

Robert L. Ficklin

Associate Professor

School of Forest Resources, University of Arkansas- Monticello

Arkansas Forest Resources Center

Monticello, AR 71656

<http://www.ficklinsoils.net/>; E-Mail: ficklinr@ficklinsoils.net

Phone: 870-460-1692

I. Education:

Soil and Atmospheric Sciences (Ph.D.) - University of Missouri

Forestry- Forest Soils (MS)- University of Missouri

Statistics- Minor (MS)

Forest Resource Management (BS)- University of Missouri

Ph.D. Dissertation:

Ficklin, Robert L. 2002. An Empirical Approach for Better Estimating Soil Organic Carbon and Bulk Density Using a Fixed-Volume Sampling Method. Doctoral Dissertation- University of Missouri. Columbia, Missouri. 189 pp.

M.S. Thesis:

Ficklin, Robert L. 1997. Reduction of Timber Production Externalities by Using an Alternative Harvesting Technique to Minimize Soil and Stand Damage. Master's Thesis- University of Missouri. Columbia, Missouri. 145 pp.

II. Professional Objectives:

Instruction: To foster an appreciation of the complexities of natural systems, particularly biotic and abiotic interactions that influence soil and water chemistry and plant physiology. I enjoy teaching courses that are integral to the development of well-rounded and competent natural resource professionals. My philosophy of teaching is that experiential learning is the best approach for reinforcing key concepts that students will need in their professional careers. As both natural resource sciences and electronic technologies evolve, I am committed to integrating new modes of knowledge delivery into my courses, but I am a strong advocate of maintaining significant faculty-student interaction regardless of the technologies brought to bear for teaching and information transfer.

Research: To expand scientific understanding of the influences of anthropogenic activities on soil fertility, soil carbon, water quality and pedogenic processes. I want to continue research on innovative approaches to quantifying changes in soil and water chemistry under various forms of watershed management, particularly the renewed interest in woody biomass production for biofuel feedstock. I also want to investigate how and why microbiotic communities vary across landforms and landscapes, and I recognize the need

for developing new methodologies for rapidly and accurately analyzing soil and plant samples. Additionally, I want to quantify how biotic and abiotic soil properties affect the mineralization and immobilization of plant essential elements and the interaction of vegetation with the soil ecosystem. From an applied research perspective, I am interested in global climate change research as it relates to soil carbon sequestration, as well as the economic and policy implications associated with carbon sequestration in soils.

III. University Teaching Experience:

A. Faculty Positions:

Associate Professor of Forest Soils. July 2008 to present. University of Arkansas-Monticello, Arkansas Forest Resources Center. Appointment: 60% Research/ 40% Teaching. Courses taught: Forest Soils (with web-based lecture option), Advanced Forest Soils (graduate), Tree Ecophysiology, Forest Operations, and Contemporary Issues- Field Studies.

Assistant Professor of Forest Soils. November 2002 to July 2008. University of Arkansas-Monticello, Arkansas Forest Resources Center. Appointment: 60% Research/ 40% Teaching. Courses taught: Same as at present.

Instructor of Forest Soils. January 2002 to November 2002. University of Arkansas-Monticello, Arkansas Forest Resources Center. Appointment: 60% Research / 40% Teaching. Courses taught: Forest Soils; Tree Ecophysiology and Forest Operations

Instructor of Watershed Management/ Forest Hydrology- the University of Missouri (2001). Topics included hillslope hydrology, hydro-physics, streambank management, and erosional processes.

Instructor (contracted) of Agricultural Economics- Ecological Economics, the University of Missouri (1998). Emphasized fundamental supply/ demand, pricing, efficiency, externality, and policy issues. Worked with the University Office of Service Learning to place students with three non-profit organizations: the City of Columbia, the Columbia Audubon Society (two separate groups), and the Center for Sustainable Living. The objective of the service learning placements was to get students to apply environmental economic principles to "real-life" situations.

Teaching Assistant for Soils and Atmospheric Sciences- Soil Science Laboratory, the University of Missouri (1998). Responsibilities included direction of soil science experiments for twelve students, web site creation/ maintenance for the course, and two lectures to all lab sections consisting of approximately sixty students.

