

CURRICULUM VITAE

NAME: Frank Stuart Gilliam

CURRENT POSITION: Research Professor

ADDRESS: Department of Biology
University of West Florida
Pensacola, FL 32514

Home: 6781 Community Drive
Pensacola, FL 32526

Cell Phone: (304) 544-0098

Office Phone: (850) 474-2750

E-mail: fgilliam@uwf.edu

WWW Site: <http://www.franksgilliam.com/>

PERSONAL DATA: Marital Status: Married (Laura)
Children: One daughter (Rachel), one son (Ian)

EDUCATION: B.S. Vanderbilt University, 1976 (General Biology) (minor: Chemistry)
M.F. Duke University, 1978 (Forest Ecology)
Ph.D. Duke University, 1983 (Forest Ecology)
Dissertation: Effects of fire on components of nutrient dynamics
in a lower Coastal Plain watershed ecosystem.
Department of Forestry and Environmental Studies, Duke
University, Durham, NC. 261 pp. 1983.

PROFESSIONAL EXPERIENCE:

Full Professor, Department of Biology, University of West Florida (August 2018-present).
Professor Emeritus, Department of Biological Sciences, Marshall University (August 2018-present).
Full Professor, Department of Biological Sciences, Marshall University (March 1998-August 2018).
Associate Professor, Department of Biological Sciences, Marshall University (March 1993-March 1998).
Acting Dean, The Graduate School, Marshall University (June-July 1995, June 1996)
Full Member, Graduate Faculty, Marshall University (October 1990-present).
Assistant Professor, Department of Biological Sciences, Marshall University (August 1990-March 1993).
Adjunct Member, Graduate Faculty, The University of North Carolina at Greensboro (October 1989-
August 1990).
Lecturer, Department of Biology, The University of North Carolina at Greensboro (August 1988-August
1990).
Research Associate, School of Forestry and Environmental Studies, Duke University (January 1988-July
1988).
Research Associate, Department of Environmental Sciences, University of Virginia (December 1985-
December 1987).
Research Associate, Division of Biology, Kansas State University (November 1983-November 1985).
Research Assistant, Department of Forestry and Environmental Studies, Duke University (May 1979-
September 1983).
Naturalist, Weymouth Woods-Sandhills Nature Preserve, Southern Pines, North Carolina (May 1978-
September 1978).

RESEARCH INTERESTS:

Ecosystem ecology; plant ecology; conservation ecology; community ecology; succession; fire ecology; plant-soil interactions; ecosystem responses to disturbance; terrestrial ecosystem nutrient cycling; soil nutrient dynamics; atmospheric deposition processes.

HONORS AND AWARDS:

Professor Emeritus (Marshall University): 16 August 2018
 Finalist, Reynolds Teacher of the Year, Marshall University: 2014-2015.
 Marshall University Distinguished Artist and Scholars Award,
 Senior Recipient for Excellence in Science and Technology: 2010-2011.
 Finalist, Reynolds Teacher of the Year, Marshall University: 2006-2007.
 Hedrick Outstanding Faculty Award: 2001-2002.
 Marshall University Distinguished Artist and Scholars Award,
 Senior Recipient for Excellence in Science and Technology: 1999-2000.
 Finalist, Professor of the Year in West Virginia: 1998-99.
 Finalist, Reynolds Teacher of the Year, Marshall University: 1998-99.
 Outstanding Graduate Advisor, Marshall University: 1998.
 Elected honorary member of ΦΗΣ, National Honor Society: 1998.
 Faculty merit awards—Marshall University: 1995, 1996, 1997, 1999, 2000, 2001, 2002, 2004.
 Chosen as “Fabulous Faculty Member” by ΦΗΣ, National Honor Society: 1997, 1998, 1999, 2000.
 Elected member of OΔK, National Leadership Honor Society: 1995.
 Elected Who’s Who Among America’s Teachers: 1994.
 Elected full member of Sigma Xi, The Scientific Research Society: 1991.
 Nominee, Silver Jubilee Award from the British Society of Soil Science: 1988.

SOCIETY MEMBERSHIPS:

Ecological Society of America

COURSES TAUGHT (* denotes team-taught course):

University of Virginia:	EVAT 542—Microclimate*
University of Virginia:	EVSC 493/EVEC 793—Nutrient Cycling in Global Ecosystems
University of North Carolina at Greensboro:	BIO 101/102—Principles of Biology BIO 105—Major Concepts in Biology BIO 231—The Human Environment BIO 320—Marine Biology* BIO 611—Seminar in Ecology* BIO 690—Advanced Problems in Plant Ecology PSC 300/510—Environmental Policy* CHE 252—Chemistry in the Human Environment*
Marshall University:	BSC 121—Principles of Biology BSC 320—Principles of Ecology BSC 430/530—Plant Ecology BSC 491—Capstone Course BSC 491—Ecosystem Ecology BSC 662—Graduate Student Seminar* HON 101—Introduction to Honors

COURSES TAUGHT:

University of West Florida: PCB 3403—Ecology
 PCB 3403L—Ecology Laboratory
 PCB 4905—Directed Study (Plant Ecology)
 PCB 4905—Directed Study (Pharmaceutical Impacts)
 IDH 4030—Ecology of Florida
 PCB 4990/5990—Plant Ecology

GRADUATE STUDENT ADVISING:

Graduate Advisor: Ms. Nicole Turrill (M.S. 1993), Ms. Staci Aulick (M.S. 1993), Mr. Mike Nowlin (M.S. 1993), Mr. Mark Fisher (M.S. 1996), Ms. Anne Hockenberry (M.S. 1996), Mr. Bradley Yurish (M.S. 1996), Mr. Robert Jarrett (M.S. 1996), Ms. Jennifer Parsley (M.A. 1997), Ms. Nikki Lyttle (M.S. 2001), Mr. David Dick (M.S. 2003), Mr. David Willson (M.S. 2004), Mr. Jake Billmyer (M.S. 2015)

Member: M.A. committee
 Mr. Michael Tomblyn

M.S. thesis committee
 Ms. Janet K. Fletcher, Ms. Kimberly Miller, Mr. Naiming Wang, Mr. Timothy Stark, Mr. Stephen Greene, Mr. Russell Shrader, Ms. Anne Hubbard, Ms. Beth Burdette, Mr. Conor Keitzer, Ms. Cassie Waters, Ms. Tristan Bond, Ms. Katy Pawlik, Mr. Noah McCoard, Mr. Frank Piccininni, Mr. Justin Weiss, Mr. John Northeimer, Mr. Sean Collins, Mr. Timothy Brust, Mr. Brian Williamson, Ms. Marcella Cruz, Mr. Ben Koester

Ph.D. dissertation committee
 Dr. Christine Small (Ohio University)
 Dr. Sybille Haeussler (Université du Québec à Montréal)
 Dr. Anne McIntosh (University of Alberta)

NATIONAL SERVICE:

Panel Member: USDA, National Research Initiative Competitive Grants Program, Program Area 26.0 (Watershed Processes and Water Resources), April 2004

Panel Member: Environmental Protection Agency's Clean Air Scientific Advisory Committee, Secondary National Ambient Air Quality Standards for NO_x and SO_x Review Panel

Program Chair: Ecological Society of America, 95th Annual Meeting, 2010, Pittsburgh, PA

Chapter Chair: Ecological Society of America, Southeastern Chapter, 2006 to 2008

Session Chair: Ecological Society of America, Session 30E—Plant Physiological Ecology, June 1985, Minneapolis, Minnesota.
 Association of Southeastern Biologists, Session 3—Plant Ecology, April 1992, Tuscaloosa, Alabama.
 Ecological Society of America, Session 23—Succession, August 1994, Knoxville, Tennessee.
 Ecological Society of America, Session 97—Nitrogen Cycling, August 1995, Snowbird, Utah
 Ecological Society of America, Session 52—Carbon and Nitrogen Cycling: Soil processes and patterns, August 2001

NATIONAL SERVICE (continued):

Symposium Organizer/

Chair: Ecological Society of America, Session 24—Effects of forest management on plant biodiversity: patterns and mechanisms in forest ecosystems, August 1993, Madison, Wisconsin
 Ecological Society of America, Session 18—Ecology and dynamics of the herbaceous layer of forest communities of eastern North America, August 1998, Baltimore, Maryland
 2nd North American Forest Ecology Workshop, Session 14—Response of Understory Plant Diversity to Forest Practices, June 1999, Orono, Maine
 Ecological Society of America, Session 8—Old-growth savannas as models for management of upland coastal systems: the role of disturbance in a time of global change, August 2003, Savannah, Georgia
 Ecological Society of America, Session 18—Preserving and enhancing biodiversity in temperate deciduous forests: response of the herb layer to anthropogenic disturbance regimes, August 2011, Austin, Texas.

