sketch isometric, oblique, and three view multi-view drawings and be able to effectively read and understand basic shop drawings/quick reference sheets. Location: American Woodmark, Hazard KY plant. 10 attended; winter 2007 (10-2 hr sessions were conducted).

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 3 people attending, 08/24/06 & 08/25/06. \$202,257.00 impacted per year.

Introduction to Hardwood Lumber Grades, co-instructed Technical Training Program; Training designed to cover the fundamentals of hardwood lumber inspection and to give the attendees the opportunity for hands-on application of the rules. Quicksand, KY, 16 people attending, 05/24/06 - 05/26/06.

CNC Template Making, presentation, Technical Training Program; Training designed to teach appropriate methods on designing and machining templates using CNC equipment. These templates are used in the creation of profiled tools used in moulding operations. Customized training for Styline Industries in Litchfield, KY, 3 people attending, 03/14/06 & 03/15/06.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders

on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 6 people attending, 03/30/06 & 03/31/06. \$1,944,627.40 impacted per year.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 6 people attending, 02/20/06 & 02/21/06. \$ 454,977.60 impacted per year.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 6 people attending, 12/15/05 & 12/16/05. \$625,567.80 impacted per year.

FRU/THC RANGER/TECHNICIAN Level II Training Course, presentation, CNC Machining. Covered such things as CNC Code, converting toolpaths into G-code, Posting toolpaths, and basic operations of a CNC router. Quicksand, KY, 14 people attending, 08/26/06.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 4 people attending, 07/14/05 & 07/15/05. \$334,884 impacted per year.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 6 people attending, 06/23/05 & 06/24/05. 2,145,033.00 impacted per year.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 4 people attending, 03/24/05 & 03/25/05. \$2,075,924.40 impacted per year.

Introduction to Hardwood Lumber Grades; co-instructed, Technical Training Program; Training designed to cover the fundamentals of hardwood lumber inspection and to give the attendees the opportunity for hands-on application of the rules. Quicksand, 7 people attending, 03/21/05 & 03/22/05. \$9,000.00 impacted per year.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 6 people attending, 03/15/05 & 03/16/05. \$793,056.00 impacted per year.

Profile Knife Grinding and Moulder Set-up and Operation, instructor, Technical Training Program; Training designed to educate supervisors, moulder operators, and profile knife grinders on the appropriate methods of grinding profile knives and setting up moulders. Quicksand, KY, 8 people attending, 02/24/05 & 02/25/05. \$1,361,276.40 impacted per year.

Industry Service:

The Center for Forest and Wood Certification: The CFWC currently has 50 CoC members, 29 of which have purchase and/or sold certified materials during 2014. The CFWC was developed in 2010. Major accomplishments to date include the development of operation manuals for Forest Stewardship Council (FSC) and American Tree Farm System (ATFS) forest management Group certificates and Chain of Custody group certificates for FSC and Sustainable Forest Initiative (SFI). \$6,000,000 worth of certified products were moved by CFWC members in 2014.

2014 Tooling and Product Design and Development: This program was developed to provide assistance to Secondary Wood Manufacturers in the development of new products. The program is able to make recommendations about how to design the products and manufacture the tools required for these products in a way that will significantly reduce error, set-up time, and raw materials. In the current year (January 2014 to December 2014) 21 different products were produced from the assistance of this program that otherwise may have been produced in another state or country. The estimated impact in dollars earned or saved in 2014 is 52,500 for four different Kentucky Secondary Wood Producers

The Center for Forest and Wood Certification: The CFWC currently (2013) has 85 CoC members, 30 of which have purchase and/or sold certified materials during 2013. The CFWC was developed in 2010. Major accomplishments to date include the development of operation manuals for Forest Stewardship Council (FSC) and American Tree Farm System (ATFS) forest management Group certificates and Chain of Custody group certificates for FSC and Sustainable Forest Initiative (SFI). Estimated \$4,000,000 worth of certified products moved by CFWC members in 2013

Tooling and Product Design and Development: This program was developed to provide assistance to Secondary Wood Manufacturers in the development of new products. The program is able to make recommendations about how to design the products and manufacture the tools required for these products in a way that will significantly reduce error, set-up time, and raw materials. In the current year (January 2013 to December 2013) 25 different products were produced from the assistance of this program that otherwise may have been produced in another state or country. The estimated impact in dollars earned or saved in 2013 was 65,000 for four different Kentucky Secondary Wood Producers.

Emerald Ash Borer Workshop. Description and Outputs: Emerald Ash Borer Workshop, Pulaski County Extension Office, 8/14/2012. Per request from Somerset Wood Products I put together an EAB workshop to address some concerns developing issues related to the EAB quarantine. Industry personnel increased their knowledge base by 100%. Four firms were represented.

The Center for Forest and Wood Certification: The Center for Wood and Forest Certification (CFWC) is a partnership for developing solutions to forest and wood certification and was developed to facilitate certification in the central hardwood and southern Appalachian regions. The Center is a hub for certification projects and functions as both a certification incubator assisting forest industry and forestry consultants grow their certification efforts as well as

providing certification options for forest and small woodlands certification. The CFWC coordinates these efforts to ensure effective and sustainable development of certified forests and wood. The Center works by coordinating, developing, and administering these projects. The Center encompasses a network of partners which are necessary for achieving success in sustainable forest and wood certification. A number of forest industries, consultants, woodland owners, and organizations are currently involved with projects administered under the Center. The coordinated and strategically designed projects provide direct assistance to forest industries, foresters, and woodland owners as well as explore avenues to enhance certification efforts. The CFWC currently has 60 CoC members, 10 of which have sold certified materials during 2012. The CFWC was developed in 2010. Major accomplishments to date include the development of operation manuals for Forest Stewardship Council (FSC) and American Tree Farm System (ATFS) forest management Group certificates and Chain of Custody group certificates for FSC and Sustainable Forest Initiative (SFI). In addition, the CFWC (particularly UK Forestry Extension) provided assistance to four Kentucky sawmills in their successful pursuit of FSC individual Chain of Custody certification. These four sawmills represent nearly 70 million board feet of lumber production annually. Estimated \$105,000 worth of certified products moved by CFWC members in 2012.

American Woodmark's Six Sigma Project: In the spring of 2011 American Woodmark's Hazard Plant contacted UK Forestry Extension to help them with a Six Sigma project designed to improve their first pass yield on four of their moulders. Historically these processes have only had a 60% first pass yield. UK Forestry Extension conducted an onsite evaluation of their procedures & methods, tooling, and statistical reports they had been generating as a result of the project. Following the evaluation a list of suggestions was provided to the project team leader for improving their first pass moulder yield. Many of these suggestions were implemented by the plant in a test pilot project and as a result their first pass yield improved from 59.4% to 75.9% and their scrap rate fell from 7.1% to 4.2% reducing what they were throwing away by nearly 3%. These improvements in first pass yield and reduction in scrap equate to a saving of \$15,637.67 annually per machine. The total impact of all four moulders equals 62,550.68 in dollars saved per year.

Thin Flooring Development Project, Lebanon Oak Flooring, assisted with the development/design of a high quality low cost flooring product. The thickness of the traditional flooring was reduced to 5/16" so that two pieces of flooring could be made from one piece, cutting material in half. Spring 2009.

Update of The Kentucky Forest Products Industry On-Line Directory, information collected by the Kentucky Division Forestry from their Kentucky Timber Product Output survey was used to update the information on 327 companies listed in the on-line directory. Spring 2009.

Northern Kentucky Cedar CNC Router Purchase, onsite consultation and instruction, I helped them identify some key elements of the machine that would need some repair and professional attention and gave a short presentation on machine language "Gcode". How can you create the gcode (using CAD) and then how to get the machine to read and execute the code? Northern Kentucky Cedar, 11/25/08

Product Design and Template Making Program, consultation/service, this program is designed to provide assistance to small moulding and woodworking businesses who manufacture wood components using moulding and shaping equipment. The end result is templates of the redesign are created using equipment at the UK Wood Utilization Center. These templates are required to help them produce the tooling needed for the best performance. In 05/06 templates for 181 products were created, in 07/08 232 were created, and in 09 57 have been created so far.

Kentucky Forest Products Industry On-Line Searchable Directory, The Secondary and Primary Wood Industry Directories were combined to create a single database that represents the entire Kentucky Forest Products Industry. From this combined database a webpage has been created for searching and printing information. Project Partners: The Kentucky Division of Forestry and UK College of Agriculture Communications; <http://www.ca.uky.edu/kentuckywoodindustry/>; 2008.

Moulder TPM (Total Production Maintenance) Kaizen Event, team member, developed and documented calibration process, developed daily, monthly, and yearly preventative maintenance schedules, and 5'S work area; TPM scan improvement from 55% to 82% and 5'S audit improvement 1.39 to 2.6, 53.5% improvement; American Woodmark, Hazard, KY, 8/4/08 – 8/9/08.

Plant Layout & Design, Mountaineer Furniture, consultation/service, a drawing or plat was created for the company's entire manufacturing facility. The plat was used to determine the location of the equipment and dust collection system. 01/2007.

American Woodmark Yield Improvement Program, Developed process and tools for identification of non-compliant materials early in the manufacturing process before labor and machine time have been added. 2002 - current.

Forklift Train the Trainer, program designed to train forklift trainers on the proper safety techniques regarding operating forklifts; a packet of information is provided that includes training materials, tests, documents for certifying operators, and DVD; program was developed in 1999; 15 Companies requested packets in 2007 & 2008. These companies trained approximately 229 employees.

Identify and Resolve Manufacturing Abnormalities, Thornberry Enterprises, consultation/service, I helped them resolve quality issues they were experiencing pertaining to raised grain. Provided articles and other educational materials that helped them better understand the problem. In addition, I made several in plant visits for data collection and evaluation. 2007.

Plant layout & design, Thornberry Enterprises, consultation/service, a drawing or plat was created of the company's entire manufacturing facility. The plat was used to determine the layout for new equipment purchases that were needed to increase the efficiency and output of the plant. 2006.

Extension Programs:

Win With Wood (Youth Competition) 2014: This event was designed to acquaint/familiarize Kentucky youth with forestry/natural resources industries and potential career opportunities. This one day event encompassed nine individual and one team competition in forestry and wood technology for youth in the junior and senior 4-H age groups. The winner of the program received a \$500 scholarship to attend the UK College of Agriculture. My role in the program was the program coordinator and manager. 10/16/14. 165 youth competed in event.

Kentucky Wood Expo Southeast Kentucky Forestry Field (London, KY): Southeast Kentucky Forestry Field Day Youth Forestry Competition event; this event was designed for high school students in the southeast region to compete in the forestry and wood team events at the Kentucky Wood Expo. The event was designed to be offered in the years when the Kentucky Wood Expo is not being held so the event would not have to skip years. As a result of being separated from the Wood Expo, it was expanded and went on to be so successful in the initial 2011 program, the Expo committee asked the development team to mimic the event during the Expo. The event included team competitions in chain sawing, crosscut sawing, wood identification, animal hide identification, and forestry tool identification, timber cruising, tree identifications, and ax throwing. 350 youth attended/participated in the program on 9/19/14.

Cutting Board & Lazy Susan Workshop Series: Cutting Board & Lazy Susan Workshop Series (Mountain Monday & others)– I conducted eight of these workshops, 12/12/13, 3/25/14, 4/23/14, 8/11/14 (mountain Monday program), 9/27/14 (Mountain AG Field Day), 10/6/14, 10/30/14, & 11/11/14 (Picking Time). Each participant made their own cutting board/lazy susan and was able to customize their cutting board/lazy susan with lettering using the laser engraver. During the workshop we explained why these species of woods were chosen to produce these cutting boards/lazy susans. During these workshops I discussed/provided general information pertaining to forestry practices in Kentucky including the Forest Conservation Act and its impact on our forest and the economic impact the Forest Products Industry has on Kentucky's economy. I also discussed the impact each species has on the industry, the characteristics and qualities each one processes, and the abundance and health of each species. The species we used for the cutting boards were ash, maple, and walnut and as part of the workshop I gave a presentation on the status of the Emerald Ash Borer, Thousand Cankers Disease, and the Asian Longhorn Beetle and their impacts as they relate to each species. We also talked about why cutting boards are typically produced in this manner and the long term care and use of the cutting boards. These were hands-on workshops and each participant got the opportunity to router, sand, laser engrave, and finish their individual boards. The lazy susans were made using

Southeast Kentucky Forestry Field (held during the Kentucky Wood Expo, Masterson Station Park, Lexington, KY): Southeast Kentucky Forestry Field Day Youth Forestry Competition event; this event was designed for high school students in the southeast region to compete in the forestry and wood team events at the Kentucky Wood Expo in Lexington. The event was originally designed to be offered in the years when the Kentucky Wood Expo is being held in the Western region of the state so the students in southeast would not have to skip years. As a result of being separated from the Wood Expo, it was expanded and went on to be so successful in the initial 2011 program, the Expo committee asked the development team to mimic the event

during the Expo. The event included team competitions in chain sawing, crosscut sawing, wood identification, animal hide identification, and forestry tool identification, timber cruising, tree identifications, and ax throwing. 350 youth attended/participated in the program on 9/20/13.

Win With Wood (Youth Competition) 2013: This event was designed to acquaint/familiarize Kentucky youth with forestry/natural resources industries and potential career opportunities. This one day event encompassed nine individual and one team competition in forestry and wood technology for youth in the junior and senior 4-H age groups. The winner of the program received a \$500 scholarship to attend the UK College of Agriculture. My role in the program included; WWW development committee member, created and updated training materials as needed for several of the events, wood id judge, and wrote program for adding and totaling scores, and score keeping. 10/17/13. 138 youth competed in the event.

Cutting Board & Lazy Susan Workshop Series (Mountain Monday & Wood Expo): Description and Outputs: Cutting Board & Lazy Susan Workshop Series (Mountain Monday & Wood Expo)– I conducted three of these workshops, 8/12/2013, two on 10/21/2013, two during the “Picking Time Event at the Robinson Center for Appalachian Resources Sustainability 11/2/2013 and one program during the 2013 Kentucky Wood Expo, 350 people attend this workshop. We walked them through the process of making hardwood cutting boards or lazy susans depending on the situation. Each participant made their own cutting board/lazy susan and was able to customize their cutting board/lazy susan with lettering using the laser engraver. During the workshop we explained why these species of woods were chosen to produce these cutting boards/lazy susans. During these workshops I discuss/provided information related to the economic impact the Forest Products Industry has on Kentucky’s economy. I also discussed the impact each species has on the industry, the characteristics and qualities each one processes, and the abundance and health of each species. The species we used for the cutting boards were ash, maple, and walnut and as part of the workshop I gave a presentation on the status of the Emerald Ash Borer, Thousand Cankers Disease, and the Asian Longhorn Beetle and their impacts as they relate to each species. We also talked about why cutting boards are typically produced in this manner and the long term care and use of the cutting boards. These were hands-on workshops and each participant got the opportunity to router, sand, laser engrave, and finish their individual boards. The lasy susans were made using cherry.

Southeast Kentucky Forestry Field (held at the Laurel County Fairgrounds, London, KY): This event was designed to acquaint/familiarize Kentucky youth with forestry/natural resources industries and potential career opportunities. This one day event encompassed nine individual and one team competition in forestry and wood technology for youth in the junior and senior age groups. The winner of the program received a \$500 scholarship to attend the UK College of Agriculture. 10/14/12.

Win With Wood (Youth Competition) 2012: This event was designed to acquaint/familiarize Kentucky youth with forestry/natural resources industries and potential career opportunities. This one day event encompassed nine individual and one team competition in forestry and wood technology for youth in the junior and senior 4-H age groups. The winner of the program received a \$500 scholarship to attend the UK College of Agriculture. My role in the program included; WWW development committee member, created and updated training materials as

needed for several of the events, wood id judge, and wrote program for adding and totaling scores, and score keeping. 10/18/12. 101 youth competed in the event.

Mountain Monday “Cutting Board Workshop Series”: Mountain Monday “Cutting Board Workshop Series” – I conducted six of these workshops, 3/12/2012, 8/13/2012, 12/5/2012 and three during the “Taste of The Mountain Field Day” Robinson Center for Appalachian Resource Sustainability, 9/22/2012. Seventy three individuals attended these workshops. We walked them through the process of making hardwood cutting boards in today’s computer tech modern world. Each participant made their own cutting board was able to customize their cutting board with lettering using the laser engraver. During the workshop we explained why these species of woods were chosen to produce these cutting boards. We discuss the economic impact each one has on the state of Kentucky, the characteristics and qualities each one processes, and the abundance and health of each species. The species we used for the cutting boards were ash, maple, and walnut and as part of the workshop I gave a presentation on the status of the Emerald Ash Borer, Thousand Cankers Disease, and the Asian Longhorn Beetle and their impact on these species. We also talked about why cutting boards are typically produced in this manner and the long term care and use of the cutting boards. These were hands-on workshops and each participant got the opportunity to router, sand, laser engrave, and finish their individual boards.

Cutting Board Workshop Series: This program is designed as a hands-on workshop; the intent of the workshops is to provide basic information regarding the Emerald Ash Borer, Thousand Cankers Disease (Twig beetle), and the Long Horned Asian Beetle. These bugs are threatening several species of hardwoods growing in our region of Kentucky. The species selected to make the cutting are those species being attacked by these bugs. There have been two workshops conducted to date; August 8th, 2011 and August 22nd, 2011. 31 people attended these workshops.

