

Michael R. Saunders**Education and Training**

Iowa State University	Forestry	B.S.	1994
Iowa State University	Fisheries & Wildlife Biology	B.S.	1994
Univ. of Minnesota	Forestry	M.S.	1998
University of Maine	Forest Resources	Ph.D.	2006

Research and Professional Experience*Positions (since 2000):*

2013 – present	Associate Professor of Hardwood Silviculture, FNR, Purdue University
2007 – present	Faculty Associate, School of Forest Resources, University of Maine
2007 – 2013	Assistant Professor of Hardwood Silviculture, FNR, Purdue University
2006 – 2007	Forest Biometrician, Cooperative Forestry Research Unit, Univ. of Maine
2002	Instructor, Department of Forest Ecosystem Sciences, University of Maine
2000 – 2005	Research Assistant, Dept. of Forest Ecosystem Sciences, Univ. of Maine

*Professional Activities:*Select organizations and roles:

Society of American Foresters	1991-2018
Purdue Student Chapter advisor	2009-2011, 2014-2017
Indiana State Society Chair-elect, Chair, Past Chair	2010-2012
American Chestnut Foundation	2008-2018
Walnut Council	2012-2018
Association of Fire Ecology	2018
Purdue Student Chapter advisor	2018

Editorial assignments:

<i>Silva Fennica</i> (Subject Editor)	2019 – current
<i>Forest Ecology & Management</i> (Assoc. Editor)	2016 – current
<i>Forest Science</i> (Assoc. Editor)	2013 – current
21 st Central Hardwood Forest Conference Proceedings (Editor)	2018 – 2019
<i>Forest Ecology & Management</i> (Guest Editor, 20 th CHFC Special Issue)	2015 – 2016
<i>Forest Science</i> (Guest Editor, 9 th NAFEW Special Issue)	2013 – 2014
<i>Northern Journal of Applied Forestry</i> (Assoc. Editor)	2013 – 2014
17 th Central Hardwood Forest Conference Proceedings (Assoc. Editor)	2010
16 th Central Hardwood Forest Conference Proceedings (Assoc. Editor)	2008

Teaching Experience:

FNR 33900: Principles of Silviculture	2007-2017, 2019
FNR 37200: Forestry Practicum	2009-2016, 2018
FNR 53600: Ecology of Natural Disturbances	2010, 2012, 2014, 2016, 2018

FNR 53601: Ecology of Natural Disturbances Practicum	2010, 2012, 2014, 2016, 2018
FNR 63900: Stand Dynamics	2009, 2011, 2014

Honors and Awards:

2015 Outstanding Paper Award, *Invasive Plant Science and Management* 2016

Grants Received (end dates within last 5 years):

2019-22, *Natural and artificial regeneration response of white oak across light and understory competition gradients*, Hardwood Tree Improvement and Regeneration Center, \$141,934, PI.

2018-20, *Indian Creek stream stabilization*, Indiana Dept. of Natural Resources, \$128,000 [represents two separate awards], co-I (PI: Brian Beheler).

2010-20, *Hardwood Ecosystem Experiment Phases I-IV*, Indiana Dept. of Natural Resources – Division of Forestry, \$2,836,338 [represents five 2-year renewals], co-PI with R. Swihart.

2014-20, *Application of ecological forestry principles to regenerate oak-dominated hardwood ecosystems*, \$289,859, Department of the Defense, PI.

2016-19, *End-of-rotation prescribed fire: tree- and stand-level effects on quality and lumber value*, \$199,693, Joint Fire Sciences Program, PI.

2018, *Underplanting study –10 year results*, \$5,000, The Nature Conservancy, PI.

2015-18, *Effects of prescribed fire within shelterwood regeneration systems on residual overstory timber quality*, \$54,000, USDA Forest Service, PI.

2012-18, *Center for Advanced Forestry Systems Phase II*, \$200,000, National Science Foundation – Collaborative Research, co-I (PI: C. Michler [deceased], D. Jacobs).

2013-18, *Graduate training in land use and landscape analysis for forest and agricultural sustainability and resilience*, \$202,500, NIFA National Needs Fellowship Program, co-I (PI: S. Fei).

2016, *Making resilience functional in a rapidly changing world*, \$19,507, Purdue Center for the Environment (C4E) – Sustainable Communities Seed Grant Program, co-I (PI: M. Jenkins).

2014, *HEE post-doc short term*, \$19,500, Indiana Dept. of Natural Resources – Division of Forestry, PI.

2013-15, *Economic and ecological impacts of woody biomass harvest in deciduous forests of the Central Hardwoods region*, \$112,064, USDA Sun Grant Initiative, co-I (PI: J. Dunning, Jr.).