Substitute Instructor for Forest Ecosystem Management, the University of Missouri (1997 and 1999). Presented and evaluated the following topics: economic derivation of optimized externalities and sampling to determine regeneration sufficiency. Directed the initial design and implementation of a forest inventory of stands at the

Prairie Fork Conservation Area to support the management plan portion of the class.

Teaching Assistant for Natural Resources Policy and Administration, the University of Missouri (1994). Assisted students with writing assignments and graded and administered tests. Also attended a workshop for Teaching Assistants in "writing intensive" courses at the University.

B. Thesis Committees- Completed Theses¹:

¹Foley, Shane M. 2007. Utilizing near infrared reflectance spectroscopy as a tool for assessing soil/plant chemistry and forage quality in the Ozark Highlands. Master's Thesis. University of Arkansas, Monticello. 117 pp.

Surendra, G.C. 2007. Harvesting and information seeking behavior of nonindustrial private forest landowners under threat of red oak borer. Master's Thesis. University of Arkansas, Monticello. 85 pp.

Hurd, Matthew B. 2006. Individual-tree, merchandized stem, green weight equations for hardwood sawtimber trees in southern Arkansas. Master's Thesis. University of Arkansas, Monticello. 108 pp.

¹Richardson, Joshua D. 2006. Effects of poultry litter applied to pine plantations and pastures on water quality and soil nitrogen mineralization. Master's Thesis. University of Arkansas, Monticello. 105 pp.

McKnight, Ryan W. 2005. The effects of fertilization on the vegetation dynamics of young loblolly pine (*Pinus taeda* L.) plantations. Master's Thesis. University of Arkansas, Monticello. 58 pp.

C. Thesis Committees- Theses Pending¹:

¹Bhandari, Bikash. Development of near infrared spectral models for characterizing the chemical and physical properties of Amy silt loam soils in southeastern Arkansas.

Hartley, Jonathan I. Individual tree weight equations for total green biomass and total merchantable pulpwood for plantation cottonwoods in eastern Arkansas.

Joshi, Omkar. Factors influencing NIPF landowners' decision to supply biomass for bioenergy production.

Dipesh, K.C. Estimating belowground biomass in fast growing, short rotation woody biomass plantations in the Lower Mississippi Alluvial Valley.

¹ Thesis supervisor

IV. Publications and Presentations:

A. Peer-Reviewed Publications:

Ficklin, R.L., S.M. Foley and R.E. Kissell, Jr. 2007. Quantifying soil chemical properties using near infrared spectroscopy. *Journal of the Arkansas Academy of Science* 61:44-50.

Ficklin, R.L. and M.G. Shelton. 2007. Effects of light regime and season of clipping on the growth of cherrybark oak, white oak, persimmon, and sweetgum sprouts. *Journal of the Arkansas Academy of Science* 61:51-58.

Ficklin, R.L., S.R. Mehmood and P.F. Doruska. 2007. Integrating science into public policy: challenges and opportunities for improved forest carbon accounting. *Journal of Agricultural, Food and Environmental Sciences* 1(1). Available at <http://www.scientificjournals.org/journals2007/articles/1026.htm> (verified 9-14-2007).

Ficklin, R.L., R.I. Dresbach and J.D. Richardson. 2006. A reliable, inexpensive method for creating samples of known carbon and nitrogen concentrations for use in dry combustion C-N analyzers. *American Laboratory News* 38(17): 26-27.

Ficklin, R.L., Dwyer, J.P. and R.D. Hammer. 2004. Changes in soil organic carbon concentration and quantity following selection harvesting. *Proceedings of the 14th Central Hardwood Forest Conference. USDA Forest Service General Technical Report NE-316; 217-223 pp.*

Ficklin, R.L.; Dwyer, J.P.; Cutter, B.E. and Draper, T. 1997. Residual tree damage during selection cuts using two skidding systems in the Missouri Ozarks. *Proceedings of the 11th Central Hardwood Forest Conference. USDA Forest Service General Technical Report NC-188; 36-46 pp.*

[This paper also is summarized in a publication of the Food and Agriculture Organization of the United Nations, COFO Committee on Forestry, Thirteenth Session, March 10-13, 1997, Rome, Italy. Summarized by R. Heinrich: {FAO Forest Harvesting Bulletin, Vol. 7(1): 3.}]

Ficklin, R.L., E.G. Dunn, and J.P. Dwyer, J.P. 1996. Ecosystem management on public lands: an application of optimal externality to timber production. *Journal of Environmental Management* 46(4): 395-402.