Win With Wood (Youth Competition) 10: This event was designed to acquaint/familiarize Kentucky youth with forestry/natural resources industries and potential career opportunities. This one day event encompassed nine individual and one team competition in forestry and wood technology for youth in the junior and senior age groups. The competitive events are: Compass and Pacing, Forestry Equipment Identification, Tree Identification, Tree Measurement, Wood Identification, Woodworking Tool Identification, Soil Judging, Invasive Species, Individual Woodworking Project and Team Woodworking project. My participation in the event included: the development and planning committee, event judging, developing score keeping software, and site preparation. 129 youth participated from Magoffin, Wolfe, Breathitt, McCreary, Cater, and Knot counties in addition cooperative extension agents, agriculture teachers, UK personnel, Kentucky Division of Forestry personnel, forest industry leaders, and other interested individuals participated in the planning and coordination of the event. The highest scoring senior (Jonathon May of Magoffin County High School) won a \$500.00 scholarship to attend the College of Agriculture, University of Kentucky. UK Wood Utilization Center, Robinson Research Station, Quicksand, KY 10/14/10.

Southeast Kentucky Forestry Field Day: The forest products industry is a key component of the economy in southeast Kentucky. As a result several local high schools teach forestry as a part of their vocational agriculture program. At the request of vocational agriculture teachers the CES agents in District 2 hosted the Southeast Kentucky Forestry Field Day on Tuesday, September

28, 2010. The event was held in Knox County near Corbin. A total of 425 people from 8 schools participated. One team from each school competed in a contest of forestry skills. The contest consisted of 10 events: tree, tool, wood, and wildlife identification, timber cruising, log scaling, timber stand improvement, chainsaw use, crosscut saw use, and a written test. CES participation included 6 ANR agents, 1 4H agent, 1 district director, and 2 specialists. Cooperators were as follows: Wayne Supply Company, Stihl (Bryan Equipment Company), Knox Hardwoods, Forest Products Inc., Kentucky Division of Forestry, UK Forestry Extension, and the Southeast Kentucky Vegetable Co-Op. Students gained forestry knowledge in each event and had the opportunity for hands-on experiences that are not available in the school classroom. UK Forestry Extension provided staff for the development committee, helped secure resources, and ran one of the contests involved in the field day

Gave short presentation for the KCTS Tour of RCARS, topics covered EAB quarantine, Forest and Wood Products Certification, state of the wood industry in Kentucky, and the technical trainings and various programs conducted at the Center. 24 people attended, UK Wood Utilization Center, Robinson Center for Appalachian Resource Sustainability, Quicksand, KY 7/16/09.

Win With Wood (Youth Competition) 09: This event was designed to acquaint/familiarize Kentucky youth with forestry/natural resources industries and potential career opportunities. This one day event encompassed nine individual and one team competition in forestry and wood technology for youth in the junior and senior age groups. The competitive events are: Compass and Pacing, Forestry Equipment Identification, Tree Identification, Tree Measurement, Wood Identification, Woodworking Tool Identification, Soil Judging, Invasive Species, Individual Woodworking Project and Team Woodworking project. My participation in the event included: the development and planning committee, event judging, developing score keeping software, and site preparation. 108 youth participated from Magoffin, Wolfe, Breathitt, McCreary, Cater, and Knot counties in addition cooperative extension agents, agriculture teachers, UK personnel, Kentucky Division of Forestry personnel, forest industry leaders, and other interested individuals participated in the planning and coordination of the event. The highest scoring senior (Jonathon May of Magoffin County High School) won a \$500.00 scholarship to attend the College of Agriculture, University of Kentucky. The Win With Wood program received a \$2,000.00 award from the Ag & HES Alumni Association in 2009. UK Wood Utilization Center, Robinson Research Station, Quicksand, KY 10/16/09.

KCTS Tour of RCARS, short presentation, topics covered EAB quarantine, Forest and Wood Products Certification, state of the wood industry in Kentucky, and the technical trainings and various programs conducted at the Center. 24 people attended, UK Wood Utilization Center, Robinson Center for Appalachian Resource Sustainability, Quicksand, KY 7/16/09.

Wood Identification, presentation, how to identify 20 Kentucky native species of wood. 30 kids from the Robinson Scholar's program attended the program. 6/8/09.

Win With Wood (Youth Competition) 08: This event was designed to acquaint/familiarize Kentucky youth with forestry/natural resources industries and potential career opportunities. This one day event encompassed nine individual and one team competition in forestry and wood

technology for youth in the junior and senior age groups. The competitive events are: Compass and Pacing, Forestry Equipment Identification, Tree Identification, Tree Measurement, Wood Identification, Woodworking Tool Identification, Soil Judging, Invasive Species, Individual Woodworking Project and Team Woodworking project. My participation in the event included: the development and planning committee, event judging, developing score keeping software, and site preparation. 91 youth participated from Magoffin, Wolfe, Breathitt, McCreary, Cater, and Knot counties in addition cooperative extension agents, agriculture teachers, UK personnel, Kentucky Division of Forestry personnel, forest industry leaders, and other interested individuals participated in the planning and coordination of the event. The highest scoring senior (Jonathon May of Magoffin County High School) won a \$500.00 scholarship to attend the College of Agriculture, University of Kentucky. The Win With Wood program received a \$1,000.00 grant from the Barnhart Fund for Excellence for the 2008 event. UK Wood Utilization Center, Robinson Research Station, Quicksand, KY 10/16/08.

EBay Project Sale for Woodcrafters in Southeast Kentucky: this project was conducted to determine the eBay value of crafts being produced in this region of Kentucky. Information was collected regarding the best way to promote and sale these items on eBay. This information was made to be available for dissemination upon completion and determination of successes. Fall 2008.

Breathitt County High School “Introduction to CNC Machining”: Program designed to introduce High School students to the processes used to machine and produce wood products using computer controlled equipment. The students created designs using CAD in their local classrooms. These designs were used to create toolpaths and G-code at the UK Wood Utilization Center for CNC routing and later used for laser engraving emblems on their designs. 13 students from Breathitt County High School participated in program; Quicksand, KY 12/09/08.

Robinson Station All Commodities Field Day, Development committee, chaired exhibit committee, Workshop on history and manufacture of shaker boxes; Quicksand, KY, 9/25/08.

Central Kentucky Home and Garden Show, Exhibited materials on the Ohio Valley Lumber Drying Association, The UK Wood Utilization Center Technical Training Series, UK College of Agriculture Cooperative Extension Forestry Programs, the UK undergraduate Forestry and Natural Resource programs, and Extension and research publications related to Forestry and the Forest Products Industry. Several thousand people from the surrounding area attended the show. Lexington, KY 4/1/07 & 4/10/08.

Breathitt County High School “Introduction to CNC Machine Control”, Program designed to introduce High School students to the processes used to machine and produce wood products using computer controlled equipment. The students created designs using CAD in their local classrooms. These designs were used to create toolpaths and G-code at the UK Wood Utilization Center for CNC routing and later used for laser engraving emblems on their designs. 16 students from Breathitt County High School participated in program; Quicksand, KY 5/09/08.

Win With Wood (Youth Competition) 07: This event was designed to acquaint/familiarize Kentucky youth with forestry/natural resources industries and potential career opportunities. This

one day event encompassed nine individual and one team competition in forestry and wood technology for youth in the junior and senior age groups. The competitive events are: Compass and Pacing, Forestry Equipment Identification, Tree Identification, Tree Measurement, Wood Identification, Woodworking Tool Identification, Soil Judging, Invasive Species, Individual Woodworking Project and Team Woodworking project. My participation in the event included: the development and planning committee, event judging, developing score keeping software, and site preparation. 91 youth participated from Magoffin, Wolfe, Breathitt, McCreary, Carter, and Knott counties in addition cooperative extension agents, agriculture teachers, UK personnel, Kentucky Division of Forestry personnel, forest industry leaders, and other interested individuals participated in the planning and coordination of the event. The highest scoring seniors (Brenna Cooke of Carter County and Ben Cornett of Knott County) won a \$500.00 scholarship each to attend the College of Agriculture, University of Kentucky. The Win With Wood program received a \$1,000.00 grant from the Barnhart Fund for Excellence for the 2008 event. UK Wood Utilization Center, Robinson Research Station, Quicksand, KY 5/8/07.

Win With Wood (Agent Training): presentation, Wood Identification, in addition to the presentation training tools for the agents were developed for them to use to teach, wood id, working tool id, and forestry tool id. The presentation covered 20 native species to Kentucky and how to use all of the training tools that were created. UK Wood Utilization Center, Robinson Research Station, Quicksand, KY 3/6/07.

Central Kentucky Home and Garden Show, Exhibited materials on the Ohio Valley Lumber drying Association, The UK Wood Utilization Center Technical Training Series, UK College of Agriculture Cooperative Extension Forestry Programs, the UK undergraduate Forestry and Natural Resource programs, and Extension and research publications related to Forestry and the Forest Products Industry. Several thousand people from the surrounding area attended the show. Lexington, KY 4/1/06.

Robinson Station All Commodities Field Day, Development committee, chaired transportation committee, gave presentation on adding value to wood products, judged and facilitated The Win With Wood Program. 511 attended the field day, Quicksand, KY, 9/28/06.

Professional Meetings:

2014 Ohio Valley Lumber Drying Association Meetings: Two meetings, each two days long, were conducted by UK Forestry Extension personnel. The spring meeting was held April 17-18, 2014 in Millersburg, Ohio. The fall meeting was held November 13 – 14, 2014 in Louisville, Kentucky. These meetings provided information and technical assistance to 67 hardwood industry people to improve their drying facilities yields. Meeting attendees increased their knowledge of drying hardwood lumber enough to increase their annual dollar savings an estimated 24,000,000.00 dollars

Kentucky Forest Industry Association Annual Meeting, 2011 - 2015; Certification booth, exhibited materials on Forest Management and Chain of Custody Certification, the Ohio Valley Lumber drying Association, The UK Wood Utilization Center Technical Training Series, UK College of Agriculture Cooperative Extension Service Forestry Programs, and The

Undergraduate Forestry Program at UK. Meetings occurred 3/24/010 – 3/26/10, Lexington, KY, 4/13/11 – 4/15/11 Lexington, KY, 3/28/12 – 3/30/12 Louisville, KY, 4/3/13 – 4/5/13, Lexington, KY, 4/2/14 – 4/4/14, Louisville, KY, and 3/25/15 – 3/27/15, Lexington, KY. While at the meeting attended the Certification Committee Meeting Provided IT support for all of the committee meeting and main meeting.

The 2013 Kentucky Wood Expo: The Kentucky Wood Expo is a regional wood products show. The 2013 show was held in Lexington, KY at the Masterson Station Park on September 20th and 21th. 5000 visitors attended the show. There were over 80 exhibitors at the show and all of them had a chance to demonstrate equipment and provided attendees hands on opportunities to operate everything from wood processing equipment to rolling stock. The Wood Expo also had a special program for school aged children which took place on Friday, September 20th. The program gave school children a chance to see all the activities and view the many interesting exhibits. Also a number of special educational activities were conducted to help teach children the important aspects of wood products and forests in their everyday life. All schools were invited to attend and Kentucky Forest Industry Association members purchased tickets to cover the admission costs for the several hundred children that attended the Show. The University of Kentucky Cooperative Extension staff and undergraduate Forestry students supported the show in many different ways including; setting on the Expo Development Committee, facilitating, organizing, and participating in the children's programs, development of forestry educational programs, and the setup and teardown (cleaning up) of the show grounds. UK Forestry Extension provided staff for five days from September 16th through the 23rd for organizing and facilitation, setup, and teardown. The 2015 Kentucky Wood Expo is already in the development stage and will take place on September 19th and 20th back at Masterson Station Park in Lexington, Ky.

The 2010 Kentucky Wood Expo: The Kentucky Wood Expo is a regional wood products show. The 2010 show was held in London, KY on September 16th and 17th and 4000 visitors attended the show. There were over 60 exhibitors at the show and all of them had a chance to demonstrate equipment and provided attendees hands on opportunities to operate everything from wood processing equipment to rolling stock. The Wood Expo also had a special program for school aged children which took place on Friday, September 16th. The program gave school children a chance to see all the activities and view the many interesting exhibits. Also a number of special educational activities were conducted to help teach children the important aspects of wood products and forests in their everyday life. All schools were invited to attend and Kentucky Forest Industry Association members purchased tickets to cover the admission costs for the 1200 children that attended the Show. The University of Kentucky Cooperative Extension staff and undergraduate Forestry students supported the show in many different ways including; setting on the Expo Development Committee, facilitating, organizing, and participating in the children's programs, and the setup and teardown (cleaning up) of the show grounds. UK Forestry Extension provided staff for five days from September 13th through the 28th for organizing and facilitation, setup, and teardown. The 2011 Kentucky Wood Expo is already in the development stage and will take place on September 15th and 16th in London, Ky.

Kentucky Forest Industry Association Annual Meeting, 2010; Certification booth, exhibited materials on Forest Management and Chain of Custody Certification, the Ohio Valley Lumber

drying Association, The UK Wood Utilization Center Technical Training Series, UK College of Agriculture Cooperative Extension Service Forestry Programs, and The Undergraduate Forestry Program at UK. 3/24/010 – 3/26/10, Lexington, KY. While at the meeting attended the Certification Committee Meeting Provided IT support for all of the committee meeting and main meeting

Ohio Valley Lumber Drying Association Directors Meeting, These meetings occur twice a year and are used as a means of directing the association and planning for meetings and short courses that may need to be conducted for the industry. Meetings occurred on 2/25/10 & 9/21/10.

Ohio Valley Lumber Drying Association 2010 Spring Meeting; Technical program included Drying Thick Hardwood Lumber conducted by Dr. Gene Wengert, Emeritus Professor, University of Wisconsin-Madison and President of The Wood Doctor's Rx.); Tours of Industrial Timber and Lumber Co. (Hamden, OH) and Superior hardwoods of Ohio (Wellston, OH). 24 people attended the meeting, 04/15/10 & 04/16/10.

Ohio Valley Lumber Drying Association 2010 Fall Meeting; Technical program included Operating Hardwood Predryers conducted by Thom Brown of SII Dry Kilns, Hardwood Export Opportunities conducted by Cathy Cao, International Trade Specialist, Kentucky Cabinet for Economic Development, and University extension Activities conducted by DR. Adam Taylor, UT Forest Products Specialist. 14 Attended the meeting, 11/18/10 & 11/19/10.

Kentucky Forest Industry Association Annual Meeting, 2009; Certification booth, exhibited materials on Forest Management and Chain of Custody Certification, the Ohio Valley Lumber drying Association, The UK Wood Utilization Center Technical Training Series, UK College of Agriculture Cooperative Extension Service Forestry Programs, and The Undergraduate Forestry Program at UK. 4/1/09 – 4/3/09, Lexington, KY. While at the meeting attended the Secondary Wood Industry Committee Meeting, took minutes and gave short presentation on current activities UK Forestry Extension is doing in regards to the secondary industry.

Ohio Valley Lumber Drying Association Directors Meeting, These meetings occur twice a year and are used as a means of directing the association and planning for meetings and short courses that may need to be conducted for the industry. Meetings occurred on 1/14/09 & 8/6/09.

Ohio Valley Lumber Drying Association 2009 Spring Meeting; Technical program included Wood Machining Defects Associated with Moisture Content conducted by Bobby Ammerman (University of Kentucky), Hardwoods & Moisture & Gluing conducted by Kent Pitcher (CP Adhesives), and The Effects of Moisture Content on Conditioning and Stress on Machining Lumber conducted by Jim Steen (Pike Lumber); Tours of Master Brand Cabinets Inc. (Jasper, IN) and Thermwood Corporation (Dale, IN) were conducted on the last day of the meeting. 22 people attended the meeting, 04/16/09 & 04/17/09.

Kentucky Forest Industry Association Annual Meeting, 2009; Certification booth, exhibited materials on Forest Management and Chain of Custody Certification, the Ohio Valley Lumber drying Association, The UK Wood Utilization Center Technical Training Series, UK College of

Agriculture Cooperative Extension Service Forestry Programs, and The Undergraduate Forestry Program at UK. 4/1/09 – 4/3/00, Lexington, KY.

Kentucky Forest Industry Association Annual Meeting, 2007 and 2008; Exhibited materials on the Ohio Valley Lumber drying Association, The UK Wood Utilization Center Technical Training Series, UK College of Agriculture Cooperative Extension Service Forestry Programs, and The Undergraduate Forestry Program at UK. 4/12/07 – 4/13/07 Louisville, KY and 4/3/08 – 4/4/08 Covington, KY.

Ohio Valley Lumber Drying Association Directors Meeting, These meetings occur twice a year and are used as a means of directing the association for meetings and short courses that may need to be conducted for the industry. Meetings occurred on 1/14/08.

Ohio Valley Lumber Drying Association 2009 Spring Meeting; Technical program included Wood Machining Defects Associated with Moisture Content conducted by Bobby Ammerman (University of Kentucky), Hardwoods & Moisture & Gluing conducted by Kent Pitcher (CP Adhesives), and The Effects of Moisture Content on Conditioning and Stress on Machining Lumber conducted by Jim Steen (Pike Lumber); Tours of Mater Brand Cabinets Inc. (Jasper, IN) and Thermwood Corporation (Dale, IN) were conducted on the last day of the meeting. 22 people attended the meeting, 04/16/09 & 04/17/09.

Ohio Valley Lumber Drying Association 2008 Fall Meeting; Technical program included an Advanced Drying Class conducted by Dr. Eugene Wengert and a Maintenance Workshop conducted by Bob Pope (USNR), Mike Sanders (USNR), and Milton Whitmire (USNR); topics covered in the advance drying class included; drying principles, handling prior to drying, drying details, drying oak lumber, drying white maple and other white woods, lumber storage and energy savings, and a problem clinic. Topics covered in the maintenance workshop included; heating fans, venting fans, humidification systems, control systems, enclosures, and a trouble shooting session. Tours of Keim Lumber Company (Charm, OH) and Yoder Limber Company (Millersburg, OH) were conducted on the last day of the meeting. 24 people attended the meeting, 11/19/08 – 11/21/08.

