CURRICULUM VITAE

DOUGLASS FREDERICK JACOBS

Purdue University	Phone: +1 (765) 494-3608
Hardwood Tree Improvement and Regeneration Center	Email: djacobs@purdue.edu
Department of Forestry and Natural Resources (FNR)	https://www.purdue.edu/fnr/jacobslab
West Lafayette, Indiana 47907-2061, USA	Birthdate: 24 July 1971

EXPERTISE: Regeneration of Planted and Natural Forests; Restoration Ecology; Tree Physiology

APPOINTMENTS

- Professor (since 2011), Associate Professor (2006-11), and Assistant Professor (2001-06). FNR, Purdue University.
- Fred M. van Eck Endowed Chair of Forest Biology (since 2012), FNR, Purdue University.
- Director (since 2017). Tropical Hardwood Tree Improvement and Regeneration Center (www.trophtirc.org), Purdue University and USDA Forest Service.
- Site Director (since 2015), National Science Foundation Industry/University Cooperative Research Center (NSF I/UCRC) – Center for Advanced Forestry Systems
- Editor-in-Chief (since 2010), *New Forests* (Springer Publishers, 2022 ISI Impact Factor = 2.2).
- Visiting Professor (2023-24). Swedish Agricultural University. Alnarp, Sweden.
- Associate Head (2014-2023). Department of Forestry and Natural Resources (FNR), Purdue University.
- Co-Director (2015-17). Hardwood Tree Improvement and Regeneration Center at Purdue University.
- Visiting Professor. 2016. Department of Natural Resources and Environmental Management, College of Tropical Agriculture and Human Resources, University of Hawai‘i at Mānoa.
- Visiting Scientist. 2016. Institute of Pacific Islands Forestry, Pacific Southwest Research Station, USDA Forest Service. Hilo, Hawai‘i.
- Visiting Professor. 2008-09. School of Forest Engineering, Technological University of Madrid, Spain.
- Instructor. 2000. Department of Forest Resources, Oregon State University. Corvallis, Oregon.
- Graduate Research Assistant. 1998-2001. Nursery Technology Cooperative, Department of Forest Science, Oregon State University. Corvallis, Oregon.
- Graduate Teaching Assistant. 1996-98. Warnell School of Forest Resources, University of Georgia. Athens, Georgia.
- Forestry Technician. 1996-98. USDA Forest Service, San Juan National Forest, Colorado.
- Research Technician. 1996. USDA Forest Service, Institute of Tree Root Biology, Athens, Georgia.
- Biological Technician. 1995. USDA Forest Service, San Juan National Forest, Colorado.
- Research Technician. 1994. National Park Service, Yosemite National Park, California.

EDUCATION

- Ph.D., Forest Science. 2001. Department of Forest Science, Oregon State University, Corvallis, Oregon. *Dissertation*: Influence of root architectural development on Douglas-fir (*Pseudotsuga menziesii*) seedling morphology and physiology.
- M.S., Forest Resources. 1998. Warnell School of Forest Resources, University of Georgia, Athens, Georgia. *Thesis*: The reforestation of Engelmann spruce (*Picea engelmannii*) using tree shelters.
- B.A., Ecology. 1993. Emory University, Atlanta, Georgia. *Senior Thesis*: Sustainability of Pacific Northwest logging.

HONORS AND AWARDS

- U.S. Fulbright Scholar (Sweden). 2023-24.
- Wenner-Gren Foundation Research Exchange Scholarship (Sweden). 2023-24.
- Seed for Success Acorn Award, Purdue University. 2023.
- W.L. Hoover Exemplary Faculty Service Award. FNR, Purdue University. 2022.
- Outstanding Graduate Mentor and Teacher Award. FNR, Purdue University. 2018, 2021, 2022.

- Corrine Alexander Spirit of the Land-Grant Mission Award, Purdue University. 2018.
- Academic Leadership Fellow, Big Ten Academic Alliance. 2014.
- USDA Forest Service Rocky Mountain Research Station Outstanding Technology Transfer Publication (*Tropical Nursery Manual*). 2014.
- Dingying Visiting Professor Fellowship, South China Agricultural University. 2013.
- Fred M. van Eck Endowed Chair of Forest Biology, Purdue University. 2012.
- University Faculty Scholar, Purdue University. 2011-16.
- USDA Forest Service Rocky Mountain Research Station Outstanding Technology Transfer Publication (*Tribal Nursery Manual*). 2009.
- Visiting Professor Fellowship, Technological University of Madrid, Spain. 2008.
- Who's Who in America. 2008.
- Epsilon Sigma Phi, Honor Society of Extension Programming. 2008.
- USDA Forest Service Northern Research Station Partnership Award (Hardwood Tree Improvement and Regeneration Center). 2007.
- USDI Cooperative Conservation Award (Appalachian Regional Reforestation Initiative). 2007.
- Adjunct Research Professor, Changbai Mountain Academy of Sciences, Jilin Province, China. 2006.
- Gamma Sigma Delta, Honor Society of Agriculture, Purdue University. 2005.
- Dilworth Memorial Scholarship, Department of Forest Resources, Oregon State University. 2000.
- Graduate student representative, Department of Forest Science, Oregon State University. 2000-01.
- Outstanding graduate teaching assistant, University of Georgia. 1998.
- Best forestry research presentation, Warnell School of Forest Resources Graduate Research Symposium. University of Georgia. 1998.
- President, Xi Sigma Pi, Forestry Academic Honor Society, University of Georgia. 1997-98.

AFFILIATIONS: American Chestnut Foundation, American Society of Mining and Reclamation, Ecological Society of America, Indiana Hardwood Lumbermen's Association, International Society for Horticultural Sciences, International Union of Forest Research Organizations, Society of American Foresters, Society for Ecological Restoration, Walnut Council

RESEARCH

I study the response of forest regeneration to culture and environmental stress. This knowledge is used to promote reforestation and ecological restoration. My research publications have been cited **>11,000 times, h-index 56** [Google Scholar] and **>6,400 times, h-index 44** [ISI Web of Science]. The following summarizes my research productivity in publications, seminars, and funding: (** indicates co-author was a graduate student at the time the research was conducted; ** indicates co-author was an undergraduate student; + indicates co-author was a post-doctoral scientist, ++ indicates co-author was a visiting scientist*)

Refereed Journal Articles (212), Symposia (21), and Book Chapters (6): 239

1. *Duffy PJ, Jacobs DF, Kabrick JM, Thornton CD, Swaim JT, Jenkins MA. **2024.** Response of understory vegetation to long-term occupancy by introduced *Pinus* species in temperate deciduous hardwood forests. ***Forest Ecology and Management*** 572:122310.
2. *Innusa BN, Burney, OT, Jacobs DF. **2024.** Response of live oak regeneration to planting density, fertilizer, and mulch. ***Forests*** 15:1594.
3. *Lesko JM, +Sloan JL, Löf M, Jacobs DF. **2024.** Overstory and understory resource competition variably influences conversion of introduced conifer plantations to native hardwoods. ***Forest Ecology and Management*** 566:122102.
4. Ovalle JF, Oliet JA, Vilagrosa A, Morcillo L, Meli P, Arellano EC, Becerra PI, Espinoza S, Jacobs DF, León-Lobos P, Lucas-Borja ME, Pedrini S, Valdecantos A, Valenzuela P, Vita A. **2024**. Técnicas de revegetación para restauración de ecosistemas. Ch. 17 in Bannister J, Ovalle, JF, Vargas-Gaete R, Claramunt V (Eds.), *Restauración de Ecosistemas Forestales*. Editorial Universitaria. Santiago, Chile, pp. 486-545.