B. Peer Edited Papers, Reports and Abstracts:

Papers

Ficklin, R.L. *In Press*. Factors for forest landowners to consider when marketing the value of carbon sequestration by their loblolly pine stands. Arkansas Forest Resources Center Symposium. Ferndale, Arkansas. May 25, 2006.

Foley, S.M., R.L. Ficklin and R.E. Kissell, Jr. *In Press*. Relationships among soils, forage plant quality, and White-tailed deer reproduction in the Ozark highlands. Arkansas Forest Resources Center Symposium. Ferndale, Arkansas. May 25, 2006.

Ficklin, R.L., M.G. Shelton and A.M. Carter. 2005. Carbon sequestration with loblolly pine-storage both aboveground and belowground. In: Proceedings of the 2004 Arkansas Forestry Symposium. R.E. Parris, Ed., Little Rock, AR, May 26, 2004. pp. 71.

Ficklin, R.L. 2005. Skidding logs with draft animals: still a viable option? Faculty Impact Statements; Romund, Holland & Medders, Eds. Arkansas Agricultural Experiment Station, Research Series 528. pp.78.

Ficklin, R.L., M.G. Shelton. 2004. Effects of fertilization on root-to-shoot biomass allocations in loblolly pine seedlings. Faculty Impact Statements; Medders, Romund & Holland, Eds. Arkansas Agricultural Experiment Station, Research Series 516. pp. 26.

Ficklin, R.L. and R.D. Hammer 2003. Measuring soil organic carbon in forest landscapes with diverse landforms. Faculty Impact Statements; Medders & Romund, Eds. Arkansas Agricultural Experiment Station, Research Series 503: pp 48-49.

Ficklin, R.L. 2003. Using a web-based chat interface for learning and examination preparation. Faculty Impact Statements; Medders & Romund, Eds. Arkansas Agricultural Experiment Station, Research Series 503. pp 64.

Reports

Liechty, H.O., R.L. Ficklin and H.C. Stuhlinger. 2007. Enhancement of early loblolly pine production through inorganic fertilizer and pelletized poultry litter applications. Report to Agricultural Experiment Station- Soil Testing Research Program. 8 pp.

Kissell, R.E., Jr., R.L. Ficklin and M. Gilbert. 2006. Effect of hardwood canopy coverage on accuracy of recreational global positioning system units. Report to NASA- Arkansas Space Grant Consortium, March 2006.

Shelton, M.G. and Ficklin, R.L. 2003. Effects of light and soil moisture regime on the growth of cherrybark oak, white oak, persimmon, and sweetgum seedlings. Final Report to the USDA Forest Service Southern Research Station. Cooperative Agreement 33-CA-99-738. 30 pp.

Ficklin, R.L. 2003. Geology, soils, landforms and forest productivity in the Gulf Coastal Plain.

Presentation to future Forest Service Silviculturalists at Crossett Experimental Forest, Crossett, Arkansas. CD publication.

Shelton, M.G. and R.L. Ficklin. 2002. Effects of light regimes on two year old sweetgum and water oak seedlings. Report to the USDA Forest Service Southern Research Station. 18 pp.

Ficklin, R.L., R.D. Hammer and J.P. Dwyer. 2000. Bulk density estimation in rocky Ozark forest soils. Report to Missouri Department of Conservation. Conservation Research Center, Columbia, MO. 26 pp.

Abstracts

Ficklin, R.L and S.M. Foley. 2007. Chemical Analysis of Ozark Forest Soils Through Near Infrared Reflectance Spectroscopy. International ASA-CSSA-SSSA meetings. New Orleans, LA. November 4-8, 2007.

Ficklin, R.L and S.M. Foley. 2007. Using Near Infrared Reflectance Spectroscopy to Relate Forest Soil and Plant Chemistry. International ASA-CSSA-SSSA meetings. New Orleans, LA. November 4-8, 2007.

Ficklin, R.L. *In Press*. Evaluating the relationships between soil and foliar nutrient concentrations through the use of chemical and near infrared spectroscopic analytical techniques. In: Arkansas Academy of Science- 91stth Annual Meeting. Russellville, Arkansas.