Synergistic Activities

- Observer for the FAO-NAFC Silviculture Working Group since 2017 which meets yearly and reports to FAO on status and issues in North American silviculture and forest ecology.
- Scientist within the Hardwood Tree Improvement and Regeneration Center (HTIRC), a research cooperative between the US Forest Service, Purdue University and several public, private and industrial partners.
- Taught fire management and forest inventory techniques to 25 participants at the Beijing Forestry University International Forest Summer Camp in China in July 2019.
- External reviewer for Northeastern States Research Cooperative – Theme 3 grants from 2011-2015.

- Member of the Hardwood Ecosystem Experiment (HEE) Executive Committee (as co-lead PI) that helps direct research activities on a long-term, multi-institutional research project in southern Indiana. I supervise the project manager and am responsible for budgets. Funding for HEE has totaled nearly \$3,000,000 over the past 10 years and been renewed 5 times.
- Chair of planning committee for two major conferences, the 21st Central Hardwood Forest Conference in May 2018 in Bloomington, IN, and the 9th North American Forest Ecology Workshop (NAFEW) in June 2013 in Bloomington, IN. Permanent member of the NAFEW Executive Committee.

Publications

Peer Refereed Publications in the Last Four Years

- Stanis S, Wiedenbeck J, and **Saunders MR**. In press. Effect of prescribed fire on timber volume and grade in the Hoosier National Forest. *Forest Science*.
- Greenler SM, Estrada LA, Kellner KF, **Saunders MR**, and Swihart RK. In press. Prescribed fire and partial overstory removal alter an acorn-rodent conditional mutualism. *Ecological Applications*.
- Vickers LA, McWilliams WH, Knapp BO, D'Amato AW, Dey DC, Dickinson YL, Kabrick JM, Kenefic LS, Kern CC, Larsen DR, Royo AA, **Saunders MR**, Shifley SR, and Westfall JA. In press. Are current seedling demographics poised to regenerate northern US forests? *Journal of Forestry*.
- Phillips RP, Brandt L, Polly PD, Zollner P, **Saunders MR**, Clay K, Iverson L, and Fei S. In press. An integrated assessment of the potential impacts of climate change on Indiana Forests. *Climatic Change*.
- Kane JM, Varner JM, and **Saunders MR**. 2019. Resurrecting the lost flames of American chestnut. *Ecosystems* 22(5): 995-1006.
- Vickers LA, McWilliams WH, Knapp BO, D'Amato AW, **Saunders MR**, Shifley SR, Kabrick JM, Dey DC, Larsen DR, and Westfall JA. 2019. Using a tree-seedling mortality budget as an indicator of landscape-scale forest regeneration security. *Ecological Indicators* 421: 98-108.
- Greenler SM, and **Saunders MR**. 2019. Short-term, spatial regeneration patterns following expanding group shelterwood harvests and prescribed fire in the Central Hardwood Region. *Forest Ecology & Management* 432: 1053-1063.
- Frank GS, **Saunders MR**, and Jenkins MA. 2018. Short-term vegetation responses to invasive shrub control techniques for Amur honeysuckle (*Lonicera maackii* [Rupr.] Herder). *Forests* 9(10): #607.
- Frank GS, Rathfon RA, and **Saunders MR**. 2018. Ten-year responses of underplanted northern red oak to silvicultural treatments, herbivore exclusion, and fertilization. *Forests* 9(9): #571.
- Swaim JT, Dey DC, **Saunders MR**, Weigel DR, Thornton CD, Kabrick JM, and Jenkins MA. 2018. Overstory species response to clearcut harvest across environmental gradients in hardwood forests. *Forest Ecology & Management* 428: 66-80.
- Ruhl PJ, Kellner KF, Pierce JM, Riegel JK, Swihart RK, **Saunders MR**, and Dunning JB, Jr. 2018. Characterization of Worm-eating Warbler (*Helmitheros vermivorum*) breeding habitat at the landscape level and nest scale. *Avian Conservation & Ecology* 13(1): #11.