Associate Editor:

Nomination Committee, Ecological Society of America, Southeastern Chapter
Forest Ecology and Management (Guest Editor—Special Issue, 2002)
Applied Vegetation Science (Guest Editor—Special Issue, 2006)
Journal of Ecology
Journal of Plant Ecology
Forests

Manuscript Reviewer:

American Journal of Botany; American Midland Naturalist; American Naturalist; Annals of Forest Science; Applied Soil Science; Arctic; Arid Land and Range Management; Biogeochemistry; Biological Conservation; Biological Invasions; Canadian Field-Naturalist; Canadian Journal of Botany; Canadian Journal of Forest Research; Castanea; Conservation Biology; Ecological Applications; Ecological Modelling; Ecological Monographs; Ecological Research; Ecology; Ecoscience; Ecosystems; Environmental Management; Environmental Pollution; Forest Ecology & Management; Forest Science; The Geographical Review; Global Biogeochemical Cycles; Global Change Biology; International Journal of Forest Research; International Journal of Plant Sciences; International Journal of Wildland Fire; Journal of the Air & Waste Management Association; Journal of the American Water Resources Association; Journal of Applied Ecology; Journal of Ecology; Journal of the Elisha Mitchell Scientific Society; Journal of Environmental Quality; Journal of the Torrey Botanical Society; Journal of Tropical Forest Science; Journal of Vegetation Science; Landscape Ecology; Natural Areas Journal; Oecologia; Pedosphere; Plant Ecology; Proceedings of the West Virginia Academy of Science; Restoration Ecology; Silva Fennica; Soil Science & Plant Nutrition; Soil Biology and Biochemistry; Soil Science Society of America Journal; TheScientificWorld; Urban Ecosystems; Water, Air, & Soil Pollution; Water Resources Research; Wetlands

Abstract Reviewer:

Ecological Society of America, 1989 Annual Meeting

Award Judge:

Buell/Braun Award, Ecological Society of America, Annual Meetings: 1989, 1990, 1991, 1993-1998

Award Judge:

Odum Award, Association of Southeastern Biologists, Annual Meetings: 1992, 1993, 1995

Member:

Buell/Braun Award Committee, Ecological Society of America, 1997-1998

Grant Reviewer:

National Science Foundation
 United States Department of Agriculture
 National Institute for Global Environmental Change

NATIONAL SERVICE (continued):

- External Reviewer: Undergraduate Program, Department of Biology, Middle Tennessee State University, 21-22 March 2005.
- Chapter Reviewer: Campbell, NA. 1993. Biology, 3rd ed. Benjamin/Cummings Pub. Co., Inc. Redwood City, CA.
Campbell, NA, et al. 1994. Biology: concepts and connections. Benjamin/Cummings Pub. Co., Inc. Redwood City, CA.
Raven, P and G Johnson. 1996. Biology, 4/e. Wm. C. Brown Pub. Dubuque, IA.
Keeton, WT and JL Gould. 1993. Biological science, 5th ed. WW Norton & Co. New York.
Cunningham, WP and BW Saigo. 1997. Environmental science: a global concern. 4th ed. Wm. C. Brown Pub. Dubuque, IA.
Molles, M. 1998. Ecology, concepts and applications. Wm. C. Brown Pub.
Smith, RL and TM Smith. 2000. Elements of ecology, 4/e. Benjamin/Cummings Pub. Co., Inc. San Francisco, CA
Smith, RL and TM Smith. 2003. Elements of ecology, 5/e. Benjamin/Cummings Pub. Co., Inc. San Francisco, CA
- Committee Member: Regional committee to assess science needs of National Parks, National Parks and Conservation Association.
- Reader: Advanced Placement Biology Examination, Educational Testing Service, 1992-1994

UNIVERSITY SERVICE (UNCG):

- Faculty Advisor: Undergraduate biology majors.
- Faculty Supervisor: The University of North Carolina at Greensboro, Beta Beta Beta, the honorary biological society.
- Member: North Carolina Zoo Liaison Committee
Thesis Committee, Ms. Peggy Ferebee

COMMUNITY SERVICE (UNCG):

- Member: Panel on Environmental Issues of Transportation Planning, The League of Women Voters of Guilford County, Greensboro, North Carolina.

UNIVERSITY SERVICE (MU):

- Faculty Supervisor: Chi Beta Phi, national science honor society
Biology Club
- Member: Departmental Computer Committee
Departmental Curriculum Committee
Student Health Services Advisory Committee
Graduate Committee, 1991-1995: Curriculum Subcommittee, 1991-1992
Credentials Subcommittee, 1992-1993
- Member: College of Science Personnel Committee 1995-present
Ad hoc Search Committee for Grants Officer, 1997
Ad hoc Committee for College of Science Sabbatical Leave Policy, 1999-2000
2010 Committee
Ad hoc Committee for College of Science to evaluate the Dean, 2005
- Chair: Graduate Committee, 1993-1994
- Secretary: Graduate Committee, 1992-1993

COMMUNITY SERVICE (MU):

Coordinator: Ecology/evolution contest, S.C.O.R.E.S., 1991
 Member: S.C.O.R.E.S.--Biological Sciences liaison, 1991-1995
 Judge: Ashland Oil's High-Q, academic competition for area high schools, WOWK Channel 13, Huntington, WV
 Fairland High School Science Fair
 Advisor: Fairland High School Science Fair student projects
 Advisor: Huntington High School Science Fair student projects
 Instructor: Science Activities in the Classroom, Logan Co. elementary schools
 Instructor: Workshop—Balancing Work and Home; 15th Annual Early Childhood Development Conference, Huntington, WV, 1997
 Workshop—AP Biology, Experienced Teachers (Tri-State), Charleston, WV, 1997

UNIVERSITY SERVICE (UWF):

Faculty Advisor: University of West Florida Botanical Society
 Member: Graduate Committee, Department of Biology
 Member: Faculty Search Committee, Department of Biology
 Mentor: Anchor Down Mentor Program

PUBLICATIONS (names in bold indicate undergraduate or graduate student co-author):

BOOKS

1. Ellison AM and FS Gilliam. 2019. *Causes and consequences of species diversity in forest ecosystems*. Basel, Switzerland: MDPI.
2. Gilliam FS. 2014. *The herbaceous layer in forests of Eastern North America, 2nd edition*. New York, NY: Oxford University Press, Inc.
3. Gilliam FS and MR Roberts. 2003. *The herbaceous layer in forests of Eastern North America*. New York, NY: Oxford University Press, Inc.
4. Barbour MG, JH Burk, WD Pitts, FS Gilliam, and MW Schwartz. 1999. *Terrestrial plant ecology*, 3rd Edition. Menlo Park, CA: The Benjamin/Cummings Publishing Company, Inc.