5. Thiffault N, Coll L, Jacobs DF, Bieng MAN, Maurent E. **2024.** Natural regeneration after harvesting. Ch. 26 in Peh KS-H, Corlett RT, Bergeron Y (Eds.), *Handbook of Forest Ecology, 2nd Edition*. Routledge, Oxford, UK, pp. 399-411.
6. *Thyroff EC, Friday JB, Szuter MA, Jacobs DF. **2024.** Tradeoffs in access to light and root networks of established host trees for restoration planting of the root hemiparasite *Santalum paniculatum*. ***Restoration Ecology*** 32:e14180.
7. Xian L, Lu D, Yang Y, Feng J, Fang J, Jacobs DF, Wu D, Zeng S. **2024.** Effects of woodland slope on heavy metal migration via surface runoff, interflow, and sediments in sewage sludge application. ***Scientific Reports*** 14:13468
8. Xiao M, Chu S, Zheng F, Xian L, Lu J, Liao D, Ouyang J, Long M, Jacobs DF, Hu D, Zeng S. **2024**. Optimizing fertilization strategies to promote leaf-use ginkgo productivity and ecosystem economic benefits: an integrated evaluation of a field trial in southern China. ***Agronomy*** 14:1956
9. Yang Y, Feng W, Bao L, Xian L, Lu J, Wu D, Jacobs DF, Zeng S. **2024.** Effects of sewage sludge application methods on the transport of heavy metals with runoff and their mechanisms. ***Science of The Total Environment*** 912:168909.
10. *Brennan AN, Ma Z, Jacobs DF. **2023.** Perceptions of land managers towards using hybrid and genetically modified trees. ***New Forests*** 54:605-636.
11. Chu S, Xian L, Lai C, Yang W, Long M, Liao D, Ouyang J, Wang Z, Jacobs DF, Zeng S. **2023.** Combined addition of bagasse and zeolite stabilizes potentially toxic elements in sewage sludge compost and improve *Eucalyptus urophylla* seedling growth. ***Forest Ecology and Management*** 539:121003.
12. *Ebrahimi A, Sugiyama A, Ayala-Jacobo L, Jacobs DF. **2023.** Integrative analysis of physiology and genomics provides insights into freeze tolerance adaptations of *Acacia koa* along an elevational cline. ***Physiologia Plantarum*** 175:e14098.
13. Feng J, Yang Y, Ruan K, Xu Y, Wu D, Jacobs DF, Zeng S. **2023.** Combined application of sewage sludge, bagasse, and molybdenum tailings ameliorates rare earth mining wasteland soil. ***Journal of Soils and Sediments*** 23:1775–1788
14. Jacobs DF, Dumroese RK, Brennan AN, Campbell FT, Conrad AO, Delborne JA, Fitzsimmons S, Flores D, Giardina CP, Greenwood L, Martín JA, Merkle SA, Nelson CD, Newhouse AE, Powell WA, Romero-Severson J, Showalter DN, Sniezko RA, Strauss SH, Westbrook J, Woodcock P. **2023.** Reintroduction of at-risk forest tree species using biotechnology depends on regulatory policy, informed by science and with public support. ***New Forests*** 54:587-604.
15. Luiz BC *et al.* **2023.** Framework for establishing a Rapid ʻŌhiʻa Death resistance program. ***New Forests*** 54:637-660.
16. Mariotti B, Martini S, Raddi S, Ugolini F, Oliet JA, Jacobs DF, Maltoni A. **2023.** Cultivation using a coir substrate and P or K enriched fertilizer provides higher resistance to drought in ecologically diverse *Quercus* species. ***Plants*** 12:525.
17. Mechergui T, Pardos M, Boussaidi N, Catry FX, Jacobs DF. **2023.** Problems and solutions to cork oak (*Quercus suber* L.) regeneration: a review. ***iForest*** 16:10-22.
18. Oliet JA, Planelles R, Artero A, Jacobs DF. **2023.** Mesh-shelters provide more effective long-term protection than tube-shelters or mulching for restoration of *Pinus halepensis* in a Mediterranean arid ecosystem. ***Frontiers in Forests and Global Change*** 5:1092703.
19. +Paudel I, Rose KME, Landhäusser SM, Jacobs DF. **2023.** Co-limitation of resources reveals adaptations of a tropical tree to heterogeneous environments along an elevational cline. ***Frontiers in Forests and Global Change*** 6:1225778.
20. *Speetjens TM, Jacobs DF. **2023.** Nutrient availability has a greater influence than pot host on seedling development of hemiparasitic Hawaiian sandalwood (*Santalum paniculatum* Hook. & Arn.). ***Forests*** 14:458.
21. *Thyroff EC, Rose KME, Idol TW, Moon Q, Burney OT, Jacobs DF. **2023.** Co-planting of a fast-growing, nitrogen-fixing host tree facilitates regeneration of the root hemiparasitic ʻiliahi (Hawaiian sandalwood). ***Forest Ecology and Management*** 542:121084.
22. *Ebrahimi A, Abbasi AO, Liang J, Jacobs DF. **2022.** Spatiotemporal trends of black walnut forest stocking under climate change. ***Frontiers in Forests and Global Change*** 10:984725.
23. Gatti RC *et al.* **2022.** The number of tree species on Earth. ***Proceedings of the National Academy of Sciences*** 119:e2115329119.

24. Gustafson EJ, Miranda BR, Dreaden TJ, Pinchot CC, Jacobs DF. **2022.** Beyond blight: *Phytophthora* root rot under climate change limits populations of reintroduced American chestnut. ***Ecosphere*** 13:e3917.
25. Liang J *et al.* **2022.** Co-limitation toward lower latitudes shapes global forest diversity gradients. ***Nature Ecology and Evolution*** 6:1423–1437.
26. Moler ERV, +Toca A, Jacobs DF, Nelson AS. **2022.** Root system adaptations represent untapped opportunities for forest tree seedling improvement. ***New Forests*** 53:1069-1091.
27. *Montague MS, Landhäusser SM, McNickle GG, Jacobs DF. **2022.** Preferential allocation of carbohydrate reserves belowground supports disturbance- based management of American chestnut (*Castanea dentata*). ***Forest Ecology and Management*** 509:120078.
28. *Thyroff EC, Burney OT, Oliet JA, Redick CH, Jacobs DF. **2022.** Toward identifying alternatives to fencing for forest restoration: tube shelters outperform mesh shelters for deer browse protection of live oak, *Quercus virginiana*. ***Land*** 11:966.
29. +Toca A, Moler, E, Nelson A, Jacobs DF. **2022.** Environmental conditions in the nursery regulate root system development and architecture of forest tree seedlings: a systematic review. ***New Forests*** 53:1113-1143.
30. Wu D, Peng W, Bao L, Yu X, Dong X, Lai M, Liang Z, Xie S, Jacobs DF, Zeng S. **2022.** Biochar alleviating heavy metals phytotoxicity in sludge-amended soil varies with plant adaptability. ***Environmental Research*** 215:114248.
31. *Ayala-Jacobo LM, Woeste KE, Jacobs DF. **2021.** Cold acclimation increases freeze tolerance in *Acacia koa*, a tropical tree species occurring over a wide elevational gradient ***Forests*** 12:1089.
32. *Brennan AN, Uscola M, Joly RJ, Jacobs DF. **2021.** Cold and heat tolerances of hybrids for restoration of the endangered *Juglans cinerea*. ***Annals of Forest Science*** 78:36.
33. Chu S, Xiax D, Liang Z, Su S, Zhao N, Wang J, Long M, Ouyang J, Liao D, Jacobs DF, Zeng S. **2021.** Changes in potentially toxic element concentration and potential ecological risk in topsoil caused by sewage sludge application on forestland: a 3-year field trial. ***Forest Ecology and Management*** 500:119657.
34. Mechergui T, Pardos M, Jacobs DF. **2021.** Effect of acorn size on survival and growth of *Quercus suber* L. seedlings under water stress. ***European Journal of Forest Research*** 140:175–186.
35. *Pang K, Woeste KE, Saunders MR, McKenna JR, Mickelbart MV, Jacobs DF, Michler CH. **2021.** Rapid juvenile growth in clonal *Juglans nigra* L. is most closely associated with early foliation, robust branch architecture, and protandry. ***Forest Ecology and Management*** 499:119590.
36. +Sloan JL, Salifu, KF, Jacobs DF. **2021.** Nitrogen recovery from enhanced efficiency fertilizers and urea in intensively managed black walnut (*Juglans nigra*) plantations. ***Forests*** 12:352.
37. Stanturf JA, Dumroese RK, Jacobs DF. **2021.** Forest landscape restoration in the USA: Present and future challenges and opportunities. *In* Ghazoul J and Schweizer D (eds) *Forests for the future: Restoration success at landscape scale - what will it take and what have we learned?* Prince Bernhard Chair Reports (issue 1). WWF-Netherlands, Zeist and Utrecht University, Netherlands. pp 120-125.
38. +Sugiyama A, Friday JB, Giardina CP, Jacobs DF. **2021.** Intraspecific variation along an elevational gradient alters seed scarification responses in the polymorphic tree species *Acacia koa*. ***Frontiers in Plant Science*** 12:716678.
39. Wu D, Yu X, Lai M, Feng J, Dong X, Peng W, Su S, Zhang X, Wan L, Jacobs DF, ++Zeng S. **2021.** Diversified effects of co-planting landscape plants on heavy metals pollution remediation in urban soil amended with sewage sludge. ***Journal of Hazardous Materials*** 403:123855.
40. *Brennan AN, McKenna JR, Hoban SM, Jacobs DF. **2020.** Hybrid breeding for restoration of threatened forest trees: evidence for incorporating disease tolerance in *Juglans cinerea*. ***Frontiers in Plant Science*** 11:580693.
41. *Ebrahimi A, Lawson SS, McKenna JR, Jacobs DF. **2020.** Morpho-physiological and genomic evaluation of *Juglans* species reveals regional maladaptation to cold stress. ***Frontiers in Plant Science*** 11:229.
42. Jacobs DF. *Davis AS, Dumroese RK, *Burney, OT. **2020.** Nursery cultural techniques facilitate restoration of *Acacia koa* competing with invasive grass in a dry tropical forest. ***Forests*** 11:1124.
43. ++Mariotti B, Martini S, Raddi S, Tani A, Jacobs DF, Oliet, JA, Maltoni, A. **2020.** Coconut coir as a sustainable nursery growing media for seedling production of ecologically diverse *Quercus* species. ***Forests*** 11:522.
44. ++Medina-Villar S, +Uscola M, Pérez-Corona E, Jacobs DF. **2020.** Environmental stress under climate change reduces plant performance, yet increases allelopathic potential of an invasive shrub. ***Biological Invasions*** 22:2859–2881.