Ficklin, R.L., J.D. Richardson and H.O. Liechty. 2005. Carbon and nitrogen status of forest and pasture soils nine months after poultry litter application. Abstract No. 324-5. International ASA-CSSA-SSSA meetings. Salt Lake City, Utah. November 6-10, 2005.

Ficklin, R.L. 2005. Soil carbon enrichment by loblolly pine rhizodeposition. Abstract. Southern Regional Branch ASA meetings. San Antonio, Texas. June 19-21, 2005.

Ficklin, R.L. 2005. Loblolly pine biomass corollaries of soil organic carbon content. In: Arkansas Academy of Science- 89th Annual Meeting. Conway, Arkansas. April 8-9, 2005.

Liechty, H.O., J. Richardson, R. Colvin, S. Wilson, and R.L Ficklin. 2005. Surface and soil water chemistry following poultry litter application to pastures and a loblolly pine plantation. Abstract No. 299-10. International ASA-CSSA-SSSA meetings. Salt Lake City, Utah. November 6-10, 2005.

Richardson, J.D., R.L. Ficklin and H.O. Liechty. 2005. Effects of land-use and poultry litter application on water quality and soil nitrogen mineralization. Abstract No. 34-1. International ASA-CSSA-SSSA meetings. Salt Lake City, Utah. November 6-10, 2005.

- Richardson, J.D., H.O. Liechty and R.L. Ficklin. 2005. Effects of land-use and poultry litter application on soil nitrogen mineralization. Abstract. Southern Regional Branch ASA meetings. San Antonio, Texas. June 19-21, 2005.
- Ficklin, R.L. and H.O. Liechty. 2004. C-N status of gulf coastal plain forest and pasture soils prior to poultry litter amendments. Abstract No. 4482. International ASA-CSSA-SSSA meetings. Seattle, Washington. October 31 to November 4, 2004.
- Ficklin, R.L. and R. Dresbach. 2004. Custom quality control/calibration standards for analyzing soil C and N using dry combustion analyzers. Abstract No. 4469. International ASA-CSSA-SSSA meetings. Seattle, Washington. October 31 to November 4, 2004.
- Ficklin, R.L., B. Zeide and R. Colvin. 2004. Fertilization of agroforests- a double-edged sword? In: Book of Abstracts. The 1st World Congress of Agroforestry. Chair: P. K. R. Nair. Gainesville, Florida, USA. June 27 to July 2, 2004. pp. 304.
- Ficklin, R.L. and M.G. Shelton. 2003. Preliminary results on the contribution of loblolly pine seedlings to soil organic carbon via rhizodeposition. Abstract No. S07-ficklin846017. International ASA-CSSA-SSSA meetings. Denver, Colorado. November 2-6, 2003.
- Ficklin, R.L., R.J. Kremer and M. Fang. 2003. Variability of microbial activity and populations across landforms based on select enzymatic assays and PCR analyses. Abstract No. S07-ficklin-555695. International ASA-CSSA-SSSA meetings. Denver, Colorado. November 2-6, 2003.
- Ficklin, R.L., R.D. Hammer and J.P. Dwyer. 2002. The magnitude of soil organic carbon in an upland Ozark forest soil, with consideration of temporal and spatial variability. Abstract No. S07-ficklin163759. International ASA-CSSA-SSSA meetings. Indianapolis, Indiana. (*This paper was selected for inclusion in a special symposium on carbon accounting.*)
- Ficklin, R.L., R.D. Hammer and J.P. Dwyer. 2002. The importance of experimental stratification when measuring soil organic carbon pools- implications for applying marketable permits to Ozark forest systems. Abstract No. S07-ficklin164726. International ASA-CSSA-SSSA meetings. Indianapolis, Indiana. (*This paper was selected for inclusion in a special symposium on carbon accounting.*)
- Ficklin, R.L., R.D. Hammer and J.P. Dwyer. 2001. Modeling bulk density in rocky Ozark forest soils. Abstract In: International ASA-CSSA-SSSA Meetings Proceedings. Charlotte, North Carolina.
- Ficklin, R.L., R.D. Hammer and J.P. Dwyer. 1999. Bulk density and carbon relationships in the Missouri Ozarks. Abstract In: International ASA-CSSA-SSSA Meetings Proceedings. Salt Lake City, Utah.