ARTICLES—PEER-REVIEWED JOURNALS

1. Schlesinger WH, JT Gray, and **FS Gilliam**. 1982. Atmospheric deposition processes and their importance as sources of nutrients in a chaparral ecosystem of southern California. *Water Resources Research* 18:623-629.
2. Gilliam FS and DD Richter. 1985. Increases in extractable ions in infertile Aquults caused by sample preparation. *Soil Science Society of America Journal* 49:1576-1578.
3. Knapp AK and FS Gilliam. 1985. Response of Andropogon gerardii to fire-induced high vs. low irradiance environments in tallgrass prairie: leaf structures and photosynthetic pigments. *American Journal of Botany* 72:1668-1671.
4. Gilliam FS and NL Christensen. 1986. Herb-layer response to burning in pine flatwoods of the lower Coastal Plain of South Carolina. *Bulletin of the Torrey Botanical Club* 113:42-45.

PUBLICATIONS (continued):

5. Gilliam FS, TR Seastedt, and AK Knapp. 1987. Canopy rainfall interception and throughfall in burned and unburned tallgrass prairie. *The Southwestern Naturalist* 32:267-271.
6. Gilliam FS. 1987. The chemistry of wet deposition for a tallgrass prairie ecosystem: inputs and interactions with plant canopies. *Biogeochemistry* 4:203-217.
7. Gilliam FS and DD Richter. 1988. Correlations between extractable Na, K, Mg, Ca, P and N from fresh and dried samples of two Aquults. *Journal of Soil Science* 39:209-214.
8. Krovetz DO, **MA Reiter**, JT Sigmon, and FS Gilliam. 1988. Assembly and field testing of a ground-based presence of cloud detector. *Journal of Atmospheric and Oceanic Technology* 5:579-581.
9. Gilliam FS. 1988. Interactions of fire with nutrients in the herbaceous layer of a nutrient-poor Coastal Plain forest. *Bulletin of the Torrey Botanical Club* 115:265-271.
10. Gilliam FS, JT Sigmon, **MA Reiter**, and DO Krovetz. 1989. Elevational and spatial variation in daytime ozone concentrations in the Virginia Blue Ridge Mountains: implications for forest exposure. *Canadian Journal of Forest Research* 19:422-426.
11. Sigmon JT, FS Gilliam, and ME Parton. 1989. Precipitation and throughfall chemistry for a montane hardwood forest ecosystem: potential contributions from cloud water. *Canadian Journal of Forest Research* 19:1240-1247.
12. Gilliam FS and DD Richter. 1991. Transport of metal cations through a nutrient-poor forest ecosystem. *Water, Air, and Soil Pollution* 57-58:279-287.
13. Gilliam FS, **BM Yurish**, and LM Goodwin. 1993. Community composition of an old-growth longleaf pine forest: relationship to soil texture on tree species. *Bulletin of the Torrey Botanical Club* 120:287-294.
14. Gilliam FS and **NL Turrill**. 1993. Herbaceous layer cover and biomass in young versus mature stands of a Central Appalachian hardwood forest. *Bulletin of the Torrey Botanical Club* 120:445-450.
15. **Turrill NL**, DK Evans, and FS Gilliam. 1994. Identification of West Virginia members of the *Dentaria* complex [*D. diphylla* Michx., *D. heterophylla* Nutt., and *D. laciniata* Muhl. ex. Willd. (Brassicaceae)] using above-ground vegetative characters. *Castanea* 59:22-30.
16. Gilliam FS, **NL Turrill**, **SD Aulick**, DK Evans, and MB Adams. 1994. Herbaceous layer and soil response to experimental acidification in a central Appalachian hardwood forest. *Journal of Environmental Quality* 23:835-844.
17. Gilliam FS and **NL Turrill**. 1995. Temporal patterns of ozone pollution in West Virginia: implications for high-elevation hardwood forests. *Journal of Air and Waste Management Association* 45:621-626.
18. Gilliam FS and MR Roberts. 1995. Impacts of forest management on plant diversity. *Ecological Applications* 5:911-912.

PUBLICATIONS (continued):

19. Gilliam FS, **NL Turrill**, and MB Adams. 1995. Herbaceous-layer and overstory species in clear-cut and mature central Appalachian hardwood forests. *Ecological Applications* 5:947-955.
20. Roberts MR and FS Gilliam. 1995. Patterns and mechanisms of diversity in forested ecosystems: implications for forest management. *Ecological Applications* 5:969-977.
21. Roberts MR and FS Gilliam. 1995. Disturbance effects on herbaceous layer succession and soil nutrients in Populus forests of northern lower Michigan. *Journal of Vegetation Science* 6:903-912.
22. Gilliam FS, MB Adams, and **BM Yurish**. 1996. Ecosystem nutrient responses to chronic nitrogen inputs at Fernow Experimental Forest, West Virginia. *Canadian Journal of Forest Research* 26:196-205.
23. Gilliam FS and MB Adams. 1996. Wetfall deposition and precipitation chemistry for central Appalachian forest. *Journal of the Air and Waste Management Association* 46:978-984.
24. Peterjohn WT, MB Adams, and FS Gilliam. 1996. Symptoms of nitrogen saturation in two central Appalachian hardwood forests. *Biogeochemistry* 35:507-522.
25. Gilliam FS, JD May, **MA Fisher**, and DK Evans. 1999. Short-term changes in soil nutrients during wetland creation. *Wetland Ecology and Management* 6:203-208.
26. Gilliam FS and WJ Platt. 1999. Effects of long-term fire exclusion on tree species composition and stand structure in an old-growth longleaf pine forest. *Plant Ecology* 140:15-26.
27. Gilliam FS. 1999. More than the sum of its parts: a review of ML Pace and PM Groffman, editors. Successes, limitations, and frontiers in ecosystem science. New York: Springer. *Ecology* 80:2453-2455.
28. Gilliam FS, **BM Yurish**, and MB Adams. 2001. Temporal and spatial variation of nitrogen transformations in nitrogen-saturated soils of a Central Appalachian hardwood forest. *Canadian Journal of Forest Research* 31:1768-1785.
29. Gilliam FS, CC Somerville, **NL Lyttle**, and MB Adams. 2001. Factors influencing spatial variability in nitrogen processing in nitrogen-saturated soils. *The ScientificWorld Journal* 1:505-513.
30. Gilliam FS. 2002. Effects of harvesting on herbaceous layer diversity of a central Appalachian hardwood forest. *Forest Ecology and Management* 155:33-43.
31. Gilliam FS and **NE Saunders**. 2003. Making more sense of the order: A review of Canoco for Windows 4.5, PC-ORD version 4 and SYN-TAX 2000. *Journal of Vegetation Science* 14:297-304.
32. Gilliam FS, MB Adams, **DA Dick**, and **ML Kerr**. 2004. Effects of silvicultural practices on soil carbon and nitrogen in a nitrogen saturated Central Appalachian hardwood forest ecosystem. *Environmental Management* 32:S108-S119.