45. *Redick CH, Jacobs DF. **2020.** Mitigation of deer herbivory in temperate hardwood forest regeneration: a meta-analysis of research literature. ***Forests*** 11:1220.
46. *Redick CH, McKenna JR, Carlson DE, Jenkins, MA, Jacobs DF. **2020.** Silviculture at establishment of hardwood plantations is relatively ineffective in the presence of deer browsing. ***Forest Ecology and Management*** 474:118339.
47. *Rose KME, Friday JB, Oliet JA, Jacobs DF. **2020.** Canopy openness affects microclimate and performance of underplanted trees in restoration of high-elevation tropical pasturelands. ***Agricultural and Forest Meteorology*** 292-293:108105.
48. *Schempf WM, Jacobs DF. **2020.** Hardwood species show wide variability in response to silviculture during reclamation of coal mine sites. ***Forests*** 11:72.
49. *Sigala JA, Uscola M, Oliet JA, Jacobs DF. **2020.** Drought tolerance and acclimation in *Pinus ponderosa* seedlings: the influence of nitrogen form. ***Tree Physiology*** 40:1165-1177.
50. Stack S, Jones C, *Bockstette J, Jacobs DF, Landhäusser SM. **2020.** Surface and subsurface material selections influence the early outcomes of boreal upland forest restoration. ***Ecological Engineering*** 144:105705.
51. *Toca A, Villar-Salvador P, Oliet JA, Jacobs DF. **2020**. Normalization criteria determine the interpretation of nitrogen effects on the root hydraulics of pine seedlings. ***Tree Physiology*** 40:1381-1391.
52. Wu D, Feng J, Ouyang J, Liao D, Yu W, Wang G, Cao F, Jacobs DF, ++Zeng S. **2020.** Combined application of bud and leaf growth fertilizer improves leaf flavonoids yield of *Ginkgo biloba*. ***Industrial Crops and Products*** 150:112379.
53. *Gauthier MM, Jacobs DF. **2019.** Photosynthetic parameters of *Juglans nigra* trees are linked to cumulative water stress. ***Canadian Journal of Forest Research*** 49:752–758.
54. ++Löf M, Madsen P, Metslaid M, Witzell J, Jacobs DF. **2019.** Restoring forests: regeneration and ecosystem function for the future. ***New Forests*** 50:139-152.
55. Maltoni A, ++Mariotti B, Tani A, Martini S, Jacobs DF, Tognetti R. **2019.** Natural regeneration of *Pinus pinaster* facilitates *Quercus ilex* survival and growth under severe deer browsing pressure. ***Forest Ecology and Management*** 432:356-364.
56. Mechergui T, Pardos M, Jacobs DF, Hasnaoui B. **2019.** Influence of mulching and tree shelters on four-year survival and growth of zeen oak (*Quercus canariensis* Willd.) seedlings. ***Journal of Forestry Research*** 30:129-141.
57. *Rose KME, Mickelbart MV, Jacobs DF. **2019.** Plasticity of phenotype and heteroblasty in contrasting populations of *Acacia koa*. ***Annals of Botany*** 124:399-409.
58. *Rose KME, Friday JB, Jacobs DF. **2019**. Establishment and heteroblasty of *Acacia koa* in canopy gaps. ***Forest Ecology and Management*** 453:117592.
59. *Soto DP, Puettman KJ, Fuentes C, Jacobs DF. **2019.** Regeneration niches in *Nothofagus*-dominated old-growth forests after partial disturbance: insights to overcome arrested succession. ***Forest Ecology and Management*** 445:26-36.
60. *Thyroff EC, Burney OT, Jacobs DF. **2019.** Herbivory and competing vegetation interact as site limiting factors in maritime forest restoration. ***Forests*** 10, 950.
61. *Thyroff EC, Burney OT, Mickelbart MV, Jacobs DF. **2019.** Unraveling shade tolerance and plasticity of semi-evergreen oaks: insights from maritime forest live oak restoration. ***Frontiers in Plant Science*** 10:1526.
62. *Toca A, ++Oliet JA, ++Villar-Salvador P, Martínez R, Jacobs DF. **2019.** Ecologically distinct pine species show differential root development in response to varying seedling nitrogen reserves. ***Forest Ecology and Management*** 451:117562.
63. Wu, D, Feng J, Chu S, Jacobs DF, Tong X, Zhao Q, Chen X, ++Zeng S. **2019.** Integrated application of sludge, earthworms and *Jatropha curcas* on abandoned rare-earth mine land soil. ***Chemosphere*** 214:47-54.
64. *Burney OT, Jacobs DF. **2018.** Species selection – a fundamental silvicultural tool to promote forest regeneration under high animal browsing pressure. ***Forest Ecology and Management*** 408:67-74.
65. Chu S, Jacobs DF, *Sloan JL, Xue L, Wu D, ++Zeng S. **2018.** Changes of soil properties under *Eucalyptus* plantations in reference to native *Pinus massoniana* plantations and natural broadleaved forests in South China. ***Journal of Forestry Research*** 29:1299-1306.
66. Chu S, Jacobs DF, Liao D, Liang LL, Wu D, Chen P, Lai C, Zhong F, ++Zeng S. **2018**. Biomass growth, nutrient uptake and heavy metal removal differ by landscape plant species and application rate of sewage sludge compost. ***Environmental Science and Pollution Research*** 25:35184–35199.