C. Manuscripts in Review, Revision or Preparation:

Foley, S.M., R.L. Ficklin and R.E. Kissell, Jr. *In Review*. Utilizing near infrared reflectance spectroscopy as a tool for relating plant and soil chemistry. *Forest Ecology and Management*.

Foley, S.M., R.E. Kissell, Jr. and R.L. Ficklin. *Under Revision*. Utilizing near infrared spectroscopy to determine forage quality of blueberry plants in the Ozark Highlands for white-tailed deer. *Journal of Wildlife Management*.

Ficklin, R.L., M. Fang and R.J. Kremer. In preparation. Variation in enzymatic activities and microbial genotypes in an upland Ozark forest soil.

Ficklin, R.L., R.D. Hammer and J.P. Dwyer. Draft from dissertation. Estimation of Ozark forest soil bulk density using an empirical approach for correcting sample volume errors.

Ficklin, R.L., R.D. Hammer and J.P. Dwyer. Draft from dissertation. Association of soil organic carbon concentration with coarse fragments across three Ozark forest landforms.

Kissell, R.E., Jr., R. Hines, S. Foley and R.L. Ficklin. In Review. Declining size of deer over time on the White River National Wildlife Refuge. Southeastern Arkansas Fisheries and Wildlife Association.

D: Professional Presentations without Published Abstracts:

Richardson, J.D., H.O. Liechty, R.L. Ficklin, S.D. Wilson. 2006. Using poultry litter as a nutrient amendment in mid-rotation loblolly pine plantations: Short-term impacts on groundwater quality in comparison to pasture application areas. 2006 Arkansas Forest Resources Center Symposium. Ferndale, Arkansas. May 25, 2006.

Ficklin, R.L. 2006. Loblolly pine, global climate change and the carbon cycle- how are these related? Southeastern Arkansas Society of American Foresters Meeting. Monticello, AR. September 11, 2006.

Foley, S., Kissell, R.E., and Ficklin, R.L. 2006. Relationships between soil and forage plant quality related to white-tailed deer in the Ozark Highlands. The Wildlife Society Conference. Anchorage, AK. September 25-29, 2006.

Kissell, R.E., Hines, R., Foley, S., and Ficklin, R.L. 2006. Changes in deer weights over time on the White River National Refuge. The Wildlife Society Conference. Anchorage, AK. September 25-29, 2006.

Ficklin, R.L. 2004. Forest soils: Site productivity and carbon sequestration. Radio

interview- 30 minutes, November 9, 2004. Timber Talk; host: Ted Reynolds.
Stations: KZHE, KWRF, KMTB, KWXE, KWXI. Archive: www.timbertalk.com.

Ficklin, R.L., S.R. Mehmood and P.F. Doruska. 2003. Integrating science into public policy: challenges and opportunities for improved forest carbon accounting. The 10th North American Forest Soils Conference- Forest soils research theory, reality and its role in technology transfer. Sault Ste. Marie, Ontario. July 20-24, 2003.

Multiple presentations to elementary, secondary, undergraduate, and graduate students during my tenure as the *Research and Education Coordinator* for the Prairie Fork Conservation Area. I also provided tours of the research projects on-site to professional researchers and professors (1999 to 2001).

Presentation to a national group of Forest Service principal investigators involved with the Long Term Soil Productivity Project [LTSP] (1997). Presented first quantitative evidence of compaction associated with fixed-volume sampling.

V. Grants and Proposals:

Evaluating multifunction bioenergy ecosystems. USDA-CSREES-NRI, Managed Ecosystems (FY2008- In Review); \$400,000. Project Leader: M. Pelkki; CoPIs: M. Blazier, R.L. Ficklin, H.O. Liechty, S. Mehmood, D. Patterson, W. Pitman, P. Tappe, C. West, and H.C. Stuhlinger.

Developing near infrared reflectance calibration curves for quantifying select soil and tree foliage properties in the lower Mississippi alluvial valley of Arkansas. The University of Arkansas- Monticello Research Board Grant (2007-2008); \$1,950. PI: Robert L. Ficklin.

Spectral analysis of feces to delineate differences in habitat use of swamp rabbits by sex. The University of Arkansas- Monticello Research Board Grant (2007-2008); \$2,710. Co-PIs: Robert E. Kissell, Jr. and Robert L. Ficklin.