Ohio Valley Lumber Drying Association 2008 Spring Meeting, Technical program: Modern Vacuum Kilns, How I evaluate drying operations, and sustainable kiln drying. Toured Bluegrass Cooperage in Louisville, KY, 16 people attending, 04/24/08 – 04/25/08.

The Kentucky Wood Expo, generated drawings and maps of facilities for publications and exhibitor locations; facilitated setting up and tearing down all of the inside and outside exhibits; Exhibited materials on the Ohio Valley Lumber drying Association, The UK Wood Utilization Center Technical Training Series, UK College of Agriculture Cooperative Extension Forestry Programs, and The Undergraduate Forestry Program at UK. 4,000 people attending, London, KY, 9/19/07 – 9/23/07; and 2,500 attending Madisonville KY, 9/17/08 - 9/21/08.

Ohio Valley Lumber Drying Association 2007 Fall Meeting, Technical program; Drying White Woods With as Little Discoloration as Possible, Manufacturing a Usable Gas from Biomass Products, The Dollar Savings on Long Term Gas Contracts, Forest Practices on the Shawnee

National Forest, and Wildlife of The Shawnee National Forest. Shawnee State Resort Park, Friendship, OH, 30 people attending, 11/8/07 - 11/9/07.

Ohio Valley Lumber Drying Association 2007 Spring Meeting, Technical program; Migration of the Emerald Ash Bore and the Ramifications and a round table forum discussion on safety issues involving wood steamers. Scottsburg, IN, 30 people attending, 04/19/07 & 04/20/07.

Ohio Valley Lumber Drying Association 2006 Fall Meeting, Technical program; Boiler Basics, Feedwater Chemistry, Boiler Kiln Electronics. Toured Midwest Hardwoods and C.B. Goodman & Sons. Paducah, KY, approximately 20 people attending, 11/09/06 – 11/10/06.

Kentucky Forest Industry Association Annual Meeting, 2005 and 2006, exhibited materials on the Ohio Valley Lumber drying Association, The UK Wood Utilization Center Technical Training Series, UK College of Agriculture Cooperative Extension Service Forestry Programs, and The Undergraduate Forestry Program at UK. Over 1600 people attended the two day meeting in 05 and 06. 4/7/05 - 4/8/05 and 4/6/06 – 4/7/06 Lexington Ky.

The 2006 Kentucky Wood Expo, generated drawings and maps of facilities for publications and exhibitor locations; facilitated setting up and tearing down all of the inside and outside exhibits; Exhibited materials on the Ohio Valley Lumber drying Association, The UK Wood Utilization Center Technical Training Series, UK College of Agriculture Cooperative Extension Forestry Programs, and The Undergraduate Forestry Program at UK. 4,000 people attending, Madisonville KY, 9/11/06 - 9/17/06.

Ohio Valley Lumber Drying Association Directors Meeting, These meetings occur twice a year and are used as a means of directing the association for meetings and short courses that may need to be conducted for the industry. Meetings occurred on 8/16/05, 11/15/05, and 8/10/06

Ohio Valley Lumber Drying Association 2005 Fall Meeting, Joint meeting with the Southeast Dry Kiln Club; Technical program; Dry lumber storage, Heat sensing devices, Basic wood properties, and typical causes and cures for lumber staining. Toured Allegheny Wood Products, Princeton, WV. Pipestem, WV, 54 people attending, 11/01/05 – 11/03/05.

The 2005 Kentucky Wood Expo, generated drawings and maps of facilities for publications and exhibitor locations; facilitated setting up and tearing down all of the inside and outside exhibits; Exhibited materials on the Ohio Valley Lumber drying Association, The UK Wood Utilization Center Technical Training Series, UK College of Agriculture Cooperative Extension Forestry Programs, and The Undergraduate Forestry Program at UK. 5,000 people attending, London KY, 9/16/05 - 9/17/05.

Ohio Valley Lumber Drying Association 2005 Spring Meeting, Technical program; Forest Inventory Reports were given for Kentucky, Indiana, and Ohio, Tours, Thornberry Enterprises in Jeffersonville Kentucky and Freeman Corporation in Winchester, KY, 24 people attending, 04/21/05 & 04/22/05.

Professional Development:

3rd Dollars and Sense of Going Green, Conference, Indianapolis, IN 3/17/11- 3/18/11.

Dollars and Sense of Going Green, Conference, Chicago, IL 11/18/09- 11/19/09.

Remaining Competitive In the Hardwood Components Industry, Conference, Princeton, WV, April 20 & 21, 2009.

Dollars and Sense of Going Green, Conference, Indianapolis, IN 10/28/08- 10/29/08.

RedCedar: Challenge or Opportunity, Conference, Springfield, MO 8/9/07 – 8/11/08.

Kentucky Occupational Safety & Health Training Courses, Burlington, KY. 09/26/05- 09/30/05.

Hardwood Log Grade Bucking Training, Robinson Forest, Breathitt County, KY. 08/22/06- 08/24/06.

06 International Woodworking Fair, Atlanta, Ga. 08/25/06 & 08/26/06

Industry Association Membership:

Kentucky Forest Industry Association; member (also a member on the Secondary Wood Industry Committee); 1998 - present

Ohio Valley Lumber Drying Association, member (member of the board of directors); 1998-present

Kentucky Wood EXPO, (committee member); 2001 – present

CURRICULUM VITAE

Name: Darryl Wayne Cremeans

Address and Contact Information:

121A Thomas P. Cooper building
730 Rose Street
Lexington, KY 40546-0073
(859) 257-1396 (Office)
(859) 323-1031 (Fax)
dcremean@uky.edu

Current Position: Data Systems Manager, Adjunct Instructor

Degrees, with Field, Institution, and Date:

A.S., Science, University of Kentucky, 1983
B.S., Forestry with distinction, University of Kentucky, 1985
M.S., Forestry (University Scholar), University of Kentucky, 1987
Ph.D., Soil Science with Geology minor, University of Kentucky, 1992

Work Experience:

July 1995 – Present: Data Systems Manager, Department of Forestry,
University of Kentucky, Lexington, KY
January 1989 – July 1995: Scientific Analyst Programmer, Department of
Forestry, University of Kentucky, Lexington, KY

Teaching Experience:

FOR250 – Statistics and Measurements I (Fall 2015), 22 enrolled
FOR200 – Basics of Geospatial Technology (Fall 2015), 22 enrolled
FOR250 – Statistics and Measurements I (Fall 2014), 11 enrolled
FOR150 – Computer Applications in Natural Resource Professions (Spring 2014), 7 enrolled
FOR250 – Statistics and Measurements I (Fall 2013), 16 enrolled
FOR150 – Computer Applications in Natural Resource Professions (Spring 2013), 20 enrolled
FOR150 – Computer Applications in Natural Resource Professions (Spring 2012), 18 enrolled
FOR150 – Computer Applications in Natural Resource Professions (Spring 2011), 17 enrolled
FOR460G – Forest Watershed Management (Fall 1997), 19 enrolled
FOR 219 – Silvics and Tree Identification (Fall 1995), 24 enrolled
FOR 460G – Forest Watershed Management (Fall 1994), 18 enrolled
FOR 219 – Silvics and Tree Identification (Fall 1993)
FOR 564 (Lab) – Forest Soils (Fall 1991)
FOR 340 (Lab) – Forest Mensuration (Fall 1990)

Research Projects:

Co-recipient: Reviving Traditional Forestry with HP Technology. Hewlett-Packard
Technology for Teaching Higher Education Award. \$83,720 (2008-2010).

Membership in Scientific, Professional, Honor Societies:

Xi Sigma Pi (Forestry Honor Society)

Gamma Sigma Delta (Agriculture Honor Society)

Publications:

Worms, A.J. and D.W. Cremeans, 1994, A Report of Community Tourism Market Analysis - Bardstown, KY (A Prototype Example to Develop New Methodology), Univ of KY College of Ag Press, 67 pp.

Worms, A.J., C.L. Worms, and D.W. Cremeans, 1994, Motorcoach Tourists: A Market Profile, In Marketing Practices: Implications for Developing A Future Workforce, Univ of Houston College of Technology Press, pp 118-135.

Cremeans, D.W., and P.J. Kalisz, 1988, Distribution and Characteristics of Windthrow Microtopography on the Cumberland Plateau of Kentucky, Soil Sci. Soc. Am. J. 52:816-821.

Presentations:

Cremeans, D.W., Using the Personal Computer to Organize a Small Business, Second Eastern Nuisance Wildlife Control Operators Short course, Lexington, KY. Feb. 20, 1996.

Worms, A.J. and D.W. Cremeans, Report of Community Tourism Market Analysis Research Performed in Bardstown, Kentucky. Bardstown-Nelson County Tourism Commission and Community Businesses. July, 1995.

Worms, A.J., C.L. Worms and D.W. Cremeans, Motorcoach tourists: a market profile. The National Marketing Education Conference. Key West, FL. April, 1994.

Worms, A.J. and D.W. Cremeans, Report of Community Tourism Analysis: A Prototype Example to Develop New Methodology. Bardstown-Nelson County Tourism Commission. February, 1994.

Cremeans, D.W., 1993, Forest Disturbance by Treethrow, Nat. Res. Newsletter 12(2), Univ. of KY Dept. of For., Lexington.

Stringer, J.W. and D.W. Cremeans, 1991, TREEGRAD: A Grading Program for Eastern Hardwoods, USDA For. Serv. NE For. Exp. Stat. Gen. Tech. Rep. NE-148, pp 598-599.

Cremeans, D.W. and P.J. Kalisz, 1990, Aspect Influence on Moisture and Soil Properties in the Mountains of Eastern Kentucky, Agronomy Abstracts, p 331.

Cremeans, D.W. and P.J. Kalisz, 1986, Spatial Patterns of Windthrow Microtopography in a Mountainous Landscape, Agronomy Abstracts, p 259.

Service and Recognition:

Awards and Honors:

2015 – UK C.A.F.E. Instructional Facilities Enhancement Fund, \$4848
2013 – UK C.A.F.E. Teaching Innovation Incentive Fund, \$2000 for fiscal year 2014
2006 – University of Kentucky Make the Difference Award
2004 – The A. Paul Nestor Employee Creativity Award (Finalist)
2001 – College of Agriculture Outstanding Staff Award
1994 – Harold H. Williams Award for Best Research Presentation at the National Marketing Education Conference, April.

Committees, Elected Positions, Offices Held:

University committee on Safety and Environmental Health
College Informational Technologies Service Team
Departmental Facilities committee, Chairman
Departmental Outreach committee
Departmental Landscaping committee

Attendance at Professional and Scientific Meetings:

Campus Technology, Boston, MA (2015)
Interop, Las Vegas, NV (2012)
Interop, Las Vegas, NV (2010)
Interop, Las Vegas, NV (2008)
Interop, Las Vegas, NV (2007)
INFOCOMM, Orlando, FL (2006)
Microsoft Tech Events, Lexington, KY (2006)
Computer Security Seminar, Lexington, KY (2005)
Microsoft Big Day Events, Lexington, KY (2005)
Microsoft Security Training, Lexington, KY (2004)
COMDEX, Las Vegas, NV (2003)
Web Site Development and Design Conference, Lexington, KY (2002)
Listserv Management Training, UK campus (2001)
Network/Interop, Atlanta, GA (2000-2002)
COMDEX Spring, Chicago, IL (1999-2001)
Kentucky Natural Resources Leadership Institute (1999-2001)
SuperComm, Atlanta, GA (1999)
Supporting, Troubleshooting and Optimizing Windows NT 4.0 (1999)
COMDEX Spring, Chicago, IL (1998)
COMDEX Spring, Atlanta, GA (1997)
COMDEX Spring, Chicago, IL (1996)
Distance Education Workshop, Lexington, KY (1996)
Managing the Network from an Application Point of View, Lexington, KY (1996)
Microsoft Corporate Solutions Briefing, Lexington, KY (1996)
COMDEX Spring, Atlanta, GA (1994-1995)
Compulex, Lexington, KY (1994-1995)
Software Showdown, Lexington, KY (1994)
Enterprise Networking Technologies, Lexington, KY (1994)

National Extension Technology Conference, Lexington, KY (1994)
Internet: A Practical Approach, Lexington, KY (1994)
Microsoft-Compaq Networking Seminar, Lexington, KY (1994)
Soil Science Society of America Annual Meeting, San Antonio, TX (1990)

Laura Robinson Lhotka, Ph.D.

University of Kentucky Department of Forestry
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laura.lhotka@uky.edu

EDUCATION

Ph.D., Forestry, School of Forestry and Wildlife Sciences, Auburn University 2006
M.S., Rural Sociology, College of Agriculture, Auburn University 2001
B.S., Environmental Science, College of Engineering, Auburn University 1998

PROFESSIONAL EXPERIENCE

University of Kentucky - Lexington, KY
Academic Coordinator, Department of Forestry 2010-Present
Post-Doctoral Scholar, Department of Forestry 2007-2010

Auburn University - Auburn, AL
Research Associate II, School of Forestry and Wildlife Sciences 2003-2007
Graduate Research Assistant, School of Forestry and Wildlife Sciences 2002-2003
Graduate Research Assistant, Rural Sociology 2000-2001

Delta Air Lines, Inc. - Atlanta, GA
Senior Analyst, Environmental Services Department 1998-1999
Cooperative Education, Environmental Services Department 1995-1997

REFEREED PUBLICATIONS

Deutsch, W., **L. Lhotka**, and S. Ruiz-Córdova. 2009. Group Dynamics and Resource Availability of a Long-Term Volunteer Water Monitoring Program. *Society and Natural Resources*. Vol. 22, no. 7: 1-13.
Lhotka, L. R., C. Bailey, and M. R. Dubois. 2008. Ideologically Structured Information Exchange Among Environmental Groups. *Rural Sociology*. Vol. 73, no. 2: 230-249.
Robinson, L., M. Dubois, and C. Bailey. 2005. County Level Extension Programming: Continuity and Change in the Alabama Cooperative Extension System. *Journal of Extension*. Vol. 43, no. 1.
Howze, G., **L. J. Robinson**, and J. F. Norton. 2003. Historical Analysis of Timber Dependency in Alabama. *Southern Rural Sociology*. Vol. 19, no. 2:1-39.
Norton, J. F., G. Howze, and **L. Robinson**. 2003. Regional Comparisons of Timber Dependency: The Northwest and the Southeast. *Southern Rural Sociology*. Vol. 19, no. 2: 40-59.

OTHER PUBLICATIONS

- Robinson, L. J.** 2006. Information Exchange Among Environmental Groups in Alabama and Romania. PhD diss., Auburn Univ.
- Dubois, M. R., T. J. Straka, S. D. Crim, and **L. J. Robinson**. 2003. Costs and Cost Trends for Forestry Practices in the South. *Forest Landowner*. Vol. 62, no. 2: 3-9.
- Robinson, L. J.** 2001. Examination of the Alabama Cooperative Extension System's County Level Programming. Masters Thesis, Auburn Univ.

SELECTED PRESENTATIONS

- Bullard, S. and **L. Lhotka**. NAUFRP, the New Green Economy, and Developing Leaders. American Forest and Paper Association 2009 Deans' Tour. Amelia Island, FL - Jan. 2009 (Presented by S. Bullard)
- Robinson, L.** and C. Bailey. Resource Dependency and Rural Development in Alabama. Annual Rural Sociological Society Meeting. Santa Clara, CA - Aug. 2007
- Robinson, L.** and W. Deutsch. Life Cycle of a Volunteer Water Monitoring Program and Implications for Credibility... a Case from Alabama. USDA-CSREES National Water Quality Conference. Savannah, GA - Jan. 2007
- Robinson, L.** Information Exchange among Environmental Groups in Alabama. Annual Rural Sociological Society Meeting. Louisville, KY - Aug. 2006
- Robinson, L.,** C. Bailey, and M. Dubois. Information Exchange among Environmental Nonprofits in Vrancea County, Romania. Annual Rural Sociological Society Meeting. Tampa, FL - Aug. 2005

EXTRAMURAL FUNDING

- Bullard, S., and **L. Lhotka**. 2008-2009. Collaborative Efforts in Southern Forestry Recruiting. USDA Forest Service, Contract, \$10,000. Lhotka PI as of June 2009.
- Deutsch, W., W. Owsley, L. Yokel, and M. Ramos-Escobedo. 2008-2011. Fostering Environmental Stewardship of the Gulf of Mexico: A Trans-Boundary Network of Water Education and Monitoring for Animal Producers, Classrooms and Community Volunteers. Environmental Protection Agency Gulf of Mexico Program Office Grant, \$299,999. (Subaward to Lhotka for \$10,000.)
- Bullard, S., D. Cremeans, S. Fei, J. Lhotka, and **L. Lhotka**. 2008-2010. Reviving Traditional Forestry with HP Technology. 2008 Hewlett-Packard Technology for Teaching Higher Education Award, \$77,000. L. Lhotka as co-PI.

AWARDS AND HONORS

- International Scholars Program Award (\$5,000) - College of Agriculture, Auburn University, 2005
- Graduate Research Award (\$3,555) - Graduate School, Auburn University, 2005

Curriculum Vitae

Chad F. Niman

214 Thomas Poe Cooper Building
University of Kentucky
Department of Forestry
Lexington, KY 40546-0073
O:859-257-3040
chad.niman@uky.edu

Extension Associate Primary Forest Products Specialist

B.S., Forestry, University of Kentucky, 2012

Professional Experience:

Extension Associate; Technical advisor Primary Wood Industry with the University of Kentucky (2015-current).

1 year 9 months as a Forester for Colorado State University, at Fort Campbell, KY. (2013-2015).

One year 8 months as a Forestry Consultant Assistant: Working under Chris J. Will, at Central Kentucky Forest Management (2012-2013).

Teaching:

Taught proper use of Biltmore Stick to 4H students at Mammoth Cave National Park. This includes species, measurement of diameter, merchantable height, and volume in board feet.