67. *Gauthier MM, Jacobs DF. **2018.** Ecophysiological drivers of hardwood plantation diameter growth under non-limiting light conditions. ***Forest Ecology and Management*** 419-420:220-226.
68. *Gauthier MM, Jacobs DF. **2018.** Reductions in net photosynthesis and stomatal conductance vary with time since leaf detachment in three deciduous angiosperms. ***Trees-Structure and Function*** 32:1247-1252.
69. Gustafson EJ, Sturtevant BR, +de Bruijn AMG, +Lichti NI, Jacobs, DF, Kashian DM, Miranda BR, Townsend PA. **2018.** Forecasting effects of tree species reintroduction strategies on carbon stocks in a future without historical analog. ***Global Change Biology*** 24:5500-5517.
70. *Lesko J, Jacobs DF. **2018.** Conversion of introduced conifer plantations to native hardwoods: Influences of light and nutrients on understory regeneration. ***New Forests*** 49:829-849.
71. Lie Z, Xue L, Jacobs DF. **2018.** Allocation of forest biomass across broad precipitation gradients in China's forests. ***Scientific Reports*** 8:10536.
72. *Shi W, ++Villar-Salvador P, Jacobs DF, ++Li G., Jiang X. **2018.** Simulated predation of *Quercus variabilis* acorns impairs seedling performance and nutrient remobilization irrespective of soil fertility. ***Plant and Soil*** 423:295-306.
73. Skousen J, Dallaire K, Scagline S, Monteleone A, Wilson-Kokes L, Joyce J, Thomas C, Keene T, DeLong C, Cook T, Jacobs DF. **2018.** Plantation performance of chestnut hybrids and progenitors on reclaimed Appalachian surface mines. ***New Forests*** 49:599-611.
74. *Sloan JL, Jackson GS, Jacobs DF. **2018.** Endogenous translocation patterns of current photosynthate in post-transplant *Quercus rubra* seedlings. ***Canadian Journal of Forest Research*** 48:1067–1072.
75. *Toca A, ++Oliet JA, ++Villar-Salvador P, Maroto J, Jacobs DF. **2018.** Species ecology determines the role of nitrogen nutrition in the frost tolerance of pine seedlings. ***Tree Physiology*** 38:96-108.
76. Wagner RG, Gonzalez-Benecke CA, Nelson AS, Jacobs DF. **2018**. Forest regeneration in changing environments. ***New Forests*** 49:699-703.
77. Wu D, Yu X, Chu S, Jacobs DF, Wei X, Wang C, Long F, Chen X, ++Zeng S. **2018.** Alleviation of heavy metal phytotoxicity in sewage sludge by vermicomcposting with additive urban plant litters. ***Science of the Total Environment*** 633:71-80.
78. Espelta JM, Chirino E, Gil-Pelegrín E, Jacobs DF, Martín-Gómez P, Navarro-Cerrillo R, ++Oliet J, Vilagrosa A, ++Villar-Salvador P, Pemán J. **2017.** Physiological keys for natural and artificial regeneration of oaks. pp. 453-511 *In:* Oak Physiological Ecology. Exploring the Functional Diversity of Genus *Quercus* L. Springer Publishers. DOI: 10.1007/978-3-319-69099-5
79. Gustafson EJ, +de Bruijn A, +Lichti NI Jacobs DF, Sturtevant BR, Foster JR, Miranda BR, +Dalgleish HJ. **2017.** The implications of American chestnut re-introduction on landscape dynamics and carbon storage. ***Ecosphere*** 8:e01773.
80. *Khurram S, Burney OT, Morrissey RC, Jacobs DF. **2017.** Bottles to trees: plastic beverage bottles as an alternative nursery growing container for reforestation in developing countries. **PLoS ONE** 12: e0177904.
81. *Owings CF, Jacobs DF, Shields JM, Saunders MR, 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: plx024.
82. Pan J Jacobs DF, ++Li G. **2017.** Combined effects of short day treatment and fall fertilization on growth, nutrient status and spring bud break of *Pinus tabulaeformis* seedlings. ***iForest*** 10:242-249.
83. Potter KM, Jetton RM, Bower A, Jacobs DF, Man G, Hipkins VD. **2017**. Banking on the future: Progress, challenges and opportunities for the genetic conservation of forest trees. ***New Forests*** 48:153-180.
84. *Soto DP, Jacobs DF, Salas C, Donoso PJ, Fuentes C, Puettman KJ. **2017.** Light and nitrogen interact to influence regeneration in old-growth *Nothofagus*-dominated forests in south-central Chile. ***Forest Ecology and Management*** 384:303-313.
85. Wallin E., Gräns D, Jacobs DF, Lindström A, Verhoef N. **2017.** Short-day photoperiods affect expression of genes related to dormancy and freezing tolerance in Norway spruce seedlings. ***Annals of Forest Science*** 74:59.
86. Wu D, Chu S, Lai C, Mo Q, Jacobs DF, Chen X, ++Zeng S. **2017.** Application rate and plant species affect sewage sludge utilization as landscape soil-amendments. ***Urban Forestry and Urban Greening*** 27:138-147.
87. Yu Y, ++Zeng S, Wu D, Jacobs DF, +Sloan JL. **2017.** Soil pH, organic matter, and nutrient content change with the continuous cropping of *Cunninghamia lanceolata* plantations in South China. ***Journal of Soils and Sediments*** 17:2230-2238.

88. Yu W, Liu Y, Song L, Jacobs DF, Du X, ++Ying Y, Shao Q, Wu J. **2017.** Effect of differential light quality on morphology, photosynthesis and antioxidant enzyme activity in *Camptotheca acuminata* seedlings. ***Journal of Plant Growth Regulation*** 36:148-160.
89. +Dalgleish HJ, Nelson CD, Scrivani JA, Jacobs DF. **2016.** Consequences of shifts in abundance and distribution of American chestnut for reintroduction of a foundation forest tree. ***Forests*** 7, 4.
90. *Crystal PA, +Lichti NI, Woeste KE, Jacobs DF. **2016.** Discriminant analyses on vegetative versus adaptive traits predict different outcomes for restoration using hybrids. ***Frontiers in Plant Science*** 7:1741.
91. *Earnshaw KM, Barribault TW, Jacobs DF. **2016.** Alternative field fertilization techniques to promote restoration of leguminous *Acacia koa* on contrasting tropical sites. ***Forest Ecology and Management*** 376:126-134.
92. ++Li G, Wang J, ++Oliet JA, Jacobs DF. **2016.** Collective fertilization at pre-hardening and in fall facilitates N storage and field performance of *Pinus tabulaeformis* seedlings. ***iForest*** 9:483-489.
93. *Sloan JL, +Islam MA, Jacobs DF. **2016.** Reduced translocation of current photosynthate precedes changes in gas exchange for *Quercus rubra* seedlings under flooding stress. ***Tree Physiology*** 36:54-62.
94. +Sloan JL, +Uscola M, Jacobs DF. **2016**. Nitrogen recovery in planted seedlings, competing vegetation, and soil in response to fertilization on a boreal mine reclamation site. ***Forest Ecology and Management*** 360:60-68.
95. *Sloan JL, Jacobs DF. **2016.** Ontogeny influences developmental physiology of post-transplant *Quercus rubra* seedlings more than genotype. ***Annals of Forest Science*** 73:987-993.
96. *Bumgarner ML, +Salifu KF, Mickelbart MV, Jacobs DF. **2015.** Effects of fertilization on media chemistry and *Quercus rubra* seedling development under subirrigation. ***HortScience*** 50:454-460.
97. Jacobs DF, ++Oliet JA, Aronson J, Bolte A, Bullock JM, Donoso PJ, Landhäusser SM, Madsen P, Peng S, Rey Benayas JM, Weber JC. **2015.** Restoring forests: what constitutes success in the twenty-first century? ***New Forests*** 46:601-614.
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230. Jacobs DF, +Ross-Davis AL, *Davis AS. **2004**. Establishment success of conservation tree plantations in relation to silvicultural practices in Indiana, USA. ***New Forests*** 28: 23-36.
231. Jacobs DF, Seifert JR. **2004**. Re-evaluating the significance of the first-order lateral root grading criterion for hardwood seedlings. *In* *Proceedings of the Fourteenth Central Hardwood Forest Conference.* USDA Forest Service North Central Experiment Station Gen. Tech. Rep. NE-316:382-388.
232. Jacobs DF, Seifert JR. **2004**. Facilitating nutrient acquisition of black walnut and other hardwoods at plantation establishment. *In* *Proceedings of the Sixth Black Walnut Symposium.* USDA Forest Service North Central Research Station Gen. Tech. Rep. NC-243:66-70.
233. Jacobs DF, Severeid LR. **2004**. Dominance of interplanted American chestnut (*Castanea dentata*) in southwestern Wisconsin, USA. ***Forest Ecology and Management*** 191:111-120.
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235. ++Villar-Salvador P, Planelles R, ++Oliet J, Peñuelas-Rubira JL, Jacobs DF, González M. **2004**. Drought tolerance and transplanting performance of holm oak (*Quercus ilex* L.) seedlings after drought hardening in the nursery. ***Tree Physiology*** 24:1147–1155.
236. *Wilson BC, Jacobs DF. **2004**. Electrolyte leakage from stem tissue as an indicator of hardwood seedling physiological status and hardiness. *In* *Proceedings of the Fourteenth Central Hardwood Forest Conference.* USDA Forest Service North Central Experiment Station Gen. Tech. Rep. NE-316:373-381.
237. Jacobs DF, Rose R, Haase DL. **2003**. Development of Douglas-fir seedling root architecture in response to localized nutrient supply. ***Canadian Journal of Forest Research*** 33:118-125.
238. Jacobs DF, Rose R, Haase DL, Morgan P. **2003**. Influence of nursery soil amendments on water relations, root architectural development, and field performance of Douglas-fir transplants. ***New Forests*** 26:263-277.
239. Jacobs DF, Steinbeck K. **2001**. Tree shelters improve the survival and growth of planted Engelmann spruce seedlings in southwestern Colorado. ***Western Journal of Applied Forestry*** 16:114-120.

Edited Symposia (8)

1. Jacobs DF, Dumroese RK, eds. **2023**. *Threatened Tree Species*. *New Forests* (Special Issue). Volume 54, Issue 4 / July 2023, pp. 587-767.
2. Haase DL, Jacobs DF, eds. **2022**. *Seedling Root Development*. *New Forests* (Special Issue). Volume 53, Issue 6 / November 2022, pp. 967-1164.