The Price Company bio-fuels study- Lambert biofuel project. The Price Companies, Inc. (2006-2013); \$52,164. Co-PIs: Jamie Schuler, Matthew Pelkki, Hal Liechty, Robert L. Ficklin, Dave Patterson, and Chris Stuhlinger.

Enhancement of early loblolly pine production through inorganic fertilizer and pelletized poultry litter application. Soil Testing and Research- AAES (2006-2009); \$57,270. Co-PIs: Hal O. Liechty, Robert L. Ficklin and H. Chris Stuhlinger.

Relationships among soils, forage plant quality and white-tailed deer reproduction in the Ozark highlands. The University of Arkansas Agricultural Research Center- Research Initiation Grant (2005-2006); \$19,980. PI: Robert L. Ficklin; Collaborator: Robert E. Kissell, Jr.

Monitoring of water quality at Warren, AR, atmospheric deposition study site (AR03). National Atmospheric Deposition Program (NADP). USGS-NADP (2005-2010); \$32,340. PI: Robert L. Ficklin.

Effect of hardwood canopy coverage on accuracy of recreational GPS units. NASA-Arkansas Space Grant Consortium and the University of Arkansas – Monticello Research Board Grant. (2005-2006); \$5,145. Co-PIs: Robert E. Kissell, Jr. and Robert L. Ficklin.

Changes in phosphorus, nitrogen and carbon in forest plantation and pasture soils and runoff following poultry litter applications. USDA-CSREES (2005-2007); \$13,641 & two-year graduate research assistantship. PI: Robert L. Ficklin; Cooperator: Hal O. Liechty.

Identifying soil/plant chemical and remote sensing proxies for assessing white-tailed deer herd health in the Ozark highlands. The University of Arkansas- Monticello Research Board Grant (2005-2006); \$2,295. Co-PIs: Robert L. Ficklin and Robert E. Kissell, Jr.

Silvicultural methods to rehabilitate oak forests following salvage logging. Special Technology Development Program (2004); {proposal not funded}. Co-PIs: Matthew Pelkki, Hal Liechty, Robert Ficklin and Tamara Walkingstick.

Monitoring of water quality at Warren, AR, atmospheric deposition study site (AR03). National Atmospheric Deposition Program (NADP). USGS-NADP (2004-2005); \$6,152. PI: Robert L. Ficklin.

An environmental and economic evaluation of pine plantations as an alternative to pastures for disposal of poultry litter in the Southeastern United States. USDA-NRI-Managed Ecosystems. (2005-2009); {proposal not funded}. Co-PIs: Hal O. Liechty, Adrian Ares, Robert L. Ficklin, Mike Daniels, Mike Phillips, Matthew Pelkki, Duane Wolfe.

Greenhouse and field studies of loblolly pine rhizodeposition. USDA-CSREES (2003- 2005); \$14,377. PI: Robert L. Ficklin; Collaborator: Michael G. Shelton.

Competitive grant for a two year graduate research assistantship (one of only two available). The University of Arkansas- Monticello (2003-2005); \$30,000.

Surface water quality, soil chemistry, and tree growth response from application of poultry litter to pasture and forest landscapes. The University of Arkansas Agricultural Research Center Research Initiation Grant (2002-2003); \$18,324. Collaborators/Co-PIs: Hal Liechty, Robert L. Ficklin and Eric Heitzman.

Quantification of soil core sampling compaction and soil organic carbon spatial and

temporal variability in the Missouri Ozarks. The Missouri Department of Conservation, Missouri Ozark Forest Ecosystem Project (MOFEP) (1998-1999); ≈\$25,000. Collaborators: John P. Dwyer (Co-PI), R. David Hammer (Co-PI), Russell Dresbach, Patrick Hutchison, Brian Brookshire and Tom Draper.

The effects of alternative harvest methods on soil productivity and forest health in the Ozark Highlands. The Missouri Department of Conservation and the School of Natural Resources- University of Missouri (1996-1998); ≈\$27,000. Collaborators/PIs: R. David Hammer and John P. Dwyer.

A comparison of conventional and alternative skidding techniques used for selection harvests in the Missouri Ozarks. Missouri Research Board (1995-1996); ≈\$20,000. Collaborators/PIs: R. David Hammer and John P. Dwyer.