PUBLICATIONS (continued):

33. Gilliam FS, **NL Lyttle**, **A Thomas**, and MB Adams. 2005. Soil variability along a nitrogen mineralization/nitrification gradient in a nitrogen-saturated hardwood forest. *Soil Science Society of America Journal* 69:247-256.
34. May JD, **E Burdette**, FS Gilliam, and MB Adams. 2005. Interspecific divergence in foliar nutrient dynamics and stem growth in a temperate forest in response to chronic nitrogen inputs. *Canadian Journal of Forest Research* 35:1023-1030.
35. Gilliam FS, **AW Hockenberry**, and MB Adams. 2006. Effects of atmospheric nitrogen deposition on the herbaceous layer of a central Appalachian hardwood forest. *Journal of the Torrey Botanical Society* 133:240-254.
36. Gilliam FS and WJ Platt. 2006. Conservation and restoration of the longleaf pine ecosystem. *Applied Vegetation Science* 9:7-10.
37. Gilliam FS, WJ Platt, and RK Peet. 2006. Natural disturbances and the physiognomy of pine savannas: a phenomenological model. *Applied Vegetation Science* 9:83-96.
38. Gilliam FS. 2006. Response of the herbaceous layer of forest ecosystems to excess nitrogen deposition. *Journal of Ecology* 94:1176-1191.
39. **Dick DA** and FS Gilliam. 2007. Spatial heterogeneity and dependence of soils and herbaceous plant communities in adjacent seasonal wetland and pasture sites. *Wetlands* 27:951-963.
40. Gilliam FS. 2007. The ecological significance of the herbaceous layer in forest ecosystems. *BioScience* 57:845-858.
41. Bobbink R, K Hicks, J Galloway, T Spranger, R Alkemade, M Ashmore, M Bustamante, S Cinderby, E Davidson, F Dentener, B Emmett, J-W Erisman, M Fenn, F Gilliam, A Nordin, L Pardo and W de Vries. 2010. Global assessment of nitrogen deposition effects on terrestrial plant diversity effects of terrestrial ecosystems: a synthesis. *Ecological Applications* 20:30-59.
42. Gilliam FS, **A Cook**, and **S Lyter**. 2010. Effects of experimental freezing on soil nitrogen (N) dynamics along a net nitrification gradient in an N-saturated hardwood forest ecosystem. *Canadian Journal of Forest Research* 40:436-444.
43. Gilliam FS and **DA Dick**. 2010. Spatial heterogeneity of soil nutrients and plant species in herb-dominated communities of contrasting land use. *Plant Ecology* 209:83-94.
44. Lu X, J Mo, FS Gilliam, G Zhou, Y Fang. 2010. Effects of experimental nitrogen deposition on plant diversity in an old-growth tropical forest. *Global Change Biology* 16:2688-2700.
45. Gilliam FS, RL McCulley, and JA Nelson. 2011. Spatial variability in soil microbial communities in a nitrogen-saturated hardwood forest watershed. *Soil Science Society of America Journal* 75:280-286.
46. Zhang X, W Bai, FS Gilliam, X Han, and L Li. 2011. Effects of in situ freezing on soil nitrogen mineralization in fertilized grassland, northern China. *Grass and Forage Science* 66:391-401.

PUBLICATIONS (continued):

47. Gilliam FS and MB Adams. 2011. Effects of nitrogen on temporal and spatial patterns of nitrate in streams and soil solution of a central hardwood forest. *ISRN Ecology*, Article ID 138487, doi:10.5402/2011/138487.
48. Lu X, J Mo, FS Gilliam, G Yu, W Zhang, Y Fang, and J Huang. 2011. Effects of experimental nitrogen additions on plant diversity in tropical forests of contrasting disturbance regimes in Southern China. *Environmental Pollution* 159:2228-2235.
49. Pardo LH, ME Fenn, CL Goodale, LH Geiser, CT Driscoll, EB Allen, J Baron, R Bobbink, WD Bowman, C Clark, B Emmett, FS Gilliam, T Greaver, SJ Hall, EA Lilleskov, L Liu, J Lynch, K Nadelhoffer, SS Perakis, MJ Robin-Abbott, J Stoddard, K Weathers, and RL Dennis. 2011. Effects of nitrogen deposition and empirical nitrogen critical loads for ecoregions of the United States. *Ecological Applications* 21:3049-3082.
50. Lu X, J Mo, FS Gilliam, H Fang, F Zhu, Y Fang, W Zhang, J Huang. 2012. Land-use history mitigates response of soil phosphorus availability to nitrogen addition in two reforested tropical forests in southern China. *Biotropica* 44:302-311.
51. Zhang X, Q Wang, FS Gilliam, W Bai, X Han, and L Li. 2012. Effect of nitrogen fertilization on net nitrogen mineralization in grassland soil of Northern China: implications for grassland management. *Grass and Forage Science* 67:219-230.
52. Zhang X, L Ma, FS Gilliam, Q Wang, T Liu, and C Li. 2012. Effects of raised-bed planting for enhanced summer maize yield on soil microbial functional groups and enzyme activity in Henan Province, China. *Field Crops Research* 130:28-37.
53. Lei, L, T Zhang, FS Gilliam, P Gunderson, W Zhang, H Chen, and J Mo. 2013. Interactive effects of nitrogen and phosphorus on soil microbial change in tropical forests. *PLOS ONE* 8:1-10.
54. Lu X, J Mo, FS Gilliam, H Fang, G Yu, L Li, Q Mao, and H Chen. 2013. Long-term nitrogen addition decreases carbon transport in nitrogen-rich forest. *Biogeosciences* 10:1451-1481.
55. Clark CM, P Morefield, FS Gilliam, and LH Pardo. 2013. Estimated losses of plant biodiversity across the U.S. from historical N deposition from 1985—2010. *Ecology* 94:1441-1448.
56. De Frenne, P, F Rodríguez-Sánchez, DA Coomes, L Baeten, G Verstraeten, M Vellend, M Bernhardt-Römermann, CD Brown, J Brunet, J Cornelis, G Decocq, H Dierschke, O Eriksson, FS Gilliam, R Hédli, T Heinken, M Hermy, P Hommel, MA Jenkins, DL Kelly, KJ Kirby, FJG Mitchell, T Naaf, M Newman, G Peterken, P Petřík, J Schulz, G Sonnier, H Van Calster, D Waller, G-R Walther, PS White, K Woods, M Wulf, BJ Graae, and K Verheyen. 2013. Microclimate moderates plant responses to macroclimate warming. *Proceedings of the National Academy of Sciences* 110:18561-18565.
57. Chen H, W Zhang, F Gilliam, L Liu, J, Huang, T Zhang, WT Wang, and JM Mo. 2013. Changes in soil carbon sequestration in *Pinus massoniana* forests along an urban-to-rural gradient of southern China. *Biogeosciences* 10:6609–6616.
58. Zhu F, M Yoh, FS Gilliam, X Lu, and J Mo. 2013. Nutrient limitation in three lowland tropical forests in southern China receiving high nitrogen deposition: insights from fine root responses to nutrient additions. *PLOS ONE* 8:1-8.

PUBLICATIONS (continued):

59. Gilliam FS, R Hédli, M Chudomelová, RL McCulley, and JA Nelson. 2014. Variation in vegetation and microbial linkages with slope aspect in a montane temperate hardwood forest. *Ecosphere* 5(5):66. <http://dx.doi.org/10.1890/ES13-00379.1>.
60. Lu X, Q Mao, F Gilliam, Y Luo, and J Mo. 2014. Nitrogen deposition contributes to soil acidification in tropical ecosystems. *Global Change Biology* 20:3790–3801.
61. Zhang X, Q Wang, FS Gilliam, Y Wang, F Cha, C Li. 2014. Spatial variation in carbon and nitrogen in cultivated soils in the Henan Province, China: Potential effect on crop yield. *PLOS ONE* 9:1-10.
62. Zhang X, Q Wang, J Xu, FS Gilliam, N Tremblay, and C Li. 2015. In situ nitrogen mineralization, nitrification, and ammonia volatilization in maize field fertilized with urea in Huanghuaihai Region of Northern China. *PLoS ONE* 10(1): e0115649. doi:10.1371/journal.pone.0115649.
63. Huang J, W Zhang, X Zhu, F Gilliam, H Chen, X Lu, and JM Mo. 2015. Urbanization in China changes the composition and main sources of wet inorganic nitrogen deposition. *Environmental Science and Pollution Research* 22:6526-6534.
64. Lu X, Q Mao, J Mo, FS Gilliam, G Zhou, Y Luo, W Zhang, and J Huang. 2015. Divergent responses of soil buffering capacity to long-term N deposition in three typical tropical forests with different land-use history. *Environmental Science & Technology* 49:4072-4080.
65. Gilliam FS, **JE Galloway**, and **JS Sarmiento**. 2015. Variation with slope aspect in effects of temperature on nitrogen mineralization and nitrification in mineral soil of mixed hardwood forests. *Canadian Journal of Forest Research* 45:958-962.
66. **Walter CA**, **MB Burnham**, FS Gilliam, and WT Peterjohn. 2015. A reference-based approach for measuring the cover of forest herbs. *Environmental Monitoring and Assessment* 187:657.
67. Gilliam FS. 2016. A novel mechanism to explain success of invasive herbaceous species at the expense of natives in eastern hardwood forests. *New Phytologist* 209:451-453.
68. Chapman SK, **KA Devine**, **C Curran**, **RO Jones**, and FS Gilliam. 2016. Impacts of soil nitrogen and carbon additions on forest understory communities with a high-deposition history. *Ecosystems* 19:142-154.
69. Simkin SM, EB Allen, WD Bowman, CM Clark, J Belnap, ML Brooks, BS Cade, SL Collins, LH Geiser, FS Gilliam, SE Jovan, LH Pardo, BK Schulz, CJ Stevens, KN Suding, HL Throop, and DM Waller. 2016. A continental analysis of ecosystem vulnerability to atmospheric nitrogen deposition. *Proceedings of the National Academy of Sciences* 113:4086–4091.
70. Gilliam FS, NT Welch, AH Phillips, **JH Billmyer**, WT Peterjohn, ZK Fowler, **C Walter**, **M Burnham**, JD May, and MB Adams. 2016. Twenty-five year response of the herbaceous layer of a temperate hardwood forest to elevated nitrogen deposition. *Ecosphere* 7(4):e01250. 10.1002/ecs2.1250.
71. **Walter CA**, **DT Raiff**, **MB Burnham**, FS Gilliam, MB Adams, and WT Peterjohn. 2016. Nitrogen fertilization interacts with light to increase *Rubus* spp. cover in a temperate forest. *Plant Ecology* 217:421-430.