3. Löf M, Madsen P, Metslaid M, Witzell J, Jacobs DF, eds. **2019.** Restoring forests: regeneration and ecosystem function for the future. *New Forests* (Special Issue). Volume 50, Issue 2 / March 2019, pp. 139-360.
4. Wagner RG, Gonzalaz-Benecke CA, Nelson AS, Jacobs DF, eds. **2018**. *Forest Regeneration in Changing Environments. New Forests* (Special Issue). Volume 49, Issue 6 / November 2018, pp. 699-892.
5. Jacobs DF, ed. **2015**. *Restoring Forests: What Constitutes Success in the Twenty-First Century? New Forests* (Special Issue). Volume 46, Issues 5-6 / November 2015, pp. 601-1011.
6. Haase DL, Jacobs DF, eds. **2013**. *Nutrient Dynamics of Planted Forests*. *New Forests* (Special Issue). Volume 44, Issue 5 / September 2013, pp. 629-810.
7. Oliet JA, Jacobs DF, eds. **2012**. *Restoring Forests: Advances in Techniques and Theory*. *New Forests* (Special Issue). Volume 43, Issues 5-6 / September 2012, pp. 535-978.
8. Jacobs DF, Michler CH, eds. **2008**. *Proceedings of the 16th Central Hardwood Forest Conference*. USDA Forest Service Northern Research Station Gen. Tech. Rep. NRS-P-24. 595 p.

Invited Research Presentations: 97 (of > 200 total presentations)

2024 --Genetics, ecophysiology, and silviculture inform native forest restoration in the highly heterogeneous tropical environment of Hawai'i. Southern Swedish Forest Research Center, Swedish University of Agricultural Sciences. **Alnarp, Sweden.**

--Forest regeneration: challenges and opportunities. Skogforsk. **Ekebo, Sweden.**

--Restoration of pest-resistant forest trees to the landscape: integration of technology, ecology, and society. Department of Forest Ecology and Management, Swedish University of Agricultural Sciences. **Umeå, Sweden.**

--Conversion of introduced pine plantations to native hardwoods. Southern Swedish Forest Research Center, Swedish University of Agricultural Sciences. **Alnarp, Sweden.**

2023 --Restoration of pest-resistant forest trees to the landscape: integration of technology, ecology, and society. *Creating Canopy: the biology and practice of establishing trees and woodlands for people and nature.* Association of Applied Biologists (Applied Tree and Forest Biology), **University of Nottingham, UK (Keynote).**

--Restoration of pest-resistant forest trees to the landscape: integration of technology, ecology, and society, Department of Forest Mycology and Plant Pathology, Swedish University of Agricultural Sciences. **Uppsala, Sweden.**

--Silvicultural strategies for deployment of pest-resistant trees. Southern Swedish Forest Research Center, Swedish University of Agricultural Sciences. **Alnarp, Sweden.**

--Silviculture and policy considerations for American chestnut restoration. *Southern Forest Tree Improvement Conference,* **Knoxville, Tennessee.**

2019 --Restoration of temperate and tropical hardwood forests. *School of Agriculture and Food Science*, *University College Dublin,* **Dublin, Ireland.**

2018 --Restoration of temperate and tropical hardwood forests. Warnell School of Forest Resources Research Symposium. *University of Georgia,* **Athens, Georgia** (keynote).

2017 --Can American chestnut restoration improve carbon storage potential in an uncertain future? The American Chestnut Foundation Annual Meeting. **Portland, Maine.**

--Restoration of temperate and tropical forests. *Department of Horticulture and Landscape Architecture, Purdue University.* **West Lafayette, Indiana.**

--The Pu'u Wa'awa'a Resilience Project. *USDA Forest Service, Institute of Pacific Islands Forestry.* **Hilo, Hawaii.**

--Using biotechnology to restore keystone species. *IUFRO symposium on Forest Landscape Restoration Under Global Change*, International Institute of Tropical Forestry. **San Juan, Puerto Rico.**

--Restoring forests: What constitutes success in the twenty-first century? *Department of Forest and Wood Technology, Linnaeus University,* **Växjö, Sweden.**

2016 --Applying the target plant concept to regeneration and restoration of *Acacia koa*. Symposium entitled "*Acacia koa* in Hawaii: Facing the Future"*, University of Hawaii at Hilo.* **Hilo, Hawaii.**

--Restoring forests: What constitutes success in the twenty-first century? Nāhelehele Dryland Forestry Symposium*,* **Kona, Hawaii** (keynote).

--A conceptual framework for restoration of forest trees. Department of Natural Resources and Environmental Management seminar series. *University of Hawaii at Manoa.* **Manoa, Hawaii.**

--A conceptual framework for restoration of forest trees: Applications to Hawaii? College of Tropical Agriculture and Human Resources, *University of Hawaii, Komohana Research and Extension Center*. **Hilo, Hawaii.**

2014 --Can we predict the ecological implications for restoration of an extirpated forest tree species under global change? *Session entitled, Novel Ecosystems and Intervention: Adaptation to Climate Change, IUFRO World Congress,* **Salt Lake City, Utah**.

--Importance of stored nitrogen and carbohydrates for seedling outplanting performance. *2nd IUFRO Restoring Forests Congress*, **Lafayette, Indiana**.

--Effect of nursery photoperiod manipulation on seedling root development following planting. *Dalarna University.* **Bolänge, Sweden.**

--A conceptual framework for restoration of threatened plants: the effective model of American chestnut (*Castanea dentata*) reintroduction. *Swedish University of Agricultural Sciences*. **Alnarp, Sweden.**

--Nutrient dynamics of planted forests: advances in techniques and theory. *International Forum on Sustainable Development of Subtropical Forests, Tree Physiology and Environmental Stress*. Zhejiang A&F University, **Lin An, China.**

2013 --Optimizing seedling quality for restoration after surface mining. *Society for Ecological Restoration 5th World Conference.* **Madison, Wisconsin.**

--A conceptual framework for restoration of threatened plants: the effective model of American chestnut (*Castanea dentata*) reintroduction. *Society for Ecological Restoration 5th World Conference*. **Madison, Wisconsin.**

--Restoration of native species in Hawaii. *North American Forest Ecology Workshop*. **Bloomington, Indiana.**

--Ecology of a disjunct, naturally regenerating stand of American chestnut in central Maine. *North American Forest Ecology Workshop*. **Bloomington, Indiana.**

--Calibration and application of LANDIS PnET-Biosuccession, a complex mechanistic forest growth and distribution model. *North American Forest Ecology Workshop*. **Bloomington, Indiana.**

--A Bayesian approach to forest stem mapping with plot-based survey data on a marked grid. *23rd Annual Conference of the International Environmetrics Society*. **Anchorage, Alaska**.

--Controlled-release fertilization to improve fertilizer use efficiency and optimize growth of tree seedlings on reclaimed oil sands. *Canadian Oil Sands Network for Research and Development, Environmental and Reclamation Research Symposium*. **Edmonton, Alberta, Canada**.

2012 --Toward development of silvical strategies for forest restoration of American chestnut (*Castanea dentata*). *2nd Forest Science Forum*, **Beijing, China**.

--Improved fertilizer use efficiency and growth of tree seedlings on reclaimed oil sands. *IUFRO symposium, Nutrient Dynamics of Planted Forests*. **Vancouver, Washington.**

--The role of seedling nutrition on ungulate herbivory patterns. *IUFRO symposium, Nutrient Dynamics of Planted Forests*. **Vancouver, Washington.**

--Forecasting carbon storage of eastern forests: Can American chestnut restoration improve storage potential in an uncertain future? *ASA, CSSA, and SSSA International Meeting*. **Cincinnati, Ohio**.

--Bases ecofisiológicos del establecimiento de las plantas en ambientes mediterráneos. *Symposium on urban and peri-urban forestry*. Pontificia Universidad Católica de Chile, **Santiago, Chile**.

--Toward recovery of a foundation forest species –*Castanea dentata* as an effective model for ecological restoration. *Swedish Agricultural University*, **Umeå, Sweden.**

--Ecophysiological characterization of *Castanea dentata*: a basis for restoration of an American legacy tree. *1st Annals of Forest Science Symposium*, **Champenoux, France.**

--Tree shelter effects on microclimatic conditions and forest seedling development. *Inland Empire Reforestation Council Symposium*. **Coure d'Alene, Idaho**.

--Nursery and field fertilization: Emerging technologies with application to oil sands reclamation. *Canadian Oil Sands Network for Research and Development, Environmental and Reclamation Research Symposium*. **Edmonton, Alberta, Canada**.

--Application of the target seedling concept to regeneration of hardwood forests. *Department of Horticulture and Landscape Architecture*, **Purdue University, West Lafayette, Indiana.**

2011 --Hacia el desarrollo de estrategias silvícolas para la restauración forestal del castaño americano (*Castanea dentata*) utilizando híbridos resistentes al chancro*. Congreso Biocastanea*. **University of León, Ponferrada, Spain**.