Publications:

Co-editor of LogJam Newsletter with my first edition published in August, 2015.

Editor of the Wood E-News with first edition published in August, 2015.

Presentations & Consultations:

Presented on usage of “construction mats”, in forest management operations to the Eastern Kentucky Society of American Foresters at their fall meeting located at the “Kentucky Wood Expo”, at Masterson Station Park, Lexington, KY.

Industry Service:

Extension Programs:

“Small Scale Logging”- Performed at the “Wood Expo”, at Masterson Station Park, Lexington, KY. Demonstrate different options for landowners and farmers to safely manage their woodlands and ways to move and utilize their resources.

“Bird Feeder Workshop”- At the “Kentucky Wood Expo”, at Masterson Station Park, Lexington, KY. Assist Bobby Ammerman by supervising the bird feeder production area. Local citizens are able to construct their own bird feeder upon watching a wildlife video prepared by Dr. John Cox (UK Faculty) and a bird id activity prepared by Bobby Ammerman and Rosalee Bradley.

Professional Meetings:

Kentucky Forest Industries Association- Fall meeting, Central City, KY.
EKSAF- Masterson Station Park, Lexington, KY.

Professional Development:

Member of Kentucky Association of State and Extension Professionals.
Hardwood Lumber Grading, Manufacturing & Pricing September 23, 2015
Taught by Dan Cassens at Vincennes University, Jasper Campus, Jasper, IN

Industry Association Membership:

Society of American Foresters; student chapter president 2011-2012; secretary/treasurer EKSAF chapter 2015-present; member (2009-present).
Ohio Valley Lumber Drying Association; member (2015-present).
Council on Forest Engineering; member (2015-present).
Kentucky Forest Industries Association; member (2015-present).

CHRISTOPHER C. OSBORNE

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EDUCATION

University of Kentucky, Lexington KY

B.S. in Forestry

2007

RELATED EXPERIENCE

University of Kentucky, Dept. of Forestry

FOREST MANAGER

2011 – Present

Provide management and oversight of the 15,000 acre University of Kentucky Robinson Forest. Maintain forest inventories, assist with research projects, provide oversight of natural resource extraction operations, facilitate use of Robinson Forest, and provide representation of Robinson Forest both locally and nationally. Management includes oversight of road building or improvements, boundary establishment and monitoring, invasive species removal, etc.

Kentucky Division of Forestry

SERVICE FORESTER

2007 – 2011

Provided technical forestry assistance to non-industrial private landowners. Assistance included written management plans, timber marking, and timber stand improvement. Conducted forestry education programs for youth and adults. Assisted with wildfire suppression.

Fountain Forestry

FORESTER

May 2007 –

September 2007

Provided planning input, management, and oversight of timber harvesting operations to meet TIMO objectives on 40,000 acres in eastern Kentucky. Input included scoping of areas to determine merchantability and operability. Marking of streamside management zones, harvest units, etc conducted prior to beginning harvest operations. Timber harvest inspections conducted during and post-harvest to ensure management objectives were being met and that best management practices were followed. Graded mill delivered logs to complete sale transactions with buyers.

SKILLS/QUALIFICATIONS

Society of American Foresters - Certified Forester (Cert. # 4057)

CFWC Cooperating Forester

Kentucky Master Logger (KY-193-159)

Kentucky Category II Pesticide Applicator (1629043)
 Forest Vegetation Simulator
 SILVAH Oak
 First Aid, CPR, AED, Bloodborne Pathogen
 Campus Security Authority
 NWCG – Firefighter Type I
 NWCG – Engine Boss
 NWCG – Class A Feller
 Mine Safety Hazards

SERVICE

East Kentucky Society of American Foresters – Secretary/Treasurer	2015
Natural Resource and Environmental Science Academy Instructor	2014
Kentucky Organization of Field Stations – Steering Committee	2014 – Present
Kentucky Prescribed Fire Council – Research Committee	2014 – Present
Campus Security Authority	2014 – Present
UK Fire Cats Crew Leader	2014 – Present
National FFA Forestry Career Development Event Judge	2014 – Present
Kentucky Organization of Field Stations – Agency Representative	2013 – Present
East Kentucky Society of American Foresters – Secretary/Treasurer	2010
Win With Wood – Event Judge	2007 – Present
Society of American Foresters	2007 – Present

AWARDS/SPECIAL RECOGNITIONS

Robinson Scholar	2003 – 2007
Daughters of the American Revolution Scholarship Recipient	2003

TEACHING EXPERIENCE

University of Kentucky

Guest Instructor (FOR 357)	2012
Provided timber cruising procedures through classroom instruction. A brief refresher of timber cruising calculations and procedures in advance of preparing for and conducting a field exercise in which forestry undergrads conducted a timber cruise.	
Guest Instructor (FOR 359)	2011
Demonstrated tree grading procedures to forestry undergrads during summer camp at Robinson Forest using US Forest service guidelines.	
Guest Instructor (FOR 359)	2011 – Present
Conducted tree marking exercises with forestry undergrads during spring/summer camps. Exercises taught students procedures in equipment use, handling procedures, and marking strategy.	

Guest Instructor (FOR 359)

2011 – Present

Instructed forestry undergrads on proper technique and procedures for pesticide applications in a forested setting during spring/summer camps at Robinson Forest. Instruction included worker protection standards, application rates, techniques, and record keeping.

PUBLICATIONS

Osborne, Chris. "Painting Trees." *Kentucky Woodlands Magazine* 8.2 (2013): 10-11.

Osborne, Chris. "Woodland Roads." *Kentucky Woodlands Magazine* 7.2 (2012): 10-11.

PRESENTATIONS

Osborne, Chris. 2011. Robinson Forest, Kentucky's Land Grant Forest Laboratory. Kentucky Farm Bureau, Louisville KY.

Osborne, Chris. 2011. Robinson Forest, Kentucky's Land Grant Forest Laboratory. Eastern Research Forest Managers, Raleigh NC.

Osborne, Chris. 2012. Robinson Forest, Kentucky's Land Grant Forest Laboratory. Kentucky Organization of Field Stations, Crab Orchard, KY.

Osborne, Chris. 2012. Robinson Forest, Kentucky's Land Grant Forest Laboratory. Forestry undergrads, Clayhole KY.

Osborne, Chris. 2012. Robinson Forest, Kentucky's Land Grant Forest Laboratory. Appalachian Studies students, Clayhole KY.

Osborne, Chris. 2012. Timber Management Options for Private Landowners. Mountain Monday Program, Quicksand KY.

Osborne, Chris. 2012. Robinson Forest, Kentucky's Land Grant Forest Laboratory. Visiting Department Chairs, Clayhole KY.

Osborne, Chris. 2013. Robinson Forest, Kentucky's Land Grant Forest Laboratory. Kentucky Organization of Field Stations, Bernheim Forest, KY.

Osborne, Chris. 2013. Robinson Forest, Kentucky's Land Grant Forest Laboratory. Breathitt County Senior Citizens, Clayhole KY.

Osborne, Chris. 2013. Robinson Forest, Kentucky's Land Grant Forest Laboratory. East Kentucky Power Cooperative, Clayhole, KY.

Osborne, Chris. 2014. Robinson Forest, Kentucky's Land Grant Forest Laboratory. US Forest Service Silviculturists, Clayhole, KY.

Osborne, Chris. 2014. Robinson Forest, Kentucky's Land Grant Forest Laboratory. Ag Vocational Teachers, Clayhole, KY.

Osborne, Chris. 2014. An Update of Prescribed Fire Activity by UK Forestry. KY Prescribed Fire Council, Greenville KY.

Osborne, Chris. 2014. Robinson Forest Poster Presentation. Kentucky Academy of Science, Lexington KY.

Osborne, Chris. 2015. Careers in Forestry. Breathitt County Juvenile Detention Center, Jackson KY.

Osborne, Chris. 2015. Robinson Forest, Kentucky's Land Grant Forest Laboratory. NRES Students, Clayhole KY.

CONFERENCES/TRAININGS ATTENDED

	Council on Forest Engineering Conference, Lexington KY	2015
	Tennessee/Kentucky Wildland Fire Academy, Bell Buckle TN	2015
	Fire in Eastern Oak Forests Conference, Tuscaloosa AL	2015
	Kentucky Academy of Science, Lexington KY	2014
	Kentucky Organization of Field Stations, Lexington KY	2014
	S-212 Wildland Fire Chainsaw Training, Hazard KY	2014
	Kentucky Prescribed Fire Council, Greenville KY	2014
	First Aid, CPR, AED, Bloodborne Pathogen Training, Hazard KY	2014
	CFWC Cooperating Forester Training, Nashville TN	2014
	USFS Forest Vegetation Simulator Training, Albuquerque NM	2014
	Society of American Foresters National Meeting, Charleston SC	2013
	Kentucky Organization of Field Stations, Clermont KY	2013
	First Aid, CPR, AED, Bloodborne Pathogen Training, Hazard KY	2012
	Kentucky Organization of Field Stations, Crab Orchard KY	2012
	Kentucky Farm Bureau Annual Meeting, Louisville KY	2011
	Eastern Research Forest Managers Group, Raleigh NC	2011
	Society of American Foresters State & Local Chapter Meetings	2007 – Present

CURRICULUM VITAE

ROBERT PARATLEY

Title: Herbarium Curator

217B T.P. Cooper Building
Department of Forestry
University of Kentucky
Lexington, KY 40546-0073
Office phone: (859) 257-3094

Education

MS Ecology, Cornell University- 1985
BA Geography, State University of New York, Binghamton- 1974

Professional experience

1995-present Herbarium Curator, University of Kentucky Herbarium
1993-1994 Instructor, University of Kentucky, Department of Forestry
1985-1994 Financial Manager, Cornell University Art Museum

Teaching

Dendrology FOR 219
Economic Botany–Plants and Human Affairs, FOR 325
Taxonomy of Vascular Plants, NRE/BIO 420G
Mountains to Coast: Ecosystems of Costa Rica NRE 320 Education Abroad program
Winter Dendrology, FOR 356
Graduate Seminars FOR 770 “Plant-Animal Mutualisms” spring 2015; “The Pristine Myth: Anthropogenic Influences on New World Forests” spring 2014; “Fire in Appalachian Hardwood Ecosystems” Spring 2012; “Restoration Ecology”, Spring, 2011; “Fire Ecology in North American Ecosystems”, Spring, 2010
BIO 575 Plant Anatomy. Reproductive biology of angiosperms, spring 2011; Spring 2010

Graduate Student Committees 2010- 2011

Todd Rounsaville, PhD Biology 2012- present
Pavan Podapati, MS Forestry 2014- present

Herbarium projects-

Collecting to enhance Herbarium collections including the following Kentucky areas: Upper Cumberland River in Kentucky- Big South Fork RRA; Red River Gorge; Robinson Forest; Floracliff State Nature Preserve; Jefferson Memorial Forest

Editorial & curatorial assistance to Patricia Harrigan for *Plants of the Olmstead Parks, Louisville*, 2014, University of Kentucky Press.

Recent presentations, public programs, workshops and tours

- Wildflower walk- “Asteraceae & the fall flora” Floracliff Nature Sanctuary. September 2015
- “Ferns of Red River Gorge” April 2015
- “Ecosystems of Natural Bridge State Park”, April 2014
- tours of Mathews Garden to student environmental clubs April 2015 & October 2014
- tour of UK Arboretum to high school AP Biology students, May 2015 & May 2014
- Native Plant Society Workshop on plant identification June 2014
- talk to annual meeting of KAA on Tree Identification- hard to ID trees October 2014

Publications

Mattingly, KZ, R McEwan, RD Paratley, SR Bray, inpress. “Recovery of forest floor diversity after removal of the non-native invasive plant *Euonymus fortunei*.” *Journal of the Torrey Botanical Society*.

Wilson, H, MA Arthur, RD Paratley, R McEwan, 2013 “The role of forest floor depth and oak litter in slowing the spread of *Lonicera maackii* in second growth forests of central Kentucky, USA.” *Natural Areas Journal*

R.D. Paratley, 2009. Flora of Floracliff State Nature Preserve. Submitted to Kentucky State Nature Preserves Commission for botanical reference

McEwan, R., RD Paratley, RN Muller, and CL Riccardi, 2005. The Vascular Flora of an Old-growth Mixed Mesophytic Forest in southeastern Kentucky. *Journal of the Torrey Botanical Society* 132:618-627.

Workshops Attended

Bryophytes- March 2015

Birds of Central Kentucky – June 2015

Service & Affiliations

Woody Plant and Wildflower Identification Program– ongoing with County Extension Offices.
Natural Resources & Environmental Science Steering Committee
Urban Forest Initiative
Walk Across Kentucky Committee, UK Arboretum

Advisory Boards

U.K.- LFCUG Arboretum Advisory Board

Member, Board of Directors, Floracliff Nature Sanctuary, Lexington, KY, 2001- present
Vice-President, 2008 to present.

CURRICULUM VITAE

Christopher D. Reeves
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Department of Forestry
University of Kentucky
Lexington, KY 40546-0073
christopher.reeves@uky.edu
Extension Associate

EDUCATION

Ph.D. Student in Agricultural Economics, Department of Agricultural Economics, University of Kentucky (Expected graduation 2019)

Master of Science in Forestry, Department of Forestry, University of Kentucky (2012)

- Thesis – Effectiveness of Elevated Skid Trail Headwater Stream Crossings in the Cumberland Plateau

Bachelor of Science in Forestry, Department of Forestry, University of Kentucky (2005)

PROFESSIONAL EXPERIENCE

Extension Associate, University of Kentucky, Department of Forestry (Lexington, KY), January 2009 to present

- Responsible for day-to-day management of American Tree Farm System and Forest Stewardship Council group forest management certificates (14 members with 55,303 acres); supervise, contract, and coordinate contracts; editor of Certification E-newsletter; coordinate landowner and forester certification training programs; coordinate meetings and communications of the Center's Managing Partners and stakeholders

Consulting Forester, Central Kentucky Forest Management Inc. (Danville, KY), August 2008 – December 2008

- Management plans, timber and carbon sequestration cruising, GIS database maintenance, timber appraisal, timber sales, client consultations

Research Technician, University of Kentucky, Department of Forestry (Lexington, KY), May 2005 – August 2008

- Forest inventory and analysis work; initiating and completing hydrologic research projects, supervising technicians and subcontractors; disseminating research goals and conclusions to a diverse array of stakeholders including policy makers, loggers, and environmentalists

GRANTS

Effectiveness of Improved Skid Trail Ephemeral Channel Crossings. 2007-2008. US Geological Survey 104b, Kentucky Water Resources Research Institute. \$4,991. PI – C. Reeves, co-PI – J. Stringer.

TEACHING SUMMARY

Annual Lecturer

NRC 320 Data Collection Technique (forest measurements module) – 2015, 2014, 2013, 2012, 2011, and 2009

Guest Lecturer

FOR 100 Introduction to Forestry (instructor Timber Harvesting) – 2014, 2013, 2012, and 2010

EXTENSION

Primary Extension Programs and Initiatives

Center for Forest and Wood Certification

Founding member in 2011 of the Center for Forest and Wood Certification. The Center is focused on building certification capacity in the region, enabling the private sector to effectively participate and benefit from certification. The Center provides education and training programs, technical assistance, group certification, and certification management. Functionally the Center is a certification incubator building expertise and technical prowess of those participating with the Center so they can make informed decisions about their long-term involvement with certification. The Center is also focused on determining and documenting the tools that work to enable Certification, obstacles to certification and, is “geared-up” to develop market solutions to help those interested in participating in forest and wood certification. The Center is directed by managing partners with input from stakeholders, and supported by sponsoring partners. Participants in Center programs include family and industrial forest owners, certified loggers, foresters, and primary and secondary forest industries involved in producing certified wood and wood products.

Invasive Species Removal Program

Administrative cost-share program to remove invasive species on private woodlands that are adjacent or near (< 0.5 mile) a public property with some woodland conservation or restoration value. Provide payments to 13 woodland owners for a total of \$96,000 for chemical or mechanical treatments to remove invasive species. Gained valuable real world data on rates to remove invasive species for a variety of infestation levels, species, and application methods

Extension Magazines and Websites

Newsletter Editor

Certification E-newsletter 2012 to present. University of Kentucky, Department of Forestry, Cooperative Extension Service. Editors – C. Reeves and J. Stringer

Websites

2011 Center for Forest and Wood Certification. University of Kentucky, Department of Forestry, Cooperative Extension Service. www.forestcertificationcenter.com (Developed and Managed)

2011 Kentucky-Tennessee Society of American Foresters. www.ktsaf.org (Developed and Managed)

Extension Publications

Extension Magazine and Newsletter Articles

Reeves, C., J. Stringer, B. Ammerman. April 2013. What's all this about "forest certification"? Appalachian Woodlands and Sportsman's Review.

Stringer, J., C. Reeves, B. Ammerman, K. Negray, S. Shouse, C. Will, H. Wonn. 2012. Center for Forest and Woodland Certification: Providing Certification Possibilities for Woodland Owners. Kentucky Woodlands Magazine 7(1):14-16.

Stringer, J., C. Reeves, and B. Ammerman. 2011. Woodland Certification. Kentucky Woodlands Magazine 5(3):1-8

Extension Education and Trainings Produced and/or Instructed

Education Programs for Woodland Owners

Face to Face

Woodland Owner Short Course. Timber Trespass and Theft. Morehead, KY. August 2013 (35 participants)

Woodland Owner Short Course. Woodland Certification. Hopkinsville, KY. August 2013 (35 participants)

Kentucky Woodland Owners Association. Woodland Certification and Status of Demand in the Region. Pineville, KY. March 2014 (35 participants)

Woodland Owner Short Course. Woodland Certification. Owensboro, KY. August 2013 (35 participants)

Woodland Owner Short Course. Woodland Certification. Lexington, KY. August 2013 (40 participants)

Woodland Owner Short Course. Introduction to Forest Management Certification. London, KY. August 2012 (25 participants)

Woodland Owner Short Course. Introduction to Forest Management Certification. Benton, KY. August 2012 (32 participants)

Woodland Owner Short Course. Introduction to Forest Management Certification. Bagdad, KY. August 2012 (115 participants)

Webinar

Woodland Management and Forest Certification. October 2013. 45 participants.