PUBLICATIONS (continued):

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1. Gilliam FS. 2011. Editor's Choice: a review of Ohlson, et al., 'Invasion of Norway spruce diversifies the fire regime in boreal European forests.' *Journal of Ecology*.
2. Gilliam FS. 2015. Editor's Choice: a review of Dobson and Blossey, 'Earthworm invasion, white-tailed deer and seedling establishment in deciduous forests of north-eastern North America.' *Journal of Ecology*.

GRANTS

- Response of the herbaceous layer of a southern Appalachian hardwood forest to experimental acidification. \$30,000. U.S.D.A. Forest Service, April 1991 – December 1992.
- Preparation of an EPA/EPSCoR grant: Establishment of the West Virginia Center for Ozone Research. \$5,811. U.S. Environmental Protection Agency, October 1991 – May 1992.
- Characteristics of pre- and post-impoundment soils in created wetlands of the Green Bottom Wildlife Management Area, West Virginia. (with four others) \$6,000. U.S. Army Corps of Engineers, June 1992 – August 1993.
- Ecological study of the Monongahela National Forest. \$4,010. U.S.D.A. Forest Service, May 1992 – December 1992.
- Nitrogen recycling in central Appalachian hardwood forest ecosystems: Tests of hypotheses for nitrogen saturation. \$30,433. U.S.D.A. Forest Service. 1 May 1993 – 31 March 1995.
- Acquisition of atomic absorption spectrophotometer for undergraduate instruction in the College of Science. (with P. Ghosh and M. Norton) \$84,000. National Science Foundation. June 1993.
- Nitrogen transformations in a created wetland. \$11,000. U.S. Army Corps of Engineers, August 1993 – August 1995.

GRANTS (continued):

Ecological study of the shale barren rockcress. (with P. Harmon and J. May) \$32,000. U.S. Department of Defense, U.S. Navy, July 1994 – July 1995.

Preparation of an NSF/EPSCoR grant: Effects of nitrogen saturation on nutrient cycling of a central Appalachian hardwood forest. \$3,000. West Virginia EPSCoR, 15 May – 30 June 1995.

Preparation of an NSF/EPSCoR grant: Effects of re-introduction of fire to an old growth longleaf pine forest. \$3,000. West Virginia EPSCoR, 15 May – 30 June 1996.

Acquisition of instrumentation for plant and soil nutrient analysis in ecological studies. (with J. May) \$86,445. National Science Foundation, 15 August 1996 – 15 August 1999.

Nitrogen mineralization and nitrification in a central Appalachian hardwood forest. \$24,033. U.S.D.A. Forest Service, 3 June 1996 – 3 May 1999.

Impacts of groundwater extraction on vegetation of McClintock Ponds, West Virginia. (with J. May and D. Evans) \$49,200. U.S. Army Corps of Engineers, 1 April 1997 – 30 November 1998.

Effects of excess nitrogen and post-harvest recovery on plant nutrient dynamics. (with J.D. May) \$49,978. U.S.D.A. NRICGP, 1 August 1999—31 July 2001.

Factors influencing spatial variability in soil nitrogen dynamics. \$8,341. U.S.D.A. Forest Service, 1 July 2000—31 May 2001.

Pre-construction assessment of wetlands to be built along the Tolsia Highway. (with four others) \$104,000. Appalachian Transportation Institute, 1 January 2001—31 August 2001.

Effects of Forest Harvesting on Nitrogen Cycling in a Nitrogen Saturated Central Appalachian Hardwood Forest. \$4,500. WV EPSCoR Mini-Grants Program. Summer 2002.

Effects of Silvicultural Treatments on Nitrogen Dynamics of a Nitrogen-Saturated Central Appalachian Hardwood Forest. \$4,500. WV EPSCoR Mini-Grants Program. Summer 2003.

Long-Term Changes in Soil Nitrogen Dynamics in a Nitrogen-Saturated Hardwood Forest Ecosystem. \$3,540. U.S.D.A. Forest Service, 1 June 2005 – 30 September 2005.

Acquisition of an AutoAnalyzer 3 system for research on nitrogen (N) dynamics in an N-saturated forest ecosystem. \$48,459. U.S.D.A. NRICGP, 1 May 2006—30 April 2009.

Biogeochemical responses of soil microbial communities to freezing: variation along a gradient of mineral weathering. \$5,000. WV EPSCoR Mini-Grants Program. Summer 2009.

PAPERS PRESENTED:

Response of herb biomass and diversity to fire on a southeastern Coastal Plain watershed ecosystem. AIBS. 33rd Annual Meeting. The Pennsylvania State University, University Park, PA. 1982.

Nutrient balance for watersheds of the Santee Experimental Forest in the South Carolina Coastal Plain. AIBS. 34th Annual Meeting. University of North Dakota, Grand Forks, ND. 1983.

PAPERS PRESENTED (continued):