--Forecasting carbon storage of eastern forests: Can American chestnut restoration improve storage potential in an uncertain future? *China-US Joint Symposium*, *Global Sustainability Issues in Energy, Climate, Water and Environment*, **West Lafayette, Indiana.**

--Advances in fertilization for hardwood regeneration. *7th Walnut Council Research Symposium*, **Madison, Wisconsin.**

--Restoration of an American legacy tree: challenges of reintroducing *Castanea dentata* using blight-resistant hybrids. *Natural Resources Institute*, **University of Greenwich, United Kingdom.**

--Ecology and restoration of American chestnut. *American Chestnut Ecology and Reintroduction Meeting*, **Ohio University, Athens, Ohio.**

--Synthesis of American chestnut (*Castanea dentata*) biological, genetic, and ecological attributes with application to forest restoration. *Forest Health Initiative Annual Meeting*, **Arlington, Virginia.**

2010 -- Restauración de una especie forestal clave de Norteamérica: mejora y selvicultura de *Castanea dentata*. *School of Forest Engineering*, **Technological University of Madrid, Spain**.

--Targeting hardwoods. Target Seedling Symposium, *Western Forest and Conservation Association*, **Portland, Oregon.**

-- Restoration of an American legacy tree: breeding and silviculture of *Castanea dentata*. *Department of Forest and Environment*, **Eberswalde University, Germany.**

--Competitive success of natural oak regeneration in clearcuts during the stem exclusion stage. *Federal Research Institute for Rural Areas, Forestry and Fisheries*, **Eberswalde, Germany.**

--Propagation and quality assessment of temperate deciduous hardwood seedlings, *Center for Agrarian Sciences*, **Western Paraná State University, Brazil.**

--Restoration of an American legacy tree: breeding and silviculture of *Castanea dentata*. *Institute of Silviculture*, **Freiburg University, Germany.**

2009 --Sobrecarga exponencial de nutrientes para la optimización de la fertilización en vivero de plantas de *Quercus ilex*. *5th Spanish Forestry Congress*, **Ávila, Spain.**

-- Physiological quality assessment of temperate deciduous forest tree species. *Ministry of Agricultural, Food, and Forestry Policies Symposium on Nursery Seedling Quality*. **Vercelli, Italy.**

--Restoration of an American legacy tree: breeding and silviculture of *Castanea dentata*. *Department of Science and Environmental Forestry Technology*. **University of Florence, Italy.**

--Restoration of an American legacy tree: breeding and silviculture of *Castanea dentata*. *Swedish University of Agricultural Sciences*. **Alnarp, Sweden.**

--Restoration of threatened forest tree species in the Central United States. *Faculty of Forestry and Wood Sciences. Czech University of Life Sciences*. **Prague, Czech Republic.**

--Competitive success of natural oak regeneration in clearcuts during stem exclusion. *Seminar Program on Silviculture and Tree Physiology, Department of Forest Science*, **University of Huelva, Spain**.

-- The role of root system quality and function in resistance to planting stress. *Seminar Program on Restoration of Arid Environments. Department of Ecology*, **Alicante University, Spain**.

--Innovations in afforestation of agricultural bottomlands to restore native forests in the United States. *IUFRO Conference, Innovations and New Horizons in Tree Nursery Stock Production and Forest Restoration*. **Rome, Italy**.

--Competitive success of natural oak regeneration in clearcuts during stem exclusion. *Seminar Program on Natural Forest Regeneration, School of Forest Engineering*, **Technological University of Madrid, Spain**.

--Restoration of an American legacy tree: breeding and silviculture of *Castanea dentata*. *Seminar Program on Ecological Restoration, School of Biology*, **University of Alcalá, Spain.**

2008 -- Regeneration and stand dynamics in temperate deciduous forests in north-central USA. *School of Forest Engineering*, **Technological University of Madrid, Spain**.

-- Restoration of an American legacy tree: breeding and silviculture of *Castanea dentata*. *School of Biology and Environmental Sciences*. **University College Dublin, Ireland**.

-- Artificial regeneration of major oak (*Quercus*) species in the eastern United States – a review of the literature. *16th Central Hardwood Forest Conference*, **West Lafayette, Indiana**.

-- Ecological applications of hardwood forest regeneration research. *Warnell School of Forest Resources. University of Georgia*, **Athens, Georgia**.
-- Nursery and field fertilization: Implications for improved forest plantation productivity. *Department of Forestry and Environmental Resources, North Carolina State University*, **Raleigh, North Carolina**.
-- Strategies for restoration of American chestnut. *Department of Biological Sciences. Butler University*, **Indianapolis, Indiana**.
-- Nursery cultural techniques to facilitate restoration of *Acacia koa* in Hawai'i. *Department of Natural Resources & Environmental Management, University of Hawai'i at Manoa*. **Honolulu, Hawaii**.
-- Nursery cultural techniques to facilitate restoration of *Acacia koa* in Hawai'i. *Tropical Conservation Biology and Environmental Sciences, University of Hawai'i at Hilo*, **Hilo, Hawaii**.

2007 -- Long-term stand dynamics in naturally regenerated hardwood forests. *Advances in Forest and Natural Resource Management Symposium*, **National Taiwan University, Taiwan**.
-- Fine hardwood biotechnology. *Society of In Vitro Biology Conference*. **Indianapolis, Indiana**.
-- Nursery blackout influences on seedling morphology and physiology. *Faculty of Forestry and Environmental Management, University of New Brunswick*, **Fredericton, New Brunswick**.

2006 -- Nursery and field fertilization: influences on seedling quality and environmental stress interactions. *Department of Forest Resources, University of Idaho*. **Moscow, Idaho**.
-- The target seedling concept: an integrative tool to facilitate regeneration success. *Department of Forest Resources, University of Idaho*. **Moscow, Idaho**.
-- Interrelationship of seedling dormancy status and root zone temperature. *Sierra Cascade Intensive Forest Management Cooperative Annual Meeting*. **Redding, California**.

2005 -- Evaluating the efficiency of carbon sequestration in American chestnut. *Edison Electric Institute Natural Resources Workshop*. **St. Pete Beach, Florida**.
-- Strategies for genetic improvement and sustainable management of eastern hardwoods. *Alabama A&M University*, **Huntsville, Alabama.**
-- Fine hardwood tree improvement. *Arbor Day Symposium, Dirksen Senate Building*, **Washington, DC**.
-- Evaluating desiccation sensitivity of northern red oak acorns. *10th Annual Research Symposium, Department of Forestry and Natural Resources, Purdue University*, **West Lafayette, Indiana**.

2004 -- Quantifying root system quality of nursery seedlings. *Western Forestry and Conservation Association,* F*orest Seedling Root Development Symposium.* **Eugene, Oregon**.
-- Fertilization and seedling root system development. *Western Forestry and Conservation Association,* F*orest Seedling Root Development Symposium.* **Eugene, Oregon**.
-- Improving disease resistance of butternut (*Juglans cinerea*). *North American Forest Biology Workshop*. **Houghton, Michigan**.
-- Facilitating nutrient acquisition of black walnut and other hardwoods at plantation establishment. *6th Black Walnut Council Research Symposium*. **West Lafayette, Indiana**
-- Effect of seed position and media on germination of black walnut and northern red oak. *6th Black Walnut Council Research Symposium*. **West Lafayette, Indiana**.
-- Transplant shock in oak plantings. *USDA Forest Service Oak Artificial Regeneration Workshop*. **Huntsville, Alabama**.
-- Evaluating the efficiency of carbon sequestration in American chestnut. *Electrical Power Research Institute (EPRI) Workshop on Terrestrial Carbon Sequestration*. **Washington, DC**.
-- Competitiveness of American chestnut in open-field plantings: implications for reintroduction. *21st Annual Meeting of the American Chestnut Foundation*. **Asheville, North Carolina**.

2003 -- Conservation tree plantations. *8th Annual Research Symposium, Department of Forestry and Natural Resources, Purdue University*, **West Lafayette, Indiana**.