Woodland Certification. October 2014. 38 participants.

Training for Foresters and Natural Resource Professionals

Professional Forestry Workshops Series

Center for Forest and Wood Certification Initial Cooperating Forester Training. Kingsport, TN.
June 2015 (15 participants)

Center for Forest and Wood Certification Initial Cooperating Forester Training. Nashville, TN.
July 2014 (35 participants)

Forest and Wood Certification. Jackson, KY. August 2012 (31 participants)

Forest and Wood Certification. Dawson Springs, KY. August 2012 (15 participants)

Forest and Wood Certification. Elizabethtown, KY. August 2012 (24 participants)

Center for Forest and Wood Certification Initial Cooperating Forester Training. Danville, KY.
May 2012 (29 participants)

Other Professional Meetings (Extension and Research) Organized

38th Council on Forest Engineering Annual Meeting. Facilities Co-chair. Lexington, KY. July
2015.

Kentucky-Tennessee Society of American Foresters Summer Meeting. Program Chair, Louisville,
KY. June 2014.

Kentucky-Tennessee Society of American Foresters Winter Meeting. Program Chair, Lexington,
KY. January 2012.

17th Central Hardwood Forest Conference. Facilities Co-chair, Lexington, KY April 2010.

Kentucky-Tennessee Society of American Foresters Winter Meeting. Program Chair, Lexington,
KY January 2010.

RESEARCH

Research Publications

Non-Refereed

Stringer, J., C. Reeves, T. Sheehan, and T. Metzger. 2012. Economic impact of fire of forest
product values in the Appalachian region of Kentucky and Tennessee. University of
Kentucky, College of Agriculture, Cooperative Extension Service.

Reeves, C., J. Stringer, C. Barton, and C. Agouridis. 2008. Sedimentation rates of temporary
skid trail headwater stream crossings. In: Addressing Forest Engineering Challenges of the
Future, Proceedings of the 31st Annual Meeting of the Council on Forest Engineering. 2008
Jun 25-28. Charleston, SC. (CD – Council on Forest Engineering)

Departmental Seminars

Stringer, J., C. Reeves, and B. Ammerman. Center for Forest and Wood Certification. October
2012.

Reeves, C. Effectiveness of Elevated Skid Trail Headwater Stream Crossings in the Cumberland
Plateau. February 2007.

Research Posters and Presentations

Reeves, C. Center for Forest and Wood Certification: a partnership venture providing solutions
for forest and wood certification. Society of American Foresters Annual Convention.

Spokane, WA October 2012. (Presentation)

Reeves, C. Economic impacts of fires on forest product values in the Appalachian region of Kentucky and Tennessee. Prescribed Fire and Timber Quality Workshop. Oak Woodlands and Forests Fire Consortium. Poplar Bluff, MO. October 2012. (Presentation).

Reeves, C., J. Stringer, C. Barton, and C. Agouridis. Sediment rates of improved skid trail headwater stream crossings of the Cumberland Plateau. Society of American Foresters Annual Convention. Portland OR, October 2007. (Poster)

AWARDS

2009 Award for Excellence in Forestry (under 35 years). Kentucky/Tennessee Society of American Foresters

2008 Forestry Graduate Student Award for Excellence in Research, Academic, Performance, and Service. Department of Forestry, University of Kentucky.

2008 Academic Excellence Award. Graduate School, University of Kentucky.

2007 Commonwealth Incentive Award. Graduate School, University of Kentucky.

SERVICE

Membership

Society of American Foresters – 2005 – present

Board, Appointments, Professional Elected Offices – National/Regional

Society of American Foresters (Kentucky/Tennessee) – elected chair 2012

Board, Appointments, Professional Elected Offices – Kentucky

Society of American Foresters (East Kentucky) – elected chair 2010

Society of American Foresters (East Kentucky) – elected Secretary/Treasurer 2014, 2013, 2012, 2011

Administrative Assignments

Department

Graduate Program Committee 2007 – 2008

Robinson Forest Committee 2009 – 2010

CURRICULUM VITAE

William (Billy) Thomas
213 T.P. Cooper Building
University of Kentucky
Cooperative Extension Service
Department of Forestry
Lexington, KY 40546-0073
(859) 257-9153 (Office)
(859) 323-3031 (Fax)
billy.thomas@uky.edu

Current Position:

Extension Forester, University of Kentucky Department of Forestry

Education:

Ph.D. Sociology Student, University of Kentucky, 2014—

M.S., Forestry, University of Kentucky, 1999.

Thesis title: Reclamation of Surface Mined Lands in Eastern Kentucky Using Native High Value Tree Species

B.S., Forestry, Minor in Agriculture, University of Kentucky, 1997.

Extramurally Funded Extension Projects:

Kentucky Woodlands Magazine Production “Cultivating a Healthy Woodland”, Kentucky Energy and Environment, July 2015–June 2016. Co-Principal Investigator. \$16,000

2015 Kentucky Woodland Owner Programs Sponsorships, Program Coordinator, 2015. Kentucky Tree Farm Committee (\$750), Kentucky Woodland Owners Foundation (\$700), Kentucky Association of Consulting Foresters (\$250), Sustainable Forestry Initiative (\$1,000).

Invasive Plant Cost-Share Project. Kentucky Energy and Environment, October 2014–June 2016. Principal Investigator. \$156,225.

Triplett Creek Stewardship Project. Kentucky Energy and Environment, October 2014–June 2016. Principal Investigator. \$60,000

2014 Kentucky Woodland Owner Programs Sponsorships, Program Coordinator, 2014. Kentucky Tree Farm Committee (\$750), Kentucky Woodland Owners Foundation (\$700), Kentucky Association of Consulting Foresters (\$250), Sustainable Forestry Initiative (\$1,000).

Kentucky Tree Farm Committee Newsletter Production, Project Coordinator. 2014. \$850

Kentucky Woodlands Magazine Production “After the Storm and Not All Green is Good”, Kentucky Energy and Environment, August 2013–June 2014. Co-Principal Investigator. \$32,000

2013 Kentucky Woodland Owner Programs Sponsorships, Kentucky Tree Farm Committee

(\$750), Kentucky Woodland Owners Foundation (\$700), Practicing Foresters Institute (\$1,000), Kentucky Association of Consulting Foresters (\$250), Sustainable Forestry Initiative (\$1,000). Program Coordinator. 2013.

Restoring Bottomland Hardwood Forests to Improve Watershed Health Outreach, Kentucky Energy and Environment, July 2012–June 2013. Principal Investigator. \$2,000

Kentucky Woodlands Magazine Production “Forest Health and Woodland Owner Educational Opportunities”, Kentucky Energy and Environment, July 2012–June 2013. Co-Principal Investigator. \$32,000

2012 Kentucky Woodland Owner Programs Sponsorships, Kentucky Tree Farm Committee, Kentucky Woodland Owners Association, and the Kentucky Association of Consulting Foresters. Program Coordinator. 2012. \$2,650

Kentucky Tree Farm Committee Newsletter Production, Project Coordinator. 2012. \$1,425

Kentucky Woodlands Magazine Production “Urban Forestry”, Kentucky Energy and Environment, September 2011–December 2011. Co-Principal Investigator. \$18,300

Woodland Owner Programming in Eastern Kentucky, Kentucky Division of Conservation, September 2011. Program Coordinator. \$15,000

2011 Kentucky Woodland Owner Programs Sponsorships, Sustainable Forestry Initiative, Kentucky Tree Farm Committee, Kentucky Woodland Owners Association, and the Kentucky Association of Consulting Foresters, August –September 2011. Program Coordinator. \$2,750

Kentucky Woodlands Magazine Production “Wood Borer”, Kentucky Energy and Environment, March 2011– June 2011. Co-Principal Investigator. \$20,000

Kentucky Tree Farm Committee Newsletter Production, Project Coordinator. 2011. \$1,425

Emerald Ash Borer Urban Preparedness Conference, Principal Investigator. December 2010. Kentucky Energy and Environment. \$35,000

Kentucky Woodlands Magazine Production “Forest Certification and Forest Health Issues”, Kentucky Energy and Environment. Co-Principal Investigator. July 2010–June 2011. \$40,000

2010 Kentucky Woodland Owners Short Course, Sustainable Forestry Initiative, Kentucky Tree Farm Committee, Kentucky Woodland Owners Association, and the Kentucky Association of Consulting Foresters. Program Coordinator. June –September 2010. \$2,750

Kentucky Tree Farm Committee Newsletter Production. Project Coordinator. 2010. \$1,500

Changing Roles Workshop Series for Kentucky Natural Resource Professionals. August 2009. \$5,000

Kentucky Woodlands Magazine Production “Degraded Stand Revitalization and Small Woodland Management”, Kentucky Energy and Environment. Co-Principal Investigator. July 2009 – June 2010. \$30,000

2009 Kentucky Woodland Owner Programs Sponsorships, Sustainable Forestry Initiative, Kentucky Tree Farm Committee, Kentucky Woodland Owners Association, and the Kentucky Association of Consulting Foresters. Program Coordinator. June – September 2009. \$2,600

Kentucky Tree Farm Committee Newsletter Production. Project Coordinator. 2009. \$4,500
Forest Biomass Training in Kentucky, U.S. Forest Service. Project Team Member. January – September 2008. \$17,000

2008 Kentucky Woodland Owner Programs Sponsorships, Sustainable Forestry Initiative, Kentucky Tree Farm Committee, Kentucky Woodland Owners Association, and the Kentucky Association of Consulting Foresters. Program Coordinator. June – September 2008. \$2,680

Kentucky Woodlands Magazine Production “Forest Health”, Kentucky Natural Resources Environmental Protection Cabinet. Co-Principal Investigator. July – December 2008. \$20,000

Kentucky Woodlands Magazine Production “Pine Management”, Kentucky Natural Resources Environmental Protection Cabinet, Co-Principal Investigator. January – June 2008. \$20,000

Kentucky Woodlands Magazine Production II, Kentucky Natural Resources Environmental Protection Cabinet. Co-Principal Investigator. August – December 2007. \$15,419

Assessing Invasive Exotic Plants in Urban Forests, National Urban and Community Forestry Advisory Council. Project Team Member. July 2006 – June 2009. \$121,000

Invasive Species Reduction in Bluegrass Woodlands, National Fish and Wildlife Foundation. Principal Investigator. January 2006 – December 2007. \$30,000

Eastern Kentucky County Agent Forestry Training, SKADD. Project Co-Coordinator. April 2006 – December 2006. Program Co-Coordinator, \$18,803

Awards and Honors:

- **2014 Outstanding Extension Associate Award**, University of Kentucky Cooperative Extension Service
- **2010 Newsletter or Series of Articles Silver Award** for Kentucky Woodlands Magazine by the Association of Natural Resource Extension Professionals
- **2009 National Family Forest Education Award** for the UK Forestry Extension program by the National Woodland Owners Association and National Association of University Forest Resources Programs

- **Southern Regional Extension Forestry Gold Award for Excellence** for Shortcourse Production for the Kentucky Woodland Owners Short Course 2009
- **Southern Regional Extension Forestry’s Extension Publication Gold Award for Excellence with High Distinction** for *Kentucky Woodlands Magazine* 2008
- **National Association for Family and Consumer Science Agents’ Florence Hall Award** for “*What is Forestry?*” 2002
- **Kentucky Environmental Quality Commission Earth Day Award** for *What is Forestry?* 2001
- **U.S. National Defense Service Medal** 1993
- **U.S. Air Force Achievement Medals** 1992, 1993
- **U.S. Air Force Good Conduct Medal** 1993

University Teaching:

Invited Instructor, University of Kentucky Department of Forestry, FOR-100 Introduction to Forestry (Fall 2012, Spring 2013, Spring 2014) and FOR-101 Introduction to Wildlife Conservation (Fall 2012, Fall 2013), GEN 300 Communication and Professional Development in Forestry (Spring 2014, Spring 2015)

Teaching Assistant, University of Kentucky Department of Forestry, FOR-219 Dendrology (Fall 1997 and Fall 1998)

Journal Articles and Proceedings:

Influencing Woodland Management Using Web-Based Technology. 2011. Proceedings of the 17th Central Hardwood Forest Conference GTR-NRS-P-78: 671-672.

Empowering Forestry Extension with Geospatial Technology. 2009. Fei, S., W. Thomas, J. Stringer. Journal of Forestry. Volume 107 (2): 84-89.

Economically efficient sampling of surface-mined spoils. 2002. Pelkki, M.H., J.M. Ringe, W.R. Thomas, and D.H. Graves. International Journal of Surface Mining, Reclamation, and Environment. Volume 16 (1):48-58.

Native High Value Tree Reclamation on Surface Mined Spoils in Eastern Kentucky. Thomas, W., M. Pelkki, and J. Ringe. 1999. 12th Central Hardwood Forest Conference. Lexington, KY. Gen. Tech. Rep. SRS-24

Soil Sampling on Surface Mined Spoils: Systematic vs. Systematic-Composite vs. Random. Thomas, W., M. Pelkki, and J. Ringe. 1999. 12th Central Hardwood Forest Conference. Lexington, KY. Gen. Tech. Rep. SRS-24

Extension Publications, Electronic Newsletters, and Magazine Articles:

Kentucky Master Woodland Stewards. September 2015. Kentucky Woodlands Magazine Volume 10 Issue 1, 1 pg.

FORFS-15-03: Kentucky Forestry Economic Impact Report 2014. 2015. J. Stringer, Thomas, W., Ammerman, B., and A. Davis. University of Kentucky, College of Agriculture, Cooperative

Extension Service. 11 pg.

FORFS-15-01: Kentucky Forestry Economic Impact Summary 2014. 2015. J. Stringer, Thomas, W., Ammerman, B., and A. Davis. University of Kentucky, College of Agriculture, Cooperative Extension Service. 1 pg.

Woodland Recreation. December 2014. Kentucky Woodlands Magazine Volume 9 Issue 2, 2 pg.

FORFS-14-01: Kentucky Forestry Economic Impact Report 2014. 2014. J. Stringer, Thomas, W., Ammerman, B., and A. Davis. University of Kentucky, College of Agriculture, Cooperative Extension Service. 11 pg.

FORFS-13-07: Kentucky Forestry Agriculture Economic Summary 2013-2014. 2013. J. Stringer, Thomas, W., Ammerman, B., and A. Davis. University of Kentucky, College of Agriculture, Cooperative Extension Service. 1 pg.

FORFS-13-04: Kentucky Forestry Economic Impact Report 2012-2013 Executive Summary. 2013. J. Stringer, Thomas, W., Ammerman, B., and A. Davis. University of Kentucky, College of Agriculture, Cooperative Extension Service. 1 pg.

FORFS-13-03: Kentucky Forestry Economic Impact Report 2012-2013. 2013. J. Stringer, Thomas, W., Ammerman, B., and A. Davis. University of Kentucky, College of Agriculture, Cooperative Extension Service. 11 pg.

Dealing with Nonnative Invasive Plants on Your Property, Kentucky Woodlands Magazine Volume 8 Issue 1, 2p. April 2013

Online Resources for Woodland Owners, Kentucky Woodlands Magazine Volume 8 Issue 1, 2p. April 2013

Measuring Tree Diameter, Kentucky Woodlands Magazine Volume 7 Issue 1, 2p. August 2012

Kentucky Woodlands E-News, Electronic newsletter. June, August, October, December 2011; February, April, June, August, October, December 2012; February, April, June, August, October, December 2013; February, April, June, August, September, October, December 2014; February, April, May, July, September 2015

Your Hidden Farm Asset: Your Woodlands, County Agent Exclusive. University of Kentucky, College of Agriculture, Cooperative Extension Service. August 2011

Forest Health: Bush Honeysuckle, Kentucky Woodlands Magazine Volume 3 Issue 3, 3p. Stringer, J., W. Thomas, and J. Cox

Kentucky Woodland Owners Short Course: Making the Most of Your Woodlands, April 2008, Kentucky Woodlands Magazine Volume 3 Issue 1, 2p.

Local Forestry Organizations in Kentucky, April 2008, Kentucky Woodlands Magazine Volume 3 Issue 1, 1p.

FORFS-07-03: Local Forestry Organizations in Kentucky: Project Ideas. 2007. University of Kentucky, College of Agriculture, Cooperative Extension Service

FORFS-07-02: Local Forestry Organizations in Kentucky: Formation and Organization, 2007. University of Kentucky, College of Agriculture, Cooperative Extension Service

FORFS-07-01: Local Forestry Organizations in Kentucky: A Growing Idea. 2007. University of Kentucky, College of Agriculture, Cooperative Extension Service

Woodland Owners Short Course: Helping You Manage your Woodlands, April 2007, Kentucky Woodlands Magazine Volume 2 Issue 1, 2p.

FOR-53: Kentucky Forest Fact Sheet. 2007. Thomas, W., J. Stringer, T. Connors, D. Hill, T. Barnes. University of Kentucky, College of Agriculture, Cooperative Extension Service

Kentucky Woodland Facts, November 2006, Thomas, W., J. Stringer, Kentucky Woodlands Magazine Volume 1 Issue 2, 1p.

Making It Local, November 2006, Kentucky Woodlands Magazine Volume 1 Issue 2, 1p.

Why We Should Care About Kentucky Forests, July 2006, Kentucky Woodlands Magazine Volume 1 Issue 1, 1p.