VI. Extension, Service and Outreach Projects:

Chairman of Communications and Website Committee and Executive Council member- Ouachita Chapter (AR&OK) of the Society of American Foresters. (April 2007 to Present)

Secretary-Treasurer for the Southeast Arkansas Chapter of the Ouachita Society of American Foresters. (January 2004 to Present)

State of Arkansas Liaison for the United States Smithsonian Institute Soil Science History and Education Display. (April 2003 to Present)

Co-Organizer for the 3rd Annual Gulf Forest Soils Conference. February 7-8, 2005. Monroe, Louisiana. Collaborator: Hal O. Liechty.

Session Moderator at International ASA-CSSA-SSSA meetings in Denver, CO. A5/S11 session: Watershed scale approaches and processes. (November 4, 2003)

Chairman of Teller's Committee for Arkansas Society of American Foresters (2006)

Reviewer for Professional Journals: Soil Science Society of America Journal, Forest Science, Forest Ecology and Management, Journal of Environmental Management, Southern Journal of Applied Forestry, Northern Journal of Applied Forestry, Central Hardwood Forest Conference Proceedings, and Agricultural Water Management.

Arkansas Forestry Association Teachers' Conservation Workshop (2006). Topic: Soils and land use. Arkansas Forest Resources Center, University of Arkansas- Monticello. June 19-22, 2006.

Consultant- Invited as an expert participant in the Forest Service "Program of Advanced

Silviculture Studies" {PASS} - Region 8, Coastal Plain Pine Module. I instructed Silviculturalists on the geology, soils, landforms and productivity of the region. I provided both classroom materials and hands-on field experience for this module. (May 2003)

Advisor for the forestry honor society, Xi Sigma Pi- Alpha Chi Chapter, at the University of Arkansas- Monticello. (August 2002 to Present)

Advisor for the School of Forest Resources Graduate Student Association, University of Arkansas- Monticello (August 2007 to Present)

Committee Service on the following University of Arkansas- Monticello committees: Academic Appeals (2 years), Faculty Research Committee, American Democracy Project, Library committee (school and campus- 2 years), Program Review Committee (2006 & 2007) and various ad hoc committees (January 2002 to Present)

Participant in educational programs for certified forester and registered forester training and evaluation. Conducted youth education programs designed to foster future forestry, soils, and general environmental scientists and managers. (January 2001 to Present)

VII. Additional Professional Experience:

Research and Education Coordinator for the Prairie Fork Conservation Area (PFCA). Coordinator of all research, education, and management activities for the PFCA, which is an outdoor laboratory for research and education activities. The University of Missouri School of Natural Resources and the Missouri Department of Conservation co-direct the use of the PFCA. Coordinated and worked with others to develop and maintain electronic network resources. (July 1999 to December 31, 2001)

Graduate Research Assistant as Doctoral candidate in soil science. Evaluated seasonal variability of soil organic carbon in the Missouri Ozark mountains, and developed models to permit accurate measurement of bulk density in soils with high coarse-fragment contents. Advisor: Dr. R. David Hammer. (August 1997 to July 1999)

Graduate Research Assistant as Master's candidate. Examined the biological and economic implications of soil disturbance and tree damage resulting from conventional and alternative harvesting methods-- Advisor: Dr. John P. Dwyer. (August 1993 to August 1997)

Consultant for the City of Columbia, Missouri. Provided tree species and landscape location recommendations to participants in the Tree Power energy conservation program. Contracted to perform landscape audits/ surveys and to make landscaping

recommendations for improving energy efficiency. The program averaged approximately 600 to 800 clients per year. (1993 through 2001)

VIII. Ongoing and Recently Completed Research Projects:

- A. Development of near infrared reflectance spectral (NIRS) calibration curves for chemical analysis of soils and foliage of select tree species in the lower Mississippi Alluvial Valley (LMAV). Principal Investigator **(Ongoing)**

Goals and Objectives: (1) to quantify and compare soil physical and chemical properties determined by standard laboratory methods and by NIRS modeling, (2) to relate foliar NIR spectral signatures to soil chemistry by NIRS modeling, and (3) to initiate the development of a NIRS calibration library for the foliage of select tree species and the associated soils in the LMAV.