Research Funding: 91 successfully funded research proposals, totaling $20,233,781

** If co-PI, my portion in parentheses*

External		Amount*
2024-27	**USDA Forest Service (PI)** RNAi for hardwood tree pathogen management	**$51,000**
2024-27	**USDA Forest Service (PI)** Conservation and restoration of butternut (with A. Ebrahimi, *sub-award via Morton Arboretum and University of Vermont*)	**$103,694**
2024-27	**Walder Foundation (PI)** Preserving genetic diversity in trees (with A. Ebrahimi, *sub-award via Morton Arboretum*)	**$25,000**
2024-25	**Hawaii Division of Forestry and Wildlife (PI)** Nursery / reforestation inventory and analysis	**$89,000**
2023-28	**USDA NIFA, Fellowships Grant Program (co-PI)** Promoting Economic Resilience and Sustainability of the Eastern US Forests (PERSEUS) (with S. Fei (PI) *et al.*)	**$10,000,000** ***($200,000)***
2023-28	**USDA Forest Service (PI)** Ohia Disease Resistance Program	**$110,000**
2023-25	**USDA NIFA, Fellowships Grant Program (PI)** Conserving threatened butternut using phenomics and genomics approaches (with A. Ebrahimi)	**$225,000**
2022-25	**Indiana DNR, Division of Reclamation (PI)** Evaluating tree compatible ground cover mixes to promote establishment of mine reclamation tree plantings	**$161,721**
2022-25	**USDA Forest Service (PI)** Genotyping butternut for future conservation and resistance breeding efforts	**$90,000**
2021-23	**USDA Forest Service (co-PI)** Growing a *Metrosideros* disease resistance program against Rapid Ohia Death (with C. Giardina (PI), M. Hughes, L. Keith, P. Cannon, R. Sniezko)	**$120,000** ***($20,000)***
2020-25	**USDA Forest Service (PI)** Applying the target plant concept to promote forest regeneration and restoration	**$25,686**
2020-22	**Western Sustainable Agriculture Research and Education (co-PI)** A key to sustainable Hawaiian agricultural production resides with endemic sandalwood species (with E. Thyroff (PI), T. Idol)	**$24,996** ***($8,332)***
2020-22	**USDA NIFA (PI)** Forest seedling root development and function for reforestation (with D. Haase)	**$25,000**
2019-24	**National Science Foundation (PI)** I/UCRC Center for Advanced Forestry Systems Phase III (with M. Ginzel)	**$458,708**
2019-24	**USDA NIFA AFRI (co-PI)** Acclimating commercial tree seedling root system architecture to drought (with A. Nelson (PI))	**$480,000** ***($218,201)***
2019-21	**USDA NIFA BRAG (PI)** Society and policy influences in biotechnology risk assessment for restoration of threatened forest tree species (with K. Dumroese)	**$25,000**
2019-22	**Indiana DNR, Division of Reclamation (PI)** Establishment success of mine reclamation tree plantings in relation to site factors and management	**$125,707**
2019	**The American Chestnut Foundation (PI)** Belowground competition of American chestnut	**$10,000**
2018-19	**USDA Forest Service (co-PI)** Implementing a disease resistance program for Rapid Ohia Death (with C. Giardina (PI), L. Keith, P. Cannon, R. Sniezko, J. Friday)	**$64,000** ***($10,667)***
2015-18	**Indiana DNR, Division of Reclamation (PI)** Interactions of nursery stocktypes and site preparation on mine reclamation success	**$80,308**
2015-18	**USDA Forest Service (PI)** Optimizing nursery photoperiod to promote root growth of forest tree seedlings after planting (with M. Uscola)	**$30,000**
2015-19	**Department of Hawaiian Homelands (co-PI)** Plasticity of *Acacia koa* on high elevation sites in Hawaii (with JB Friday and Kyle Earnshaw)	**$17,257** ***($5,752)***
2014-19	**USDA Forest Service (PI)** Hardwood Tree Improvement and Regeneration Center	**$671,072**
2014-17	**USDA NIFA, Fellowships Grant Program (PI)** Prediction and management of American chestnut natural regeneration and blight-induced mortality (with N. Lichti)	**$149,983**

2014-16	**Hawaii Division of Forestry and Wildlife (co-PI)** Improved *Acacia koa* seed orchards for Hawaii forest restoration and production (with F. Inman-Narahari *et al*)	**$67,500** ***($13,500)***
2014-16	**USDA, Forest Service (PI)** Integrating spatial processes and tree seed dispersal and insect population dynamics within LANDIS-II	**$30,370**
2014-18	**USDA, Forest Service (PI)** Nursery production in the eastern United States	**$30,000**
2013-15	**Indiana DNR, Division of Reclamation (PI)** Silvicultural applications to mitigate animal browse damage of forest regeneration on mine reclamation sites (with J. Sloan)	**$80,460**
2012-19	**National Science Foundation (PI)** I/UCRC Center for Advanced Forestry Systems Phase II (with C. Michler and M. Saunders)	**$208,000**
2012-18	**Industry Support to Hardwood Tree Improvement and Regeneration Center (PI)** Collaborative research: I/UCRC Center for Advanced Forestry Systems Phase II (with C. Michler and M. Saunders)	**$248,000**
2012-16	**Atherton Family Foundation (PI)** Tropical Hardwood Tree Improvement and Regeneration Center (with C. Michler and S. Lawson)	**$100,000**
2012-15	**USDA, Forest Service (PI)** Chemical repellents to deter herbivory of planted forest trees (with J. Sloan)	**$65,000**
2011-15	**USDA NIFA, Climate Change: Carbon Cycle (PI)** Forecasting carbon storage of eastern forests: Can American chestnut restoration improve storage potential in an uncertain future? (with E. Gustafson, D. Kashian, B. Sturtevant, H. Zhang, et al.)	**$681,743**
2011-15	**Spanish Ministry of Science and Innovation (co-PI)** Tolerance and ecophysiological strategies of Iberian pines at juvenile stages to drought, low temperature, and nutrient availability (with P. Villar [PI], J. Oliet, R. Savé, J. Castro, and S. Marañón)	**$171,730** ***($28,622)***
2011-13	**Suncor Energy, Inc. (PI)** Controlled-release fertilization to improve fertilizer use efficiency and optimize growth of tree seedlings on reclaimed oil sands	**$274,756**
2010-14	**National Science Foundation (co-PI)** Use of stable isotopes to trace the fate of applied nitrogen in forest plantations (with T. Fox, R. Harrington, B. Strahm, and J. Stape)	**$195,078** ***($39,016)***
2010-13	**Indiana DNR, Division of Reclamation (PI)** Phytotoxicity associated with competition control for establishment of American chestnut and oaks on reclaimed mine sites	**$76,913**
2010-11	**The American Chestnut Foundation (PI)** Effects of *Phytophthora cinnamomi* on chestnut seedling development under varying soil pH (with K. Zellers)	**$5,000**
2009-11	**US Department of Interior, Office of Surface Mining (co-PI)** Integrating the forestry reclamation approach for mine reclamation in the Midwest (with P. Pope)	**$168,864** ***($84,432)***
2009-10	**Duke Energy Corporation (co-PI)** American chestnut restoration (with C. Michler, J. McKenna, and M. Saunders)	**$20,000** ***($5,000)***
2009	**The American Chestnut Foundation (PI)** Competitive ecophysiology of American chestnut (with K. Zellers)	**$5,400**
2008-09	**Irish Council for Forest Research and Development (PI)** Exponential fertilization of *Quercus robur* (with C. O'Reilly and J. Schmal)	**$10,162**
2008-10	**USDA National Resources Conservation Service (PI)** Subirrigation for native plant nursery production (with A. Davis, R. Dumroese, and J. Leary)	**$44,991**
2008-09	**Southern Forest Nursery Cooperative (PI)** Cold hardiness assessment of southern pine seedlings (with M. Islam)	**$5,845**
2007-12	**US Department of Agriculture, Forest Service (PI)** Quality assessment of nursery grown forest tree seedlings	**$35,000**
2007-09	**Indiana DNR, Division of Reclamation (PI)** Fertilization of hardwood seedlings on reclaimed mine lands: Browse susceptibility in relation to foliar chemistry	**$71,844**