- Some aspects of precipitation chemistry for a tallgrass prairie. AIBS. 35th Annual Meeting. Colorado State University, Fort Collins, CO. 1984.
- Sun-shade responses of big bluestem (Andropogon gerardii Vitman) growing in burned and unburned tallgrass prairie. ESA. 70th Annual Meeting. University of Minnesota, Minneapolis, MN. 1985.
- Water chemistry profiles for a watershed in the Blue Ridge Mountains of Virginia. ESA. 71st Annual Meeting. Syracuse University, Syracuse, NY. 1986.
- Relationships between throughfall chemistry and the chemical fluxes in dry deposition and mountain clouds. AMS. 6th Symposium on Meteorological Observations and Instrumentation. New Orleans, LA. 1987.
- Chemical interactions of precipitation, cloud water, and dry deposition with a montane hardwood forest canopy. AIBS. 38th Annual Meeting. The Ohio State University, Columbus, OH. 1987.
- Nutrient concentrations in the herbaceous layer of a nutrient-poor Coastal Plain forest. AIBS. 39th Annual Meeting. University of California at Davis, Davis, CA. 1988.
- Interactions of soil organic matter, soil fertility, and herbaceous vegetation in successional forests of northern lower Michigan. AIBS. 40th Annual Meeting. University of Toronto, Toronto, ON, Canada. 1989.
- Atmospheric deposition and its potential significance in southern Appalachian hardwood forest ecosystems. Conference on Environment and Technology in Appalachia. 4th Annual Meeting. University of Kentucky, Lexington, KY. 1989.
- The significance of fire in an oligotrophic forest ecosystem. International Conference on Fire and the Environment: Ecological and Cultural Perspectives. Knoxville, TN. 1990.
- Transport of metal cations through a nutrient-poor forest ecosystem: Implication for plant-soil-water interactions and acidic deposition effects. International Conference on Metals in Soils, Water, Plants and Animals, Orlando, FL. 1990.
- Ecosystem-level significance of acid forest soils. 2nd International Symposium on Plant-Soil Interactions at Low pH, Beckley, WV. 1990.
- Nutrient changes in soils of successional forests of northern lower Michigan. ESA. 75th Anniversary Meeting. Snowbird Resort, UT. 1990.
- Old-growth longleaf pine forest stand structure and longleaf regeneration under chronic fire exclusion. W.V.A.S. 66th Annual Meeting, West Virginia Institute of Technology, Montgomery, WV. 1991.
- Old-growth longleaf pine stand structure and longleaf regeneration under chronic fire exclusion. The Longleaf Pine Ecosystem: Ecology, Restoration and Management. 18th Tall Timbers Fire Ecology Conference, Tallahassee, FL. 1991.
- Stand structure and longleaf pine regeneration of an old-growth longleaf pine forest under chronic fire exclusion. AIBS. 41st Annual Meeting, San Antonio, TX. 1991.

PAPERS PRESENTED (continued):

- Stand structure and species composition of montane hardwood forests of West Virginia. W.V.A.S. 67th Annual Meeting, West Liberty State College, West Liberty, WV. 1992.
- Species composition and diversity of the herbaceous layer of a southern Appalachian hardwood forest. ASB 53rd Annual Meeting, The University of Alabama, Tuscaloosa, AL. 1992.
- Precipitation chemistry for West Virginia Appalachian forest sites: temporal and spatial variation. W.V.A.S. 68th Annual Meeting, Davis and Elkins College, Elkins, WV. 1993.
- Tree species composition of young vs. mature montane hardwood forests of West Virginia. W.V.A.S. 68th Annual Meeting, Davis and Elkins College, Elkins, WV. 1993.
- Species composition of young vs. mature montane hardwood forests of West Virginia. ASB 54th Annual Meeting, Virginia Beach, VA. 1993.
- Species composition and patterns of diversity in herbaceous layer and woody overstory of young vs. mature mid-Appalachian hardwood forests. ESA 78th Annual Meeting, The University of Wisconsin, Madison. 1993.
- Soil nitrogen dynamics and nitrogen saturation in a central Appalachian hardwood forest. ESA 79th Annual Meeting, The University of Tennessee, Knoxville. 1994.
- Nitrogen dynamics of a nitrogen-saturated central Appalachian hardwood forest. IUFRO Meeting on Air Pollution and Multiple Stresses, Fredericton, NB, Canada. 1994.
- Soil changes during mitigation wetland creation in the Green Bottom Wildlife Management Area, Cabell County, West Virginia. Ohio River Basin Consortium for Research and Education, 10th Annual Scientific Symposium, Marshall University, Huntington, WV. 1994.
- Nitrogen dynamics of a nitrogen-saturated central Appalachian hardwood forest. ESA 80th Annual Meeting, Snowbird, Utah. 1995.
- Seasonal changes in soil nitrogen in a nitrogen-saturated central Appalachian hardwood forest. Gordon Research Conference (Hydrologic, Geochemical and Biological Processes in Forested Catchments), Colby-Sawyer College, New London, NH. 1995.
- Evidence for nitrogen saturation in watersheds at the Fernow Experimental Forest. Lucy Braun Association/USDA Forest Service Meeting on Appalachian Mountain Forest Decline: Science Meets the Grassroots. University of Charleston, Charleston, WV. 1996.
- Mineral soil and forest floor nitrogen (N) dynamics in a N-saturated central Appalachian hardwood forest. ESA 81st Annual Meeting, Providence, RI. 1996.
- Mechanisms for linkage between overstory and herbaceous strata of a hardwood forest: test of a hypothesis. ESA 81st Annual Meeting, Providence, RI. 1996.
- Three-year patterns of soil nitrogen (N) dynamics in a N-saturated central Appalachian hardwood forest. Chapman Conference on Nitrogen Cycling in Forested Catchments, Sunriver, OR. 1996.
- Effects of soil nitrogen dynamics on soil cations in a Central Appalachian hardwood forest. ESA 82nd Annual Meeting, Albuquerque, NM. 1997.

PAPERS PRESENTED (continued):

- A conceptual model for the herbaceous layer of eastern forests. ESA 83rd Annual Meeting, Baltimore, MD. 1998.
- Effects of harvesting on herbaceous layer diversity of a central Appalachian hardwood forest. 2nd North American Forest Ecology Workshop, Orono, ME, June 1999.
- Importance of soil nitrogen (N) dynamics in explaining long-term trends in stream chemistry for a N-saturated hardwood forest. ESA 84th Annual Meeting, Spokane, WA. 1999.
- Ecological significance of the herbaceous layer of eastern deciduous forests. Native Plants in the Landscape Conference 10th Annual Meeting, Millersville, PA. 2000.
- Effects of harvesting on soil nitrogen dynamics in a nitrogen-saturated hardwood forest. ESA 85th Annual Meeting, Snowbird, UT. 2000.
- Spatial variability in soil nitrogen (N) in N-treated and untreated watersheds of the Fernow Experimental Forest, West Virginia. 2001 International Conference on Future Directions in Air Quality Research, Research Triangle Park, NC.
- Effects of harvesting on soil nitrogen dynamics in a nitrogen-saturated hardwood forest. 2001 International Conference on Future Directions in Air Quality Research, Research Triangle Park, NC.
- Spatial variability in soil nitrogen (N) in N-treated and untreated watersheds of the Fernow Experimental Forest, WV. ESA 86th Annual Meeting, Madison, WI. 2001.
- Temporal and spatial variation of nitrogen transformations in nitrogen-saturated soils of a central Appalachian hardwood forest. N2001, The 2nd International Nitrogen Conference, Potomac, MD. 2001.
- Spatial variability in nitrogen-saturated soils: interactions of cation mobility and substrate quality with N dynamics. ESA 87th Annual Meeting, Tucson, AZ. 2002.
- Effects of silvicultural practices on soil carbon in a Central Appalachian hardwood forest ecosystem. USDA Symposium on Natural Resource Management to Offset Greenhouse Gas Emissions, Raleigh, NC. 2002.
- Distinguishing between desirable and undesirable old-growth overstory systems as goals of conservation and management. ESA 88th Annual Meeting, Savannah, GA. 2003.
- Effects of chronic nitrogen deposition on the herbaceous layer of a central Appalachian hardwood forest. ESA 89th Annual Meeting, Portland, OR. 2004.
- Non-monotonic response of net nitrification in soils experiencing chronically-elevated nitrogen inputs. ESA 90th Annual Meeting, Montréal, Québec, Canada. 2005.
- Response of the herbaceous layer of forest ecosystems to excess nitrogen deposition. ASB 67th Annual Meeting, Gatlinburg, TN. 2006.
- The Nitrogen Homogeneity Hypothesis: why nitrogen saturation will cause loss of forest biodiversity. ESA 91st Annual Meeting, Memphis, TN. 2006.