FOR-95: What is Forestry?, 2002. Szymanski, M., G. Adkins, W. Thomas. University of Kentucky, College of Agriculture, Cooperative Extension Service

Extension Programs and Presentations:

One Acre at a Time: Woodland Owner Seminar, Coordinator and Presenter, Fayette County - Kentucky Wood Expo, September 2015

Tree Identification Workshops (2X), Coordinator and Presenter, Fayette County—Kentucky Wood Expo, September 2015

2015 Woodland Owners Short Course, Short Course Coordinator and Presenter, Woodford/Franklin County, Christian County, and Rowan/Carter County, August—September 2014

Kentucky Master Woodland Stewards School (part of Kentucky Master Woodland Stewards Program). Coordinator and Presenter, Robinson Forest, June 2015.

Kentucky Master Woodland Stewards Program Webinar, Coordinator and Presenter, June

2015.

Forestry in Kentucky and Harlan County, Presenter, Harlan County, June 2015.

Kentucky's Forest and Wood Industry, Presenter, Lee County, May 2015.

Forestry in Kentucky and Kenton County, Presenter, Kenton County, May 2015.

Forestry 4-H Youth Programs. Presenter, Robertson and Pendleton Counties, March-April 2015.

2014 Kentucky Farm Bureau Annual Meeting, Department of Forestry Booth Coordinator, December 2014

2014 Forestry Fall Webinar Series, Series Coordinator and Presenter, fourteen counties, October—November 2014

Farm and Home Night, Booth Coordinator, Breathitt County, October 2014

Win With Wood, Master of Ceremonies, Breathitt County, October 2014

Kentucky Tree Farmer of the Year Field Day, Coordinator, Taylor County, October 2014

Mountain Ag Youth Forestry Field Day, Presenter, Breathitt County, October 2014

Timber Harvesting in Eastern Kentucky Field Day, Co-coordinator, Breathitt County, October 2014

2014 Woodland Owners Short Course, Short Course Coordinator and Presenter, Boone County, Crittenden County, and Knox County, August—September 2014

Managing Woodlands and Selling Timber Management, Presenter, Harlan County, October 2014

2014 College of Agriculture Ag Roundup, Department of Forestry Booth Coordinator, September 2014

New County Extension Agent Orientation, Presenter, August 2014

Kentucky Forestry 4H Team Training, Presenter, Fayette County, July 2014

Managing Woodlands in Kentucky, Kentucky Farm Bureau's "Across Kentucky" Radio Program, July 2014

Kentucky Woodland Owners Association Annual Meeting, Field Program Coordinator, Bell County, April 2014

Capital Ideas - Live! (Radio news conference for forest landowners), Presenter, Alabama, March 2014.

Woodland Management Concepts, Presenter, Ohio River Valley Woodland and Wildlife Workshop, March 2014

Wildflowers of Kentucky Webinar, Coordinator, fifteen counties, March 2014

Woodland Management, Presenter, Rowan County, March 2014

East Kentucky Agricultural Development Announcement, Department of Forestry Booth Coordinator, Knott County, February 2014

2013 Forestry Fall Webinar Series, Series Coordinator and Presenter, eighteen counties, October—November 2013

Kentucky Tree Farmer of the Year Field Day, Coordinator, Edmonson County, October 2013

2013 Woodland Owners Short Course, Short Course Coordinator and Presenter, Daviess County, Lewis County, and Fayette County, August—September 2013

2013 College of Agriculture Ag Roundup, Department of Forestry Booth Coordinator, September 2013

Woodlands and Wildlife Field Day, Coordinator and Presenter, Hopkins County June 2013

Timber Sales & Markets in Northeastern Kentucky, Coordinator and Presenter, Rowan County, May 2013

Estate Planning Workshop: Planning for the Successful Transfer of Your Family Woodland, Coordinator, Robertson County, April 2013

Kentucky Woodland Owners Association Annual Meeting, Field Program Coordinator, Robertson County, April 2013

2012 Kentucky Farm Bureau Annual Meeting, Department of Forestry Booth Coordinator, December 2012

UK Forestry Extension Videos (26 in all), Director and Presenter, Posted on YouTube, 2012

Kentucky Tree Farmer of the Year Field Day, Coordinator and Presenter, Taylor County, October 2012

Tree Identification programs, Presenter, Robinson Center for Appalachian Resource Sustainability Mountain Ag Week at Robinson Forest, Breathitt County, September 2012

2012 College of Agriculture Ag Roundup, Department of Forestry Booth Coordinator, September 2012

New County Extension Agent Orientation, July 2012

Spencer County Forestry and Wildlife Field Day, Presenter, Spencer County, July 2012

“Addressing Storm Damaged Woodlands”, “Healthy Woodlands”, “Maximizing Your Woodlands”, “Kentucky's Woodlands -- Growing but Threatened”, and “Value of the Kentucky Forest and Wood Industry”, Radio Spots, University of Kentucky, College of Agriculture, Cooperative Extension Service, 2012

Franklin County Farm and City Field Day, Presenter, Franklin County, July 2012

Southern Group of State Foresters Annual Meeting, Department of Forestry Booth Coordinator, June 2012

Edmonson County Forestry and Wildlife Field Day, Coordinator and Presenter, Edmonson County, May 2012

Got Cedar Workshop, Coordinator and Presenter, Kenton County, May 2012

Kentucky Woodland Owners Association Annual Meeting, Field Program Coordinator, Christian County, April 2012

One Acre at a Time: Woodland Owner Seminar, Coordinator and Presenter, Oldham County, March 2012

Timber Sales presentation, Lee County, March 2012

Managing Woodlands for Specialty Forest Products Workshop, Workshop Coordinator and Presenter, Breathitt County, March 2012

2012 Woodland Owners Short Course, Short Course Coordinator and Presenter, Whitley County, Marshall, County, Franklin County, Shelby County, August—September 2012

Maple Syrup Production Workshop, Workshop Coordinator, Letcher County, February 2012

“Kentucky's Woodland Owners Should Reflect, Plan, and Prepare”, “Slippery Elm Bark Harvesting”, “The Value of a Woodland Management Plan”, “Exploring Kentucky’s Woodlands”, “Kentucky's Changing Forests”, Radio Spots, University of Kentucky, College of Agriculture, Cooperative Extension Service, 2011

2011 Kentucky Farm Bureau Annual Meeting, Department of Forestry Booth Coordinator, December 2011

Tree Farm Field Day, Coordinator and Presenter, Hart County, November 2011

Tree Farmer of the Year Field Day, Coordinator and Presenter, Oldham County, October 2011

2011 Forestry Fall Webinar Series, Series Coordinator and Presenter, seventeen counties, October—November 2011

East Kentucky Woodland and Wildlife Workshop, Program Coordinator, September 2011

2011 Woodland Owners Short Course, Short Course Coordinator and Presenter, Nelson County, Butler County, Bath County, August—September 2011

New County Extension Agent Orientation, September 2011

2011 College of Agriculture Ag Roundup, Department of Forestry Booth Coordinator, September 2011

Woody Biomass Harvesting in Kentucky Workshop Series, Program Co-coordinator and Focus Group Administration, Caldwell County, Laurel County, Rowan County, July 2011

Got Cedar: Now What? Workshops, Franklin and Bracken County, March—April 2011

Kentucky Woodland Owners Association Annual Meeting, Woodland Game interactive presentation, March-April 2011

Selling Timber presentation, Farm and Family Night, Mason County, March 2011

Managing Woodlands and Selling Timber presentation, Robertson County, January 2011

Emerald Ash Borer Urban Preparedness Conference, Conference Chair, Fayette County, December 2010

2010 Kentucky Farm Bureau Annual Meeting, Department of Forestry Booth Coordinator, December 2010

“Tax Considerations for Woodland Owners”, “Managing Your Woodlands”, “Certification of Kentucky Woodlands”, “Farm Bill Programs for Woodland Owners”, Radio Spots, University of Kentucky, College of Agriculture, Cooperative Extension Service, 2010

Tree Farmer of the Year Field Day, Coordinator and Presenter, Jackson County, November 2010

2010 Forestry Fall Webinar Series, Series Coordinator and Presenter, twenty-one counties, September—December 2010

Woodland Management and Timber Sales presentation, Elliott County, October 2010

County Forestry Programming for County Agents, 2010 East and Central Kentucky Agriculture and Natural Resources Extension Agents Update Meeting, Winchester, October 2010

2010 College of Agriculture Ag Roundup, Department of Forestry Booth Coordinator

2010 Woodland Owners Short Course, Short Course Coordinator and Presenter, Breathitt County, Caldwell County, Casey County, June—September 2010

Tree Measurements and Woodland Evaluation, Robinson Scholars Program, Russell County, June 2010

Forest Evaluation presentation, Kentucky Senior Forestry 4-H team, May 2010

Eastern Kentucky Forests program for the RCARS Youth Forestry Field Day, Breathitt County, May 2010

Local Forestry Organizations and Forestry Issues in Kentucky Presentation, Kentucky Woodland Owners Association Annual Meeting, Barren County, April 2010

Local Forestry Organization Meeting, Fleming County, January 2010

Tree Farmer of the Year Field Day, Logan County, November 2009

Woodland Management and Timber Sales presentation, Adair County, October 2009

2009 Forestry Fall Webinar Series, Series Coordinator and Presenter, thirteen counties, October—December 2009

2009 College of Agriculture Ag Roundup, Department of Forestry Booth Coordinator

2009 Woodland Owners Short Course, Short Course Coordinator and Presenter, Grant County, Boyd County, Breckinridge County, June—September 2009

Changing Roles Workshop Series for Kentucky Natural Resource Professionals, Coordinator and Presenter, August 2009

“Tree Planting Considerations”, “Tax Considerations for Woodland Owners”, “Getting the Most from Your Woodlands”, Radio Spots, University of Kentucky, College of Agriculture, Cooperative Extension Service, January 2009

Woodland Evaluation, Robinson Scholars Program, Russell County, June 2009

Invasive Species Management Crucial to Forest Health, Growing Kentucky TV Show, University of Kentucky, College of Agriculture, Cooperative Extension Service, May 2009

Forestry Program for Master Gardener participants, Rowan and Carter Counties, April 2009

Master Tree Farmer Webinar Series on Risks and Risk Management, March 2009

ATV Trespass Issues for Woodland Owners webinar, Lyon County, February 2009

Local Forestry Organization Meeting, Menifee County, January 2009

New County Extension Agent Orientation, December 2008

Research and Demonstration of Control Methods for Bush Honeysuckle in the Bluegrass.
Poster presentation at the Invasive Species Conference. Lexington, KY. Thomas, W., J. Stringer,
J. Cox. December 2008

Invasive Species Management Crucial to Forest Health, University of Kentucky Cooperative
Extension Service's "Growing Kentucky" TV program, December 2008

Invasive Species in Kentucky, Kentucky Farm Bureau's "Across Kentucky" Radio Program,
December 2008

Forests and Forestry Program, James Lane Allen Elementary, Fayette County, November
2008

Extension Extravaganza, West Kentucky 4-H Camp, October 2008

Woodland Owners Field Day, Carroll County, October 2008

Robinson Station Field Day, Breathitt County, September 2008

2008 Woodland Owners Short Course, Ohio County, Scott County, Rockcastle County,
Graves County, Hopkins County, Rowan County, Johnson County, Adair County, Marion
County, May—September 2008

Woodland Owners Field Day, Henry County, June 2008

Selling Timber, Ohio River Valley Woodland and Wildlife Workshop, March 2008

Local Forestry Organization Meeting, Menifee County, March 2008

Local Forestry Organization Organizational Meeting, Breathitt County, February 2008

Local Forestry Organization Meeting, Fleming County, January 2008

Forestry Extension Programming for County Agents, 2007 West Kentucky Agriculture and
Natural Resources Extension Agents Update Meeting, Princeton, December 2007

Local Forestry Organizations in Kentucky, 2007 Kentucky Farm Bureau Annual Conference, Louisville, December 2007

Forestry Extension Programming for County Agents, 2007 Central Kentucky Agriculture and Natural Resources Extension Agents Update Meeting, Elizabethtown, November 2007

Kentucky's Alien invasion, Kentucky Recreation and Park Society 2007 Annual Educational Conference, Lexington, November 2007

Timber Marketing, Annie's Project, Fleming County, November 2007

Empowering Forestry Extension with Geospatial Technology, University of Kentucky Forestry Departmental Seminar, November 2007

Forestry Extension Programming for County Agents, 2007 East Kentucky Agriculture and Natural Resources Extension Agents Update Meeting, Winchester, October 2007

Empowering Forestry Extension with Geospatial Technology, Poster at Society of American Foresters 2007 National Convention, October 2007

Woodland Pests and Sources of Assistance, 2007 Northeast Kentucky Forestry Series, Elliott County, October 2007

Local Forestry Organization Organizational Meeting, Fleming County, October 2007

Family Forests, Estill County Field Day, September 2007

Forest and Natural Area Invasive Plant Control Workshop, August 2007, Fayette County, KY

Tree Farmer of the Year Field Day, Hart County, September 2007

Geospatial Visualization of Forest Management Activities in Kentucky, Kentucky GIS Conference, Louisville, August 2007

2007 Woodland Owners Short Course, Henderson County, Owen County, Christian County, Bell County, Pulaski County, Ballard County, Lee County, Bullitt County, Floyd County, May - September 2007

Woodland Evaluation, Robinson Scholars Program, Russell County, June 2007

Bush Honeysuckle Control Options Television Program, shown on Lexington Fayette Urban County Government GTV-3, May 2007

Invasive Species Awareness Television Program, shown on Lexington Fayette Urban County

Government GTV-3, May 2007

Timber Management and Sales Seminar, Bullitt County, May 2007

Status of Kentucky's Forests, Radio Spot, University of Kentucky, College of Agriculture, Cooperative Extension Service, April 2007

Local Forestry Organization Organizational Meeting, Clay County, April 2007

Local Forestry Organization Organizational Meeting, Bell County, April 2007

Timber Management and Sales Seminar, Metcalfe County, April 2007

Tree Identification, Ohio River Valley Woodland and Wildlife Workshop, March 2007

Local Forestry Organization Organizational Meeting, Fleming County, March 2007

Local Forestry Organizations in Kentucky, Kentucky Woodland Owners Association Annual Meeting, Nicholas County, March 2007

Bush Honeysuckle Control Treatments, Bluegrass Invasive Weed Awareness Fair, The Arboretum, State Botanical Garden of Kentucky, Lexington, March 2007

Timber Management and Sales Seminar, Caldwell County, February 2007

Timber Management and Sales Seminar, Lyon County, January 2007

Local Forestry Organization Organizational Meeting, Harlan County, January 2007

Local Forestry Organization Organizational Meeting, Harlan County, December 2006

Forestry Extension Programming for County Agents, 2006 Central Kentucky Agriculture and Natural Resources Extension Agents Update Meeting, November 2006, Elizabethtown, KY

Kentucky's Woodlands and Management Options, Kentucky Women in Agriculture 7th State Conference, November 2006

Forestry Extension Programming for County Agents, 2006 East Kentucky Agriculture and Natural Resources Extension Agents Update Meeting, October 2006, Winchester, KY

Tree Farmer of the Year Field Day, Jefferson County, October 2006

Kentucky's Forest Resources, 2006 Northeast Kentucky Forestry Series, Lewis County, September 2006

2006 Woodland Owners Short Course, Hart County, Bell County, Christian County, Fayette

County, June—September 2006

Woodland Evaluation, Robinson Scholars Program, Edmonson County, June 2006

New County Extension Agent Orientation, June 2006

Kentucky's Forest Ecosystem Services, Breathitt County, June 2006

County Agent Forestry In-Service, Breathitt County, April & May 2006

Local Forestry Organizations in Kentucky, Kentucky Woodland Owners Association Annual Meeting, Harrison County, March 2006

Exploring Collaborative Opportunities, Kentucky Division of Forestry District and Chief Foresters Annual Meeting, February 2006

One Acre at a Time Forestry Seminars, Fayette County, January & February 2006
University of Kentucky Department of Forestry Extension

Website Project Management. 2006 - present, University of Kentucky Department of Forestry Extension

Contact Database Project Management. 2006 - present

2005 Woodland Owners Short Course, Henry County, Woodford County, Christian County, Fleming County, June - September 2005

What is Forestry as a Family Issue: Including Homemakers/Elders in the Delivery and Making of Forestry Information. 3rd Natural Resources Extension Professionals Conference. 2002. Naples, Florida

Laurel Gorge: Elliott County Economic Development, 2001 Kentucky GIS Conference, Lexington, KY, August 2001

Use of Participatory Methods to Design Forestry Extension Outreach Materials. 2nd Natural Resources Extension Professionals Conference. 2000. South Lake Tahoe, Nevada

Membership in Scientific, Professional, and Honor Societies:

- Society of American Foresters; Kentucky-Tennessee State Chapter: Secretary 2009, Treasurer 2010; East Kentucky Chapter, Chair 2008, Chair-elect 2007, Secretary/Treasurer 2006
- Kentucky Association of State Extension Professionals, 2008-present
- North East Kentucky Association of County Agents, Vice President, Secretary/Treasurer 1999-2002
- Kentucky Association of County Agents 1999-2002

Editorships:

- Kentucky Woodlands Magazine, Associate Editor. 2005-present
- Kentucky Woodlands E-News, Editor. 2011-present

Committees:

- UK Department of Forestry Program Review Committee, 2015
- Kentucky Association of State Extension Professionals Awards Committee, 2015
- University of Kentucky Cooperative Extension Service County Review Committee (Knott, Letcher, Pike), July 2013
- University of Kentucky Cooperative Extension Service County Review Committee (Scott), February 2012
- University of Kentucky Cooperative Extension Service County Review Committee (Clinton, Russell, Wayne), July 2011
- University of Kentucky Forestry Extension Committee 2005-present
- Kentucky Woodland Owners Association, Ex-Officio Board Member 2005-present
- Kentucky Tree Farm Committee, 2005-present
- Raven Run Citizens Advisory Board, Chair 2006-2007
- Kentucky Local Forestry Organization Steering Committee 2006-present
- Outstanding Forest Steward Award Committee 2005
- Kentucky Tree Farmer of the Year Review Panel 2005-present
- Kentucky Logger of the Year Review Panel 2005-present
- Tom Wallace Forestry Award Review Panel 2005