- Webster CR, Dickinson YL, Burton JI, Frelich LE, Jenkins MA, Kern CC, Raymond P, **Saunders MR**, Walters MB, and Willis JL. 2018. Tamm Review: Promoting and maintaining diversity in contemporary hardwood forests: confronting contemporary drivers of change and the loss of ecological memory. *Forest Ecology & Management* 421: 98-108.
- Fahey RT, Alveshere BC, Burton JI, D’Amato AW, Dickinson YL, Keeton WS, Kern CC, Larson AL, Palik BJ, Puettmann KJ, **Saunders MR**, Webster CR, Atkins JW, Gough CM, and Hardiman BS. 2018. Shifting conceptions of complexity in forest management and silviculture. *Forest Ecology & Management* 421: 59-71.
- Belair EP, **Saunders MR**, and Landhäusser SM. 2018. Growth traits of juvenile American chestnut and red oak as adaptations to disturbance. *Restoration Ecology* 26(4): 712-719.
- Shao G, Shao G, Gallion J, **Saunders MR**, Frankenberger JR, and Fei S. 2018. Improving Lidar-based aboveground biomass estimation of temperate hardwood forests with varying site productivity. *Remote Sensing of Environment* 204(1): 872-882.
- Peele J, Nix C, Ruhl P, Chapman R, Zollner P. and **Saunders M.** 2017. Effects of woody biomass harvests on a population of plethodontid salamanders in southeast Indiana. *American Midland Naturalist* 178(1): 132-143.
- Owings CF, Jacobs DF, Shields JM, **Saunders MR**, and Jenkins MA. 2017. Individual and interactive effects of white-tailed deer and an exotic shrub on artificial and natural regeneration in mixed hardwood forests. *AOB Plants* 9(4).
- Murray BD, Holland JD, Summerville KS, Dunning JB, **Saunders MR**, and Jenkins MA. 2017. Functional diversity response to hardwood forest management varies across taxa and spatial scales. *Ecological Applications* 27(4): 1064-1081.
- Nelson AS, Wagner RG, Day ME, Fernandez IJ, Weiskittel AR, and **Saunders MR.** 2016. Light absorption and light-use efficiency of juvenile white spruce trees in natural stands and plantations. *Forest Ecology and Management* 376: 158-165.
- Murray BD, Haulton S, Webster CW, **Saunders MR**, and Jenkins MA. 2016. Context dependent effects of ungulates on early seral plant communities follow anthropogenic disturbance. *Ecosphere* 7(6): e01378.
- Lowney, C.A., Graham, B.D., Spetich, M.A., Shifley, S.R., **Saunders, M.R.**, and Jenkins, M.A. 2016. Two decades of compositional and structural change in deciduous old-growth forests of Indiana, USA. *Journal of Plant Ecology* 9(3): 256-271.
- Swaim JT, Dey DC, **Saunders MR**, Weigel DR, Thornton CD, Kabrik JM, and Jenkins MA. 2016. Predicting the height growth of oak species (*Quercus*) reproduction over a 23-year period following clearcutting. *Forest Ecology and Management* 364: 101-112.
- Russell MB, D’Amato AW, Albers MA, Woodall CW, Puettmann KJ, **Saunders MR**, and Vanderschaaf CL. 2015. Performance of the Forest Vegetation Simulator in managed white spruce plantations influenced by eastern spruce budworm in northern Minnesota. *Forest Science* 61(4): 723-730.
- Morrissey RC, **Saunders MR**, and Jenkins MA. 2015. Successional and structural responses to overstorey disturbance in managed and unmanaged forests. *Forestry* 88(3): 376-389.
- Shields JM, Jenkins MA, **Saunders MR**, Gibson KD, Zollner, PA, and Dunning JB, Jr. 2015. Influence of intensity and duration of invasion by Amur honeysuckle (*Lonicera maackii*) on mixed-hardwood forests of Indiana. *Invasive Plant Science and Management* 8:44-56.

Nelson AS, Wagner RG, Weiskittel AR, and **Saunders MR**. 2015. Effects of species composition, management intensity, and shade tolerance on vertical distribution of leaf area index in juvenile stands in Maine, USA. *European Journal of Forest Research* 134: 281-291.

Relevant Technical Publications

- Stanis S, and **Saunders MR**. 2018. Tracking timber quality over multiple prescribed fires in eastern deciduous forests: Two-year results. Pg. 355-362 in: Kirshman JE, compl. Proceedings of the 19th Biennial Southern Silvicultural Research Conference. e-Gen. Tech. Rep. SRS-234. USDA Forest Service, Southern Research Station, Asheville, NC. 444 p.
- Phillips RP, Fei S, Brandt L, Polly D, Zollner P, **Saunders MR**, Clay K, Iverson L, Widhalm M, and Dukes JS. 2018. Indiana's future forests: a report from the Indiana Climate Change Impacts Assessment. Purdue Climate Change Research Center, West Lafayette, IN. 9 p.
- Meier AR and **Saunders MR**. 2016. Epicormic development in pole-size white oak (*Quercus alba* L.) progeny tests three years following crown release. Pg 395-404 in: Schweitzer CJ, Clatterbuck WK, and Oswalt CM, eds. Proceedings of the 18th Biennial Southern Silvicultural Research Conference. e-Gen. Tech. Rep. SRS-212. USDA Forest Service, Southern Research Station, Asheville, NC.
- Meier AR, and **Saunders MR**. 2014. Initial observations on tree mortality following a severe drought in 2012 in two Indiana state forests and implications for long-term compositional dynamics. Pg 347-350 in: Groninger JW, Holzmueller EJ, Nielsen CK, and Dey DC, eds. Proceedings of the 19th Central Hardwood Forest Conference. Gen. Tech. Rep. NRS-P-142. USDA Forest Service, Northern Research Station, Newtown Square, PA.
- Swihart RK, **Saunders MR**, Kalb RA, and Michler CH, eds. 2013. The Hardwood Ecosystem Experiment: a framework for studying responses to forest management. Gen. Tech. Rep. NRS-P-108. USDA Forest Service, Northern Research Station, Newtown Square, PA. 350 p.