PAPERS PRESENTED (continued):

- The ecological significance of the herbaceous layer in forest ecosystems. Society of American Foresters, 86th Annual National Convention, Pittsburgh, PA. 2006.
- Conceptual models for the role of natural disturbances in ecological restoration of southeastern pine savannas. ESA 92nd Annual Meeting, San Jose, CA. 2007.
- Long-term patterns of stream NO₃ and net nitrogen mineralization and nitrification at a nitrogen-saturated hardwood forest site. ESA 93rd Annual Meeting, Milwaukee, WI. 2008.
- Effects of freezing on soil nitrogen (N) dynamics along a net nitrification gradient in an N-saturated hardwood forest ecosystem. ESA 94th Annual Meeting, Albuquerque, NM. 2009.
- Nitrogen biogeochemistry research at Fernow Experimental Forest, West Virginia, USA: soils, biodiversity, and climate change. Workshop on Nitrogen Deposition, Critical Loads and Biodiversity, The George Hotel, Edinburgh, Scotland, UK, 16—18 November 2009.
- Effects of experimental nitrogen additions on plant diversity in an old-growth tropical forest. Workshop on Nitrogen Deposition, Critical Loads and Biodiversity, The George Hotel, Edinburgh, Scotland, UK, 16—18 November 2009.
- Soil microbial communities and nitrogen (N) dynamics along a weathering gradient in an N-saturated hardwood forest watershed. ESA 95th Annual Meeting, Pittsburgh, PA. 2010.
- Effects of excess nitrogen deposition on the herbaceous layer of temperate hardwood forests. ESA 96th Annual Meeting, Austin, TX. 2011.
- Variation in biotic linkages with slope aspect in a temperate hardwood forest. ESA 98th Annual Meeting, Minneapolis, MN. 2013.
- Response of the herbaceous layer of contrasting forest ecosystems to excess nitrogen deposition. ESA 99th Annual Meeting, Sacramento, CA. 2014.
- Response of the herbaceous layer of contrasting forest ecosystems to excess nitrogen deposition. Joint Annual Meeting British Ecological Society and Société Française d'Ecologie, Lille, France. 2014.
- The forest between the trees: the herbaceous layer of Lucy's Woods. ESA 100th Annual Meeting, Baltimore, MD. 2015.
- Foliar evidence of effects of excess nitrogen on the biogeochemistry of a temperate hardwood forest. 9th International Conference on Acid Deposition, Rochester, NY. 2015.
- Effects of excess nitrogen on foliar nutrients in a temperate hardwood forest: evidence of nutrient redistribution by a forest understory species. ESA 101st Annual Meeting, Ft. Lauderdale, FL. 2016.
- The Nitrogen (N) Homogeneity Hypothesis: Effects of excess N on spatial patterns of soil nutrients and herb communities of hardwood forest ecosystems. ESA 102nd Annual Meeting, Portland, OR. 2017.

PAPERS PRESENTED (continued):

Responses of forest ecosystems of eastern North America to decreased nitrogen deposition. ESA 103rd Annual Meeting, New Orleans, LA. 2018.

Nitrogen-mediated shifts in drivers of herbaceous layer communities in a Central Appalachian hardwood forest ecosystem. ESA 105th Annual Meeting, Completely Online. 2020.

The University of West Florida Campus Ecosystem Study: fire exclusion in a unique urban interface. 13th Biennial Longleaf Conference, The Longleaf Alliance, Completely Online. 2020.

INVITED SEMINARS:

Nutrient aspects of herb response to fire and relationships to watershed nutrient dynamics. Department of Botany, Duke University, Durham, NC, 22 October 1982.

Fire and nutrient cycling in the Coastal Plain of the southeastern United States. Division of Biology, Kansas State University, Manhattan, KS, 20 January 1984.

Fire in tallgrass prairie: Interactions of water, energy, and nutrients. Department of Botany, University of Kansas, Lawrence, KS, 9 November 1984.

Nitrogen dynamics in two contrasting ecosystems. Department of Systematics and Ecology, University of Kansas, Lawrence, KS, 20 May 1985.

Fire and nitrogen dynamics in a tallgrass prairie. Department of Environmental Sciences, University of Virginia, Charlottesville, VA, 27 March 1986.

Forest-atmosphere interaction: An integrated study in North Fork Dry Run Watershed. Golden Anniversary Symposium. Shenandoah National Park, VA, 8 May 1986.

Forest canopy/atmosphere interactions: Implications for ecosystem-level studies of acid deposition. Department of Forest Resources, University of New Brunswick, Fredericton, NB, Canada, 20 November 1986.

Forest meteorology and atmospheric chemistry: What happens to the trees? Environmental Speaker Series, Department of Environmental Sciences, University of Virginia, Charlottesville, VA, 17 February 1987.

Forest canopy/atmosphere interactions in a hardwood forest watershed. Department of General Science, Oregon State University, Corvallis, OR, 16 September 1987.

Implications of forest canopy/atmosphere interactions in a hardwood forest watershed. U.S. EPA Laboratory, Air Branch/Global Team, Corvallis, OR, 16 September 1987.

The importance of natural disturbance in determining plant distribution. Department of Biology, Montclair State College, Upper Montclair, NJ, 19 April 1988.

The role of fire in the history of the North Carolina Sand Hills. United Daughters of the Confederacy, Aberdeen, NC, 28 April 1988.

The ecological significance of fire in two contrasting ecosystems. Department of Biology, The University of North Carolina at Greensboro, Greensboro, NC, 9 November 1988.

INVITED SEMINARS (continued):

Precipitation acidity and ozone: potential effects on forests. Environmental Awareness Foundation, The University of North Carolina at Greensboro, Greensboro, NC, 26 September 1989.

The chemistry of atmospheric deposition and its implications for effects on forest ecosystems. Department of Chemistry, The University of North Carolina at Greensboro, Greensboro, NC, 13 October 1989.

Atmospheric deposition in Appalachian hardwood forests. Department of Biological Sciences, Marshall University, Huntington, WV, 23 April 1990.

Environmental problems, their causes, and solutions: lessons from the ecology class. Marshall University Chapter, Sigma Xi, National Scientific Honor Society, Huntington, WV, 30 October 1990.

Acid deposition and associated threats to high-elevation forests. Students Active for a Vital Earth, Marshall University, Huntington, WV, 8 November 1990.

Ecological aspects of two fire-dependent ecosystems. Department of Biological Sciences, Marshall University, Huntington, WV, 13 February 1991.

Effects of fire on the herbaceous layer of a Coastal Plain pine flatwoods. Forest Science Laboratory, Northeastern Forest Experiment Station, Warren, PA, 26 March 1991.

Acid deposition and ozone pollution: implications for West Virginia forests. Earth Week Forum, Marshall University, Huntington, WV, 24 April 1991.

Factors affecting herb layer development on watersheds of the Fernow Experimental Forest. Timber and Watershed Laboratory, Northeastern Forest Experiment Station, Parsons, WV, 21 August 1991.

Nitrogen saturation in hardwood forests. T.H. Morgan School of Biological Sciences, The University of Kentucky, Lexington, KY, 7 September 1995.

Mechanisms for linkage between overstory and herbaceous strata of forest ecosystems. T.H. Morgan School of Biological Sciences, The University of Kentucky, Lexington, KY, 8 September 1995.

Forest ecosystem responses to air pollution. Department of Environmental and Plant Biology, Ohio University, Athens, OH, 21 February 1997.

Interactions between strata of forest communities: a mechanistic hypothesis for linkage. Department of Environmental and Plant Biology, Ohio University, Athens, OH, 21 February 1997.

Environmental problems for West Virginia. Tri-State Audubon Society, Huntington, WV, 24 April 1997.

Nitrogen saturation at Fernow Experimental Forest, WV. Department of Biology, University of Dayton, Dayton, OH, 29 January 1998.

Interactions of vegetation strata of a central Appalachian hardwood forest. Department of Biology, University of Dayton, Dayton, OH, 29 January 1998.

Ecosystem ecology as the basis for restoration ecology: lessons and challenges from eastern forests. Department of Forestry, University of Kentucky, Lexington, KY, 12 March 1998.

INVITED SEMINARS (continued):

Ecological perspectives of mountain top removal. Tri-State Audubon Society, Huntington, WV, 25 May 2000.