Experience:

December 2005 – Present: **Extension Forester**, University of Kentucky Department of Forestry, College of Agriculture, Cooperative Extension Service, Lexington, KY

November 2004 – December 2005: **Forest Landowner Education Coordinator** Kentucky Division of Forestry, Frankfort, KY

July 2002 – October 2004: **Project Manager**, Athenic Systems, Lexington, KY

August 1999 – July 2002: **County Extension Agent for Agriculture and Natural Resources**, University of Kentucky, College of Agriculture, Cooperative Extension Service, Elliott County, KY

May 1997 – August 1999: **Graduate Research Assistant**, Surface Mine Reclamation, University of Kentucky, Lexington, KY

May 1997 – December 1998: **Graduate Teaching Assistant**, Dendrology, University of Kentucky, Lexington, KY

July 1996 – August 1996: **Intern Forester**, Kentucky Division of Forestry, Frankfort, KY

May 1994 – May 1997: **Courier-Guard**, DHL Worldwide Express, Lexington, KY

July 1989 – July 1993: **Security Policeman**, US Air Force

Attendance at Professional and Scientific Meetings:

- 38th Council on Forest Engineering (COFE) Annual Meeting: Engineering Solutions for Non-industrial Private Forest Operations. Lexington, KY. July 2015.
- East Kentucky Society of American Foresters Spring Chapter Meeting, May 2015
- Kentucky Tennessee Society of American Foresters Summer Meeting, June 2014
- East Kentucky Society of American Foresters Spring Chapter Meeting, May 2014
- Kentucky State Extension Conference. Lexington, KY. February 2014
- Kentucky Association of State Extension Professionals. Lexington, KY. February 2014
- Workshop on Engaging Individual, Family, and Community Forestland Owners on Issues Related to Climate Change, National Academies of Sciences, Washington, DC, August 2013
- East Kentucky Society of American Foresters Spring Chapter Meeting, May 2013
- Southern Regional Extension Forestry Unit Leaders Meeting, Athens, Georgia, February 2013
- Kentucky Tennessee Society of American Foresters 2013 Annual Meeting, January 2013
- Kentucky Tennessee Society of American Foresters 2012 Annual Meeting, January 2012
- East Kentucky Society of American Foresters Fall Chapter Meeting, October 2011
- Invasive Species Conference, Lexington, Kentucky, May 2011
- East Kentucky Society of American Foresters Spring Chapter Meeting, May 2011
- Kentucky Association of State Extension Professionals. Frankfort, KY. March 2011
- Kentucky Tennessee Society of American Foresters 2011 Annual Meeting, January 2011
- 17th Central Hardwood Forest Conference. Lexington, KY. April 2010
- Kentucky Association of State Extension Professionals. Frankfort, KY. March 2010
- Kentucky Tennessee Society of American Foresters 2010 Annual Meeting, January 2010
- Invasive Species Conference, Lexington, Kentucky, December 2008
- East Kentucky Society of American Foresters Fall Chapter Meeting, Carter County, October 2008
- Biennial Conference of Kentucky Extension Specialists and Associates, April 2008
- Southern Forest Future Meeting, February 2008
- Southern Forestry Extension Unit Leaders Meeting, February 2008
- Kentucky Tennessee Society of American Foresters 2008 Annual Meeting, January 2008
- East Kentucky Society of American Foresters Fall Chapter Meeting, Breathitt County, October 2007
- Oak Regeneration Workshop, October 2007
- East Kentucky Society of American Foresters Spring Chapter Meeting, April 2007
- East Kentucky Society of American Foresters Fall Chapter Meeting, October 2006
- East Kentucky Society of American Foresters Spring Chapter Meeting, April 2006
- East Kentucky Society of American Foresters Fall Chapter Meeting, September 2005
- Kentucky Tennessee Society of American Foresters 2006 Annual Meeting, January 2006
- A Southern Region Conference on Technology Transfer and Extension in Natural Resources, Little Rock, AR, August 2006

- Kentucky Arborists Association's Annual Conference, 2005
- Urban Forestry Level II Training, 2005
- Wildland Fire Behavior (S-190), 2005
- Professional Forestry Workshop on Low Quality Hardwood Stands, 2005
- Small, Limited Resource, Minority Farmers Conference, 2004
- Plant Health Care Workshop, 2003
- University of Kentucky Hardwood Silviculture Short Course, 2002
- 2nd Natural Resources Extension Professionals Conference. 2000, South Lake Tahoe, Nevada
- 12th Central Hardwood Forest Conference. Lexington, KY. 1999

DEPARTMENT OF FORESTRY
College of Agriculture, Food and Environment
University of Kentucky

2015-2016 External Program Review

December 9-11, 2015

Programs Reviewed:

Bachelor's Degree in Forestry
Master's Degree in Forestry
Forestry Research
Forestry Extension

Review Committee:

Dr. Richard Coffey, Committee Chair – Chair, Department of Animal and Food Sciences, UK
Dr. Carmen Agouridis – Associate Professor, Department of Biosystems and Agricultural Engineering, UK
Dr. James Allen – Executive Director, School of Forestry, Northern Arizona University
Dr. Keith Belli – Chair, Dept. of Forestry, Wildlife and Fisheries, University of Tennessee
Dr. John Lhotka – Associate Professor, Department of Forestry, UK
Mr. Billy Thomas – Extension Forester, Department of Forestry, UK

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1. Review Process

The members of the review team were provided with the Department of Forestry's (DOF) self-study document (http://administration.ca.uky.edu/files/ppr_for_self_study.pdf). A copy of the agenda for the review team site visit is attached.

The review team met with Dr. Terrell "Red" Baker, Chair of the DOF for dinner on December 9, 2015. On December 10-11, 2015, the review team toured the DOF facilities (T.P. Cooper Building, Dimock Building, and the portion of Plant Science Building utilized by the Forest Health Center) and met with college administrators, DOF undergraduate and graduate students, DOF faculty and staff, Forestry Advisory Board, and Extension Agents.

2. Executive Summary

The DOF is composed of 15 faculty members (including the department Chair), an Academic Coordinator, professional staff, and support staff who participate in the instruction, research, and outreach efforts of the department. Based on our interactions with the various members of the department, the review team felt that the morale and environment in the department was generally very positive. Despite some very real challenges related to the physical environment where the department is housed, the review team concluded there is a definite sense that the department is moving in a positive direction in all of their program areas, and that the Chair is providing good leadership with a forward-looking vision. Conversations with students (both undergraduate and graduate), Extension Agents, and stakeholders provided additional confirmation that the DOF is doing an overall good job of meeting needs in all areas of responsibility. The review team identified eight (8) primary recommendations for the department that can be found below. Additionally, specific strengths, areas for improvement, and suggestions within each program area are provided by the review team for consideration.

3. Primary Recommendations from the Review Committee

- A. With input from College, develop a plan to replace facilities to provide faculty, staff, and students with suitable office, laboratory, and classroom space.
- B. Simplify the administrative structure for Robinson Forest and Robinson Center for Appalachian Resource Sustainability (RCARS) with an eye towards sustaining the forest and Wood Utilization Center.
- C. Develop a succession plan to effectively deal with a significant number of faculty openings that will be the result of faculty members retiring in the next 5-10 years. This plan should include additional staffing at both the faculty and staff level to meet current and future needs in research, teaching, and extension.
- D. Develop a Ph.D. program for the department. Careful consideration will need to be given to what additional graduate level Forestry courses will need to be added and who will teach these courses.

- E. Aggressively work towards improving the diversity of the department's faculty and undergraduate student population.
- F. With the involvement of all departments and students that comprise the multidisciplinary Natural Resources and Environmental Science (NRES) program, explore and address both the perceived and real underlying tensions between the Forestry and NRES programs.
- G. Continue development of the Forest Health Center (FHC) to meet the needs of the department, college, and forestry industry. Consideration should be given to providing the needed staffing, facilities, and equipment, including the possibility of co-locating the FHC and DOF in any new facility that is built.
- H. Continue developing relationships with stakeholders and support industries. In addition to departmental interaction with these groups, it is important for college administration (particularly the Dean) to have periodic, direct contact with these groups as well.

4. External Review Committee Observations

A common, general theme expressed by faculty, staff, undergraduate students, graduate students, post-doctoral scholars, industry partners, and stakeholders that affects all DOF program areas is the inadequacy of the current on-campus facilities that house a majority of the department's personnel and activities (i.e., T.P. Cooper Building and Dimock Building). In particular, the HVAC systems in these facilities are very dated and do not maintain a thermoneutral environment, which leads to offices, laboratories, and classrooms that are uncomfortable and in which learning is difficult. Additionally, laboratory space and laboratory capabilities limit the kinds of research projects that can be conducted, thereby limiting the kinds of grants that can be pursued.

Below are review team observations for each of the DOF's program areas.

A. Bachelor's Degree in Forestry

Strengths

- i. A commitment by the faculty and staff to provide high quality instruction to undergraduate students majoring in both Forestry and NRES.
- ii. Support provided by the Academic Coordinator.
- iii. Offering an accredited Forestry degree program.
- iv. A significant population of veterans in the Forestry degree program.
- v. A tremendous sense of community amongst undergraduate students, as well as a definite sense of ownership in the department.
- vi. A very good record of employment for the program's graduates.

Areas for Improvement

- i. Evaluate and identify ways to increase the number and diversity of students. Questions to help in this evaluation might include:

- Does the current “set” curriculum, which is designed to meet accreditation, negatively impact student enrollment (i.e., fewer options for students to specialize)?
- Does the department’s name (DOF) limit the ability of prospective students to see the broader scope of subject matter that encompasses the Forestry degree program?
- Do the current facilities discourage prospective students from attending?
- Could the department partner with donors to offer undergraduate scholarships as a way to increase the number and diversity of students?
- ii. Look for ways to help students understand the differences between the Forestry and NRES majors, and provide ways to help students choose between these majors to best suit their career goals.
 - How do students perceive and choose between these programs?
 - Can some of the early courses be co-taught by Forestry and NRES to give students more time to understand and decide between the two majors?
- iii. Strengthen and/or expand undergraduate curriculum to provide greater emphasis on general business law, economics, urban forestry, and “on the ground” skills (i.e., basic land survey techniques, timber sales, business administration, etc.).
- iv. Temperature control in classroom facilities.

Committee Suggestions

- i. Consider a potential name change that more accurately reflects the broader scope of the department curriculum beyond traditional forestry (e.g., Department of Forestry and Natural Resource Management or Department of Forestry, Wildlife, and Natural Resource Management).
- ii. Survey students in the Forestry and NRES degree programs to learn why a larger number and more diverse population of students chose to major in NRES rather than in Forestry. It might also be fruitful to include students in Arts and Sciences’ new Environmental and Sustainability Studies major in the survey.
- iii. Develop a plan for how undergraduate student advising, DUS activities, and DGS activities will be handled when the faculty members with these responsibilities retire.
- iv. Evaluate if development of B.S. degree programs (or concentration areas) in Urban Forestry and Agroforestry would be beneficial to students and the department.

B. Master’s Degree in Forestry

Strengths

- i. Good support from and interaction with the department’s faculty and staff.
- ii. Most graduate faculty advisors provide good access to professional development opportunities for their graduate students.
- iii. Good diversity (gender, ethnicity) amongst current graduate students.
- iv. An active Graduate Student Association (GSA) that is well supported by current graduate students. As current leaders of the GSA graduate, it will be important to help develop the next leaders for GSA to keep students engaged and involved.

Areas for Improvement

- i. Office space for graduate students and properly purposed laboratory space to support research projects.
- ii. More rigorous and applicable graduate level Forestry courses, coupled with better access to appropriate graduate courses from other departments. One particular course need that was noted by graduate students was a better and more applicable statistics course.
- iii. Provide opportunities for more engagement between graduate and undergraduate students.
- iv. Introduce new faculty, staff, and post-doctoral scholars to graduate students.

Committee Suggestions

- i. Continue pursuing the addition of a PhD degree program in Forestry.
- ii. Increase the number of female faculty members to serve as advisors/mentors to female graduate students.

C. Forestry Research

Strengths

- i. Despite facility/laboratory limitations and the heavy teaching responsibilities of research faculty, research productivity has been maintained at a relatively high level.
- ii. The FHC is recognized as important to meeting needs of forestry industry.
- iii. Applied research efforts that support Best Management Practices (BMPs), water quality, economic impact, etc.
- iv. Keeping industry/stakeholders informed of all research efforts and how they impact (or potentially will impact) the forestry industry.

Areas for Improvement

- i. Improved laboratory space and equipment. Current laboratory space places clear limits on the types of research activities that can be supported.
- ii. Infrastructure (internet, cell phone access, roads, etc.) at Robinson Forest and RCARS.
- iii. Due to teaching demands for meeting the accredited professional degree instructional requirements, many of the research faculty carries a relatively high teaching DOE. This creates limits on time that can be devoted to research activities.
- iv. Identify ways to better utilize the Wood Utilization Center in research program (currently used mostly for training/demonstration)
- v. Addition of other faculty expertise (genetics, forest health, urban forestry, agroforestry) would expand and further diversify the research capabilities of the department.

Committee Suggestions

- i. Additional staffing both on campus and at Robinson Forest, such as Research Associates/Technicians or Research Field Staff, could greatly expand the research output of the department's research faculty.

- ii. Evaluate how other successful Experiment Station Forests are organized, maintained, and funded to better support research efforts, and potentially use as a model for how to structure Robinson Forest.
- iii. Develop a competitive pool of funds for summer field support that faculty can use to bolster summer research activities.
- iv. Encourage more faculty to take sabbaticals, with an emphasis on enhancing their research programs.

D. Forestry Extension

Strengths

- i. Stakeholders, industry, and governmental partners, and County Extension Agents have a high regard for the Extension faculty and staff and their programs.
 - o Especially noted by stakeholders were the Master Logger Program and the Woodlands Owners Short Course.
 - o Extension 4-H Agents are eager to engage with faculty and staff to provide a recruiting pathway into the Forestry major.
- ii. Use of Wood Utilization Center for trainings and demonstrations.
- iii. Technical expertise provided to the department's partners in Natural Resources Conservation Service, Kentucky Division of Forestry, Kentucky Department of Fish and Wildlife Resources, and Kentucky Farm Bureau.
- iv. Webinars provided by the department are well-received and appreciated by stakeholders, industry and governmental partners, and County Extension Agents.
 - o The department has developed a wonderfully equipped room for producing webinars.
- v. Support and programs for introductory level 4-H members.

Areas for Improvement

- i. Outreach to urban forestry clientele (e.g., more emphasis on tree care for homeowners).
- ii. Development of educational resources on firewood.
- iii. Development of programs for older (e.g., middle school and high school aged) 4-H members.

Committee Suggestions

- i. Develop agroforestry and urban forestry programs.
- ii. Provide workshops for older (e.g., middle school and high school aged) 4-H members at Teen Conference and for volunteers at the biannual Volunteer Forum.
- iii. As resources allow, hire additional Extension faculty and staff to allow expansion of existing efforts and development of programs in areas of need.
- iv. Consider development of a training "short course" for K-12 teachers in the areas of forestry and environmental management as a way to indirectly impact students. A possible template for this concept is the *Teacher's Conservation Workshops* used by the University of Tennessee Extension.



Department of Forestry
Program Review Site Visit Agenda
December 9-11, 2015

Wednesday, December 9

- Arrivals: Dr. Allen arrives at Bluegrass Airport at 6:15 p.m., United Airlines flight 6164. Dr. Lisa Collins transports Dr. Allen to Hilton Lexington Downtown, 369 W Vine St, Lexington, 859-231-9000. Dr. Belli arrives via personal vehicle.
- 6:45 p.m. Dr. Richard Coffey transports Drs. Allen and Belli from Hilton Hotel to Portofino Restaurant, 249 East Main St. Lexington, KY, 40507 (phone 859-253-9300).
- 7:00-8:30 p.m. Committee has dinner and working session with Department Chair Red Baker. Dr. Richard Coffey returns Drs. Allen and Belli to Hilton Hotel.