- B. The Price Company bio-fuels study- Lambert biofuel project. Co-Principal Investigator with Dr. Jamie Schuler, Dr. Matthew Pelkki, Dr. Dave Patterson, Dr. Charles West (UAF), and Mr. Chris Stuhlinger. **(Ongoing)**

Goals and Objectives:

1. To identify the optimum cutting cycle for one commonly used spacing
2. To determine the production potential and longevity of coppiced stools over time associated with multiple short cutting cycles
3. To evaluate perennial grass varieties for adaptation to soil drainage conditions as measured by establishment success and biomass yields
4. To quantify changes in belowground carbon and nitrogen accumulation on the site by species

- C. Enhancement of early loblolly pine production through inorganic fertilizer and pelletized poultry litter application. Co-Principal Investigator with Dr. Hal O. Liechty and Mr. Chris Stuhlinger. **(Ongoing)**

Goals and Objectives:

1. To quantify the effects of different rates of N and P addition on early loblolly pine growth in four soils with inherent differing levels of soil P availability
2. To determine if current soil P guidelines, developed using Bray-Kurtz P-1 and/or Mehlich I extractions, give accurate fertilizer recommendations when soil P is determined by extractions procedures (Mehlich III) commonly used in Arkansas

3. To compare loblolly pine growth responses from the addition of N and P as pelletized poultry litter to those obtained with additions of inorganic fertilizer
4. To quantify changes in soil and soil water chemistry due to pelletized poultry litter application

D. Remote sensing of plant nutrition and soil fertility: Relationships among soils, forage plant quality and white-tailed deer reproduction in the Ozark Highlands. Co-Investigator with Dr. Robert E. Kissell, Jr. **(Completed)**

Goals and Objectives:

1. To relate specific spectral characteristics of selected forages with forage quality and soil chemical properties (both macro and micronutrients)
2. To assess the reproduction of white-tailed deer populations in the Ozark Highlands of Arkansas in relation to soil characteristics and forage quality

E. Rhizodeposition and carbon sequestration: Principal Investigator. **(Completed)**

Goals and Objectives:

1. To measure the increase of soil organic carbon (minus live roots) from loblolly pine during two years of growth
2. To determine if the ratio of soil carbon to nitrogen changes during the growth of young loblolly pine seedlings

F. Effects of poultry litter applications on soil and water nitrogen dynamics: Co-Principal Investigator for soils and water quality within a multidisciplinary team, Arkansas Agriculture Experiment Station Research Initiative Program. **(Ongoing)**

Goals and Objectives:

1. To determine the level and rate of change in forest and pasture soil and water chemistry with long-term applications of poultry litter
2. To evaluate the ability of forests to mitigate impacts of poultry litter applications on water quality
3. To quantify the potential timber growth enhancements associated with applications of poultry litter to managed forests
4. To evaluate economic feasibility of poultry litter applications in a managed forest

G. National Atmospheric Deposition Project- USGS: Principal Investigator. ***(Ongoing)***

Goals and Objectives: To monitor changes in pH and chemistry of precipitation at a USGS satellite monitoring station in Warren, AR.

H. The Influence of Soil Fertility on Insect Damage in Loblolly/ Shortleaf Pine Agroforests. Collaborator with Dr. Boris Zeide. ***(Completed)***

Goals and Objectives:

1. To determine if soil fertility predisposes pines grown in agroforests to insect damage following fertilization.
2. To determine if amendments of soil calcium can reduce the rate of insect infestation of cones and foliage in agroforests.

IX. Professional/Honorary Organizations and Awards:

Professional

Soil Science Society of America

American Society of Agronomy

American Chemical Society

Society of American Foresters

Certified Forester® #1206 (Society of American Foresters)

Arkansas Forestry Association

American Association for the Advancement of Science

Arkansas Association of Professional Soil Classifiers

Arkansas Academy of Science

Honorary

Gamma Sigma Delta Honor Society

National Honor Society

Sigma Xi Scientific Research Society

Xi Sigma Pi Honor Society

Awards

Outstanding Communicator of the Year Award- 2007 (AR Division of Ouachita SAF)

Superior Graduate Achievement Award (MU, CY 2002-2003)

Charles Edmund Marshall Merit Scholarship- outstanding graduate student in soil or environmental sciences (2000)