The environment and West Virginia: global successes, local challenges. Rotary Club, Barboursville, WV, 7 June 2000.

Effects of excess nitrogen (N) on temporal and spatial patterns of N dynamics in an eastern deciduous forest. Appalachian State University, Boone, NC, 6 September 2000.

Growth of native West Virginia tree species in mining fill material: making molehills out of mountains. The University of Virginia, Charlottesville, VA, 12 November 2001.

Effects of nitrogen additions on temporal and spatial variability of soil nitrogen transformations in a Central Appalachian hardwood forest. The University of Maryland, Appalachian Environmental Laboratory, Frostburg, MD, 3 April 2002.

Factors affecting temporal and spatial variability of soil nitrogen dynamics in a central Appalachian hardwood forest. The University of Louisville, Louisville, KY, 21 February 2003.

Spatial variability of nitrogen processing in nitrogen-saturated soils: applications and research opportunities. Middle Tennessee State University, Murphreesboro, TN, 18 September 2003.

Nitrogen cycling and understory vegetation. Watershed Acidification Workshop, Wisp Resort Center, Deep Creek, MD, 20 October 2003.

Longleaf pine: the ecology of a fire-dependent ecosystem. University of Québec, Montreal, Québec, Canada, 20 January 2004.

The ecology and conservation of the wetland ecosystem. Huntington Garden Club, Enslow Park Presbyterian Church, Huntington, WV, 9 February 2004.

Effects of nitrogen deposition on biodiversity of a Central Appalachian hardwood forest ecosystem. Virginia Commonwealth University, Richmond, VA, 25 October 2004.

Effects of nitrogen deposition on biodiversity of a Central Appalachian hardwood forest ecosystem. The Ohio State University, Columbus, OH, 4 November 2004.

Air pollution and the forests of West Virginia. Marshall University Alumni Affairs, Huntington, WV, 17 March 2005.

Effects of excess nitrogen on biodiversity of a hardwood forest ecosystem: response of the herbaceous layer. University of Kentucky, Lexington, KY, 13 May 2005.

Effects of nitrogen deposition on plant biodiversity of a hardwood forest ecosystem. Marshall University, Huntington, WV, 28 September 2005.

Hurricanes: formation, ecology, and the future. Marshall University, Huntington, WV, 11 October 2005.

Response of the herbaceous layer of forest ecosystems to excess nitrogen deposition. Fordham University, New York, NY, 22 March 2006.

INVITED SEMINARS (continued):

Effects of nitrogen pollution on plant diversity. West Virginia Native Plant Society, Marshall University, Huntington, WV, 16 November 2006.

Impacts of excess nitrogen deposition on the herbaceous layer of forest ecosystems. Rutgers University, 22 March 2007.

Forest ecosystem research at Marshall University. Emory University, 2 April 2007.

The ecological importance of the herbaceous layer in forest ecosystems. Marshall University, Huntington, WV, 29 August 2007.

Long-term dynamics of nitrogen cycling in a central Appalachian deciduous forest: implications for forest biodiversity. East Carolina University, Greenville, NC, 6 March 2008.

Nitrogen (N) cycling in an N-saturated hardwood forest: effects on the herbaceous layer. South China Botanical Garden, Institute of Botany, Chinese Academy of Science, Guangzhou, China, 15 August 2008.

Going for gold in ecology: a China odyssey. Marshall University, Huntington, WV, 3 September 2008.

Global warming: causes, effects, and solutions. Marshall University, Huntington, WV, 16 April 2009.

The impact of nitrogen dynamics of sustainability and an expanding population. *Sustainable Agriculture in West Virginia*: a symposium of the Yeager Scholars, Marshall University, Huntington, WV, 26 October 2010.

The impact of excess nitrogen dynamics on sustainable forest ecosystems: Implications for agriculture. Henan Agricultural University, Zhengzhou, China, 4 July 2011.

Effects of excess nitrogen on forest biodiversity. South China Botanical Garden, Institute of Botany, Chinese Academy of Science, Guangzhou, China, 14 July 2011.

Nitrogen pollution in West Virginia: too much of a good thing. *Dine and Discover Lecture Series*, College of Science, Marshall University, Huntington, WV, 4 October 2011.

Response of the herbaceous layer to excess nitrogen in temperate versus tropical forests. Department of Biology, West Virginia University, Morgantown, WV, 19 March 2012.

Legacy of early farming practices in the South. *Legacy of the Land: How Yesterday's Agriculture Shaped Today's Landscape*, Reynolda Gardens of Wake Forest University, Winston-Salem, NC, 3 April 2012.

Response of the herbaceous layer to excess nitrogen in temperate versus tropical forests. Department of Biology, Wake Forest University, Winston-Salem, NC, 4 April 2012.

Response of global forest biodiversity to increased nitrogen deposition. Department of Botany, Charles University, Prague, Czech Republic, 23 October 2012.

Sustainable forest management under global climate change. Faculty of Forestry, Mendel University, Brno, Czech Republic, 24 October 2012.

INVITED SEMINARS (continued):

- Response of global forest biodiversity to increased nitrogen deposition. Department of Botany and Zoology, Masaryk University, Brno, Czech Republic, 25 October 2012.
- Effects of excess nitrogen on biodiversity of contrasting forest types. Department of Renewable Resources, University of Alberta, Edmonton, AB, Canada, 12 December 2012.
- Response of plant biodiversity of contrasting forest ecosystems to increased nitrogen deposition. Department of Forest Resources and Environmental Conservation, Virginia Polytechnic Institute and State University, Blacksburg, VA, 17 March 2014.
- Contributions of the herbaceous layer to forest biodiversity and ecosystem structure and function. ForestREPlot Workshop, Ghent, Belgium, 8 December 2014.
- Contributions of the herbaceous layer to forest biodiversity and ecosystem structure and function. Department of Biological Sciences, Marshall University, Huntington, WV, 2 February 2015.
- Ecology at the interface: community-level consequences of ecosystem-level perturbations. National Science Foundation, Arlington, VA, 5 May 2015.
- Environmental problems: 3 myths and 2 success stories. Huntington Rotary Club, Huntington, WV, 8 June 2015.
- Herb layer and biogeochemical responses of a temperate hardwood forest to excess nitrogen deposition: the importance of long-term data. Eastern Deciduous Forest Symposium, Powdermill Nature Reserve, Rector, PA, 12 November 2016. (Keynote Address)
- The forest between the trees: herbaceous layer ecology and forest management. Analyzing the Wild, Designing the Garden, Connecticut College Arboretum, New London, CT, 12 January 2017.
- The forest between the trees: herbaceous layer ecology and forest management. Analyzing the Wild, Designing the Garden, Morris Arboretum, Blue Belle, PA, 19 January 2017.
- Science and the effects of climate change. Huntington Rotary Club, Huntington, WV, 21 March 2017.
- Temporal and spatial responses of a temperate hardwood forest ecosystem to excess nitrogen: the herb layer as ecosystem engineer. Smithsonian Environmental Research Center, Edgewater, MD, 3 May 2017.
- Science and the effects of climate change. Norval Carter Memorial Medical Society, Huntington, WV, 4 May 2017.
- The trails and tribulations of an ecosystem ecologist. Department of Biology, University of West Florida, Pensacola, FL, 4 December 2017.
- Longleaf pine: the ecology of a fire-dependent ecosystem. Department of Biology, University of West Florida, Pensacola, FL, 16 November 2018.
- Longleaf pine: the ecology of a fire-dependent ecosystem. Department of English, University of West Florida, Pensacola, FL, 11 September 2019.
- Global warming: separating fact from myth. St. Christopher's Episcopal Church, 11 March 2020.

INVITED SEMINARS (continued):

The University of West Florida Campus Ecosystem Study: What's on your campus? Department of Biology, University of West Florida, Pensacola, FL, 11 September 2020.