Thursday, December 10

- 7:30-8:30 Breakfast on own (External guests may dine at Hilton Hotel and charge to room)
- 8:30-9:00 Dr. Richard Coffey transports external guests from Hilton Hotel to Ag North
- 9:00-10:00 Meet with College of Agriculture, Food and Environment Dean Cox and Assistant Dean for Academic Administration Lisa Collins, AIC 1st Classroom
- 10:00-11:00 Meet with Associate Deans, AIC, First Meeting Room
Dr. Rick Bennett, Research
Dr. Larry Grabau, Instruction
Dr. Jimmy Henning, Extension
Dr. Steve Workman, Administration and Facilities
- 11:00-11:15 Break, Dr. Richard Coffey transports committee to 217 T. P. Cooper Bldg. Van is parked behind T. P. Cooper Building in reserved space. Look for orange cone.
- 11:15-12:15 Meet Dr. Baker, department chair, for a departmental facility tour and discussion, T. P. Cooper Bldg. and Dimock Bldg.
- 12:15-1:15 Working lunch from UK Catering in 217 T. P. Cooper Bldg. with invited undergraduate students (***Dr. John Lhotka recused***)
- 1:15-1:45 Break, Dr. Richard Coffey transports committee to Plant Science Building for continued facility tour with Dr. Red Baker; transports committee to E. S. Good Barn.
- 1:45-3:15 Meet with Forestry Advisory Board/stakeholders in E. S. Good Barn, Weldon Suite
- 3:15-4:00 Break (beverages and snacks)
- 4:00-5:00 Meet with 4-H Youth Development Extension agents in E. S. Good Barn, Weldon Suite (some will join via Polycom)
- 5:00-7:00 Working dinner from UK Catering with Robinson Forest presentation by Dr. Jeff Stringer (chair, Robinson Forest Technical Committee), Chris Osborne (Robinson Forest Management Forester), and Bobby Ammerman and Chad Niman (Wood Utilization Center) in E. S. Good Barn, Weldon Suite.
- 7:00 Dr. Richard Coffey transports Drs. Allen and Belli to Hilton Hotel

Friday, December 11

- 7:30-8:30 Working breakfast with review committee at Triangle Grille, Hilton Hotel, 859-281-3773. Dr. Coffey coordinates transportation for other committee members to Hilton Hotel.
- 8:30-8:45 Dr. Richard Coffey transports committee to 217 T. P. Cooper Bldg.
- 8:45-9:45 Meet with faculty, 217 T. P. Cooper Bldg. (first of two available sessions)
- 9:45-10:45 Meet with staff, 217 T. P. Cooper Bldg. (**Dr. John Lhotka recused**)
- 10:45-11:00 Break (coffee, pastries, fruit)
- 11:00-12:00 Meet with faculty, 217 T. P. Cooper Bldg. (second of two available sessions)
- 12:00-1:00 Working lunch from UK catering in 217 T. P. Cooper Bldg. with invited graduate students and post-docs. (**Dr. John Lhotka recused**).
- 1:00-1:45 Work session, 217 T. P. Cooper Bldg.
- 1:45-2:00 Break, Dr. Richard Coffey transports committee to Ag N
- 2:00-3:00 Meeting to present findings, AIC, First Meeting Room
Dean Nancy Cox
Dr. Rick Bennett, Associate Dean, Research
Dr. Larry Grabau, Associate Dean, Instruction
Dr. Jimmy Henning, Associate Dean, Extension
Dr. Steve Workman, Associate Dean, Administration and Facilities
Dr. Lisa Collins, Assistant Dean for Academic Administration
Tim West, Director of Operations and Associate General Counsel
Stephen Sizemore, Chief Financial Officer
- 3:15 Dr. Richard Coffey transports external guests to Hilton Hotel
- 3:30 Dr. Richard Coffey takes Dr. Belli to hotel. Dr. B. departs via personal vehicle

Saturday, December 12

- 7:30 a.m. Dr. Allen is transported to the airport by Dr. Richard Coffey or Hilton staff; United Airlines flight 3258 departs at 8:57 a.m.

Review Committee

<u>Name</u>	<u>Affiliation</u>
Richard Coffey, Chair	UK, Dept. of Animal and Food Sciences, Chair
Dr. James Allen	N Arizona U, Exec. Director, School of Forestry
Dr. Keith Belli	UT, Chair Dept. of Forestry, Wildlife & Fisheries
Dr. Carmen Agouridis	UK, Dept. of Biosystems and Agricultural Engineering
Dr. John Lhotka	UK, Department of Forestry
Billy Thomas	UK, Department of Forestry Extension

Administrative Support:	<u>Office Phone</u>
Lisa Collins	859-257-7249
Betsy Kephart	859-257-0741
Megan Lucy	859-257-7249
Leslie Queary	859-257-7596

UK Program Review Implementation Plan

College/Unit: Department of Forestry

Date: 9/12/2016

Recommendations/ Suggestions	Source I/E/H*	Accept/Reject	Unit Response (goal or objective alignment)	Actions (including needed resources & Approximate Costs)	Time Line
<p>With input from College, develop a plan to replace facilities to provide faculty, staff, and students with suitable office, laboratory, and classroom space.</p>	E	A	<ul style="list-style-type: none"> • A recent CAFE survey identified the Thomas Poe Cooper (TPC) building as being unsuitable for conducting many types of research, much less cutting-edge research. • Substandard facilities have limited the types of research that we conduct, our ability to compete for extramural funding, and, ultimately, will negatively impact our ability to attract high-quality faculty. • The building is not ADA compliant and the teaching facilities are not conducive to high-quality instruction. Temperatures in TPC are regularly too hot or too cold for effective instruction or learning. • Faculty and students regularly remark that TPC is a very poor example of an energy efficient, cutting-edge, green building which, given the subject matter taught here (forestry, wildlife, sustainability, conservation, environmental stewardship), should be an example to the citizens of Kentucky. 	<ul style="list-style-type: none"> • UK Dept. of Forestry has been working with CAFE administration to develop a plan to construct a new facility to house Forestry and aligned (i.e., Entomology, Landscape Architecture, NRES, etc.) programs. • A prospectus has been prepared describing the need, the vision, and the resources to construct such a facility. • Dean Cox has visited with the Provost and UK administration regarding our needs and a new facility for these programs is among the CAFE's top capital improvement priorities. • The new building has also been on the UK Capital Improvement List for some time, though budget cuts may threaten progress on this front. • We are working with partners 	<p>The goal is to have plans in place to begin construction by 2020.</p>

				<p>(i.e., USDA, KY. Dept. of Forestry, private entities) to identify support and funding for such a facility, and we have identified many members of the greater forestry and forest products industries in Kentucky that are supportive of our proposal.</p> <ul style="list-style-type: none"> • We are also identifying intermediate improvements to be made to TP Cooper Building and Dimock Building in the event a new facility continues to be delayed. 	
<p>Simplify the administrative structure for Robinson Forest and Robinson Center for Appalachian Resource Sustainability</p>	E	A	<ul style="list-style-type: none"> • The restructuring that occurred in 2009 to create RCARS was never fully implemented, offering little or no accountability for administering RCARS and ensuring adequate facilities and cooperation for departments like Forestry to use RCARS as a launching point for educational programs focused on eastern KY. • The staffing structure at Robinson Forest often leaves the Forest Manager shorthanded to conduct important managerial activities at the forest. Simultaneously, the Forest Manager is regularly asked to handle many camp responsibilities that would otherwise be handled by RCARS personnel. A similar situation has developed at the Wood Utilization Center where the Wood Technician, who had functioned for many years as a lab technician for wood products, has now been tasked with making and selling wood products, leaving Forestry shorthanded to utilize the WUC most effectively and efficiently for educational programming and industry education/relations. 	<ul style="list-style-type: none"> • We suggest that RCARS personnel at Robinson Forest be supervised by Chris Osborne (Management Forester at Robinson Forest). This would create additional efficiencies as Chris often struggles to find adequate personnel to address in-forest management needs, particularly when these often involve heavy equipment or dangerous machinery which requires two employees to be present during operation. Similarly, Chris can reciprocate by helping to handle RCARS issues at Robinson Forest. • We recommend a similar arrangement at the Wood Utilization Center to be supervised by Bobby 	<p>Our goal is to see measurable efficiencies develop by the end of 2016.</p>

				<p>Ammerman, Secondary Wood Products Specialist and primary educational user of the Wood Utilization Center. This would effectively allow Bobby to maintain industry relationships, use the Wood Technician for educational programming, and increase his programming effectiveness and reach.</p> <ul style="list-style-type: none"> • Since Dr. David Williams was selected as the new Director of RCARS, we have discussed opportunities to identify efficiencies and to improve collaboration, communication, and the effectiveness of educational program development. We look forward to working with David on these efforts. 	
<p>Develop a succession plan to effectively deal with a significant number of faculty openings resulting from faculty retirement in the next 5-10 years, including plans</p>	E	A	<ul style="list-style-type: none"> • Forestry currently has a bi-modal distribution of faculty in terms of seniority and tenure; of our 13 faculty, six are within 5-10 years of retirement. • One of the biggest limitations Forestry currently faces is not just a succession plan for faculty, but a plan to increase staff support for faculty. Historically, UK Forestry has maintained minimal research staff support compared to other units in the CAFE. 	<ul style="list-style-type: none"> • UK Forestry is currently conducting a search for a Forest Economics and Policy faculty member that prepares us for the retirement of Dr. Jim Ringe, who teaches Forest Economics. The new faculty member will overlap with Dr. Ringe who can help with this transition. • We are also in the process of replacing a retiring Administrative Staff Assistant at Quicksand, who supports Forestry Extension personnel at RCARS. 	2016-2018

<p>for additional staffing at both the faculty and staff level to meet current and future needs in research, teaching, and extension.</p>				<ul style="list-style-type: none"> • UK Forestry sees the need to increase staff support for Forestry researchers and suggests our teaching and administrative contributions to the interdisciplinary NRES program would be one justification for this because a significant portion of our faculty's time is devoted to this program, which affects faculty research productivity. 	
<p>Develop a Ph.D. program for the department. Careful consideration will need to be given to what additional graduate level Forestry courses will need to be added and who will teach these courses.</p>	E	A	<p>A Ph.D. program would 1) attract students that otherwise would go outside the state, 2) attract and retain high-quality faculty, 3) attract high-quality grants and contracts, and 4) accrue other indirect benefits to our department and student body (graduate and undergraduate), not to mention research faculty.</p>	<ul style="list-style-type: none"> • The new graduate proposal form for the Kentucky Council on Postsecondary Education (CPE) was submitted to the Office of Institutional Effectiveness for review/consultation for SACSCOC (Southern Association of Colleges and Schools Commission on Colleges) requirements. Initial review suggests proposal is nearly complete except for 1) Budget, 2) SACS Faculty Roster, and 3) Course Curriculum Form. • Next steps involve CAFE review and approval and UK Graduate Council, Senate, and UK Board of Trustees approval before final submission to CPE. 	<p>In process with expected completion 2018.</p>
<p>Aggressively work towards improving the</p>	E	A	<ul style="list-style-type: none"> • Forestry has made this an objective over the last five years by actively recruiting faculty candidates nationally, and specifically seeking 	<ul style="list-style-type: none"> • We are currently conducting a search for a Forest Economics and Policy faculty member. All 	<ul style="list-style-type: none"> • The UK Forestry website went live on April 1, 2016

<p>diversity of the department's faculty and undergraduate student population.</p>		<p>those from underrepresented groups. In each of our last four faculty hires, our short-list candidate pools have contained individuals from underrepresented groups and two of our last four faculty hires have been from underrepresented groups.</p> <ul style="list-style-type: none"> • We have also made significant attempts to reach undergraduate students from underrepresented populations. A considerable portion of our Academic Coordinator's early efforts were directed toward recruitment of minority individuals by utilizing numerous venues across the University for engaging prospective and existing minority students. • The percent of first generation college students in the forestry program has continued to rise from 2010 (16%) to 2015 (35%); currently, Spring Semester 2016, approximately one-half of our students identify as first-generation college students and over 20% of our students are from underrepresented groups (e.g., minority and/or female). • Much like our peer institutions, recruiting minority and underrepresented students into our student body is extremely difficult when they don't gravitate to these disciplines without some prior passion for or exposure to them. 	<p>three interviewees for this position are from underrepresented groups.</p> <ul style="list-style-type: none"> • We are also in various stages of the process for developing a succession plan for replacing several faculty approaching retirement and will continue to actively recruit candidates from underrepresented groups with these hires. • In March 2016, UK Forestry established an <i>ad hoc</i> Student Engagement committee to improve recruitment in general, as well as identify opportunities to specifically recruit individuals from underrepresented groups. • The committee is also designing opportunities and programs to increase engagement of youth interested in forestry, wildlife, and natural resources subjects and help them see college and career opportunities in these fields. • We believe starting youth engagement early, particularly for individuals from underrepresented groups, is critical for long-term recruitment success. To that end, we recently hired an Extension Forestry Associate to provide forestry and natural resources youth education programs that raise the awareness and 	<p>and we expect this to be a useful tool for reaching broader audiences and potential students.</p> <ul style="list-style-type: none"> • We anticipate the new UK Core classes to be approved by the UK Undergraduate Council by Fall Semester 2016.
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				<p>importance of Kentucky's forests.</p> <ul style="list-style-type: none"> • The Extension Forestry Associate and our Academic Coordinator are working closely together to coordinate efforts for student engagement and recruiting. • We have also proposed five new courses in the UK Core that may attract undecided UK students to our forestry program. • We have also created a new website to provide improved access and understanding of our forestry program. • We will continue to serve first-generation college students, as well as military veterans. • We are also planning annual professionalism trainings for undergraduate and graduate students to prepare them for working appropriately with individuals from different backgrounds and experiences. 	
<p>With the involvement of all departments and students that comprise the multi-disciplinary Natural Resources and</p>	E	A	<ul style="list-style-type: none"> • Interviews with faculty, staff, and previous Forestry administrators indicated a long-term, complicated relationship with NRES (sometime complementary, sometimes competitive). Some of the confusion may stem from a failed effort to create a more formal partnership between the two programs back in the early-to-mid 2000s, after which little information was shared with Forestry personnel about the outcome of that exercise. 	<ul style="list-style-type: none"> • We believe a strong commitment from CAFE administration is required to address this issue. Attempts to deal with these issues on a case-by-case, or one-to-one basis, and even visiting with representatives from CAFE administration over the last several years, have not been 	2016-2017

<p>Environmental Science (NRES) program, explore and address both the perceived and real underlying tensions between the Forestry and NRES programs.</p>		<ul style="list-style-type: none"> • Efforts to break down communication barriers, identify synergies/efficiencies, and collaboratively engage students from both majors have been less than optimal. • Other universities have experienced similar phenomena with interdisciplinary programs; resources being allocated away from existing and principal units becomes a dis-incentive for cooperation and investment. • Forestry faculty and staff enjoy teaching and contributing in other ways (i.e., steering committee) to the NRES program due to the obvious synergies and similarities between programs. Further, students within each program should benefit by being and learning in proximity to one another. • Forestry faculty also enjoy the connection to NRES for the summer employee and potential graduate student relationships that often develop. 	<p>successful.</p> <ul style="list-style-type: none"> • A deliberate and strategic effort must be used to overcome the observed challenges. 	
<p>Continue development of the Forest Health Center (FHC) to meet the needs of the department, college, and forestry industry. Consideration should be given to providing the needed</p>	<p>E A</p>	<ul style="list-style-type: none"> • The Forest Health Research and Education Center (FHREC) has been a successful joint venture between UK, Kentucky Division of Forestry, and the USDA Forest Service Southern Research Station. The FHREC, and laboratory resources provided by CAFE, have significantly enhanced Forestry's grantsmanship and engagement of cutting-edge research. • Since its inception two years ago, the FHREC has attracted over \$1.5 million in extramural funding (grants and gifts), not including the initial \$350,000 investment. • The FHREC collaborates with scientists around the world to help understand and solve our most pressing tree and forest health problems, in both rural and urban environments. 	<ul style="list-style-type: none"> • The FHREC has already attracted two full-time Forest Service scientists, who are now permanently located on UK's campus, for the first time ever. We expect the US Forest Service to add personnel to the FHREC on UK's campus. • The FHREC sees the need to bring additional faculty and staff positions to several departments in the CAFE. • We envision pursuing a cluster hire which would allow us to hire the following disciplines: a tree physiologist/ eco-physiologist, a tree geneticist, 	<ul style="list-style-type: none"> • Complete cluster hire proposal in 2016. • Submit a request to the JGB Foundation for an endowed chair position in 2017; we have been in discussions with UK Philanthropy regarding this possibility.

<p>staffing, equipment, and facilities, including the possibility of co-locating FOR and the FHC in any new facility that is built.</p>				<p>human dimensions of forest health science and technology adoption, host-pest computational ecology/ bioinformatics, and forest and tree health outreach and education.</p> <ul style="list-style-type: none"> • These experts would be placed into several departments including Forestry, Plant Sciences, Plant Pathology, Entomology, and Horticulture. We also intend to pursue several staff support positions. • We have been in discussion with our partners regarding their interest in making contributions to a new environmental sciences building that would house forestry and aligned programs (see recommendation # 1 above). • We also have plans to request endowment support from one or more external foundations to support an endowed chair of forest genetics and have recently discussed this with the UK Office of Philanthropy relative to the James Graham Brown Foundation. 	
<p>Continue developing relationships with stakeholders and support</p>	<p>E</p>	<p>A</p>	<ul style="list-style-type: none"> • Forestry maintains a significant partnering and stakeholder network including federal agencies (USFS, USFWS, NPS, NRCS), state agencies (KDF, KDFWR, State Nature Preserves, KDA, among others), organizations (KFIA, KWOA, KFCA, MACED, KY Farm Bureau, TNC, ARRI, 	<ul style="list-style-type: none"> • We see opportunities to ensure that our partners fully understand all missions of the department, which is critical to optimizing the Department's impact and to improving 	<p>2016-2018</p>

<p>industries. In addition to dept. interaction with these groups, it is important for college administration (particularly the Dean) to have periodic, direct contact with these groups as well.</p>			<p>KDA), and many individuals, businesses and companies across the region.</p> <ul style="list-style-type: none"> • The department’s stakeholders are not restricted to organizations and associations; we frequently work with the general public, school groups, and other individuals as warranted. • Forestry is looking forward to involving the new Senior Director of Philanthropy in its external relationships, particularly from a fundraising standpoint. 	<p>collaboration, assistance, and advocacy. While a majority of our stakeholder engagement occurs through Forestry Extension, further work is needed to ensure that vital instruction and research accomplishments impacting society is effectively conveyed to our stakeholders.</p> <ul style="list-style-type: none"> • Though we have made significant strides in recent years, we recognize that many of our partners do not regularly see, nor are they regularly seen by, the CAFE or UK administration and we will work to increase this awareness in both directions. • The launch and continued maintenance of the Department’s new website will provide a much needed tool to help the Department strengthen relationships and messaging. • Effectively using the relatively new Forestry Advisory Group will aid in increasing awareness both internally and externally. 	
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* Source of Recommendation (I = Internal recommendation; E = External Review Committee recommendation; H = Unit Head recommendation)

** Accept/Reject Recommendation (A=Accept; R=Reject)

Unit Head Signature: _____ Unit Head Supervisor Signature: _____ Date: _____