2007-08	**National Science Foundation (co-PI)** International research experience for undergraduates (with C. Michler)	**$12,000** ***($6,000)***
2007-10	**The Nature Conservancy (co-PI)** Applied research for regenerating oaks (with R. Rathfon and D. Carlson)	**$14,994** ***($4,998)***
2007-09	**Spanish Ministry of Education and Science (co-PI)** Physiological basis of holm oak mineral nutrition and applications to nursery fertilization (with J. Oliet [PI], S. Cuadros, B. Abellanas, M. Fernández, J. Puértolas, J. Peñuelas, L. Benito, and P. Villar)	**$145,050** ***($14,505)***
2006-10	**Indiana DNR, Division of Forestry (co-PI)** Hardwood Ecosystem Experiment (with R. Swihart, S. Broussard, B. Dolan, J. Dunning, Jr., J. Holland, C. Michler, G. Parker, L. Prokopy, and H. Weeks, Jr.)	**$714,000** ***($71,400)***
2006-10	**US Department of Agriculture, Forest Service (PI)** Response of crop trees to thinning in naturally regenerated forest stands (with J. Seifert)	**$87,000**
2006	**American Forest Technologies (PI)** Nutrient loading of grafted black walnut (with K. Salifu)	**$4,500**
2006	**National Science Foundation (co-PI)** International research experience for undergraduates (with C. Michler)	**$6,000** ***($3,000)***
2005-09	**Oregon Department of Forestry (PI)** Influence of mineral nutrition on susceptibility and recovery of planted forest tree seedlings to animal browse	**$217,649**
2005-09	**US Department of Agriculture, Forest Service (PI)** Physiological responses of seedlings to environmental stresses	**$45,000**
2005-06	**Indiana DNR, Division of Forestry (coPI)** Selection for precocity in oak plantations (with K. Woeste)	**$4,500** ***($2,250)***
2005-06	**Indiana DNR, Division of Reclamation (PI)** Nutrient loading of nursery seedlings to improve outplanting performance on mine reclamation sites (with K. Salifu)	**$68,862**
2004-11	**Indianapolis Airport Authority (PI)** Capacity of planted hardwood stands to meet Habitat Conservation Plan requirements (with J. Seifert)	**$520,290**
2004-09	**Industry support, Hardwood Tree Improvement and Regeneration Center (co-PI).** American Forest Technologies, Inc., Indiana and National Hardwood Lumbermen's Associations (with C. Michler and R. Meilan)	**$275,000** ***($91,667)***
2004-07	**US Department of Agriculture, Forest Service (co-PI)** Stand inventory of the Hoosier National Forest (with J. Seifert)	**$182,500**
2004	**Sierra Cascade Forest Cooperative (PI)** Dormancy and soil temperature effects on seedling root growth	**$30,000**
2003-06	**US Department of Agriculture, Forest Service (co-PI)** Natural forest regeneration in the Hoosier National Forest following clearcutting (with J. Seifert)	**$219,475** ***($109,738)***
2003-06	**US Department of Agriculture, Forest Service (co-PI)** Stand dynamics in the Pioneer Mothers Memorial Forest (with J. Seifert)	**$26,500** ***($13,250)***
2003	**Electric Power Institute and Stry Foundation (PI)** Evaluating carbon sequestration of American chestnut	**$11,500**
2003	**National Science Foundation (co-PI)** The formation of a Joint Center for Tree Genetics between Purdue University and Oregon State University (with C. Michler)	**$10,000** ***($5,000)***
2002-07	**US Department of Agriculture, Forest Service (PI)** Development of protocols to assess the quality of nursery-grown hardwood seedlings	**$341,500**
2002-04	**The American Chestnut Foundation (co-PI)** Herbicide tolerance of American chestnut seedlings (with J. Seifert)	**$6,500** ***($3,250)***
2002-04	**Indiana DNR, Division of Reclamation (PI)** Field performance of planted red oak on abandoned mine lands in Indiana (with A. Davis)	**$61,987**
2002	**The American Chestnut Foundation (PI)** Competitiveness of interplanted American chestnut	**$1,200**
2002	**Hardwood Forestry Fund (PI)** Harvest gap size and stocktype effects on northern red oak reforestation success (with R. Rathfon and D. Carlson)	**$5,000**

2002	**Indiana DNR, Division of Forestry (PI)** Effectiveness of conservation tree plantings in Indiana	**$20,000**
2000	**Tree-Pro (PI)** Long-term Engelmann spruce response to tree shelters	**$250**
	Subtotal	**$18,791,045**

Internal

2024-27	**Hardwood Tree Improvement and Regeneration Center (PI)** Understanding butternut and butternut canker disease to guide restoration in the Eastern U.S. (with A. Conrad (PI)	**$148,869**
2022-25	**Hardwood Tree Improvement and Regeneration Center (PI)** Integrating morphology, genotype, and chemotype based methods to support HTIRC butternut conservation and resistance breeding efforts (with J. Couture, A. Conrad, C. Fearer, C. Pike)	**$151,110**
2021-24	**Hardwood Tree Improvement and Regeneration Center (PI)** Testing efficacy of underplanting and enrichment plantings for stand regeneration in hardwood forests (with D. Carlson, R. Rathfon, C. Redick, M. Saunders)	**$143,677**
2020-23	**Hardwood Tree Improvement and Regeneration Center (co-PI)** Using remote sensing to characterize stress epidemiology in hardwood forest stands (with J. Couture [PI], B. Hardiman, M. Ginzel, M. Coggeshall, P. Townsend, M. Crawford)	**$162,759**
2019-22	**Hardwood Tree Improvement and Regeneration Center (PI)** Productivity-diversity relationships in hardwood plantations (with G. McNickle, B. Hardiman, J. Couture, L. Farlee)	**$150,298**
2019-22	**Hardwood Tree Improvement and Regeneration Center (co-PI)** Characterizing abiotic and biotic tree stress using hyperspectral information (with J. Couture [PI])	**$149,137**
2018	**College of Agriculture AgSeed (co-PI)** Improving the management of Indiana's mixed hardwood forests by characterizing the relationship between productivity and species diversity (with G. McNickle (PI), B. Hardiman, J. Couture, L. L. Farlee)	**$50,000** ***($10,000)***
2012-13	**Mary S. Rice Farm Fund (co-PI)** Invasive species control (with D. Carlson, M. Kraushar, and J. Leuck)	**$11,000** ***($2,750)***
2019-22	**Hardwood Tree Improvement and Regeneration Center (PI)** Productivity-diversity relationships in hardwood plantations (with G. McNickle (PI), B. Hardiman, J. Couture, L. L. Farlee)	**$150,298**
2019-22	**Hardwood Tree Improvement and Regeneration Center (co-PI)** Characterizing abiotic and biotic tree stress using hyperspectral information (with J. Couture [PI])	**$149,137**
2011-12	**College of Agriculture Mission Oriented Grant (PI)** Development of planting guidelines for butternut restoration (with C. Michler, L. Farlee, J. McKenna, and K. Woeste)	**$22,970**
2009, 11	**Purdue Research Foundation (PI)** International Travel Grants (Ávila, Spain; Madrid, Spain)	**$2,000**
2009	**Department of Forestry and Natural Resources (PI)** LI-Cor 3100C Leaf Area Meter	**$4,825**
2008-09	**College of Agriculture Mission Oriented Grant (co-PI)** Enhancing hardwood regeneration (with D. Carlson, L. Farlee, J. McKenna, C. Michler, R. Rathfon, M. Saunders, and K. Woeste)	**$13,800** ***($2,070)***
2008-09	**College of Agriculture Mission Oriented Grant (co-PI)** Ecological and socioeconomic impacts of forest management (with J. Dunning, J. Holland, B. MacGowan, R. Rathfon, and M. Saunders)	**$8,000** ***($1,600)***
2008	**Department of Forestry and Natural Resources (PI)** LI-Cor 6400 Portable Photosynthesis Instrument	**$15,000**
2008	**Agricultural Research Program (PI)** Simulated browse of black walnut seedlings: morphology (with M. Aghai)	**$500**
2008	**Agricultural Research Program (PI)** Simulated browse of black walnut seedlings: physiology (with O. Kildisheva)	**$500**

2007-12	**Department of Forestry and Natural Resources and Office of Vice-President for Research (co-PI)** Sustaining Hardwood Ecosystem Initiative (with J. Dunning et al.)	**$389,791** ***($38,979)***
2005	**Agricultural Research Program (PI)** Water oak seedling dormancy (with R. Goodman)	**$500**
2005	**Agricultural Research Program (PI)** ^{14}C labeling of northern red oak (with J. Sloan)	**$500**
2004	**Agricultural Research Program (PI)** Northern red oak seed viability (with R. Goodman)	**$500**
2004	**Mary S. Rice Farm Fund (co-PI)** Relative contribution of family and sowing density to black walnut seedling growth (with J. Seifert and K. Woeste)	**$4,500** ***($1,500)***
2003	**Mary S. Rice Farm Fund (co-PI)** Response of planted seedlings to simulated deer browsing (with J. Seifert)	**$3,500** ***($1,750)***
2002	**Mary S. Rice Farm Fund (co-PI)** Root volume as a predictor of hardwood seedling growth (with J. Seifert)	**$9,000** ***($4,500)***
	Subtotal	**$1,442,736**
	Total	**$20,233,781**

Graduate Students Supervised

Student	Degree	Role	Status	Research Focus
Erin Bell	PhD	Co-Chair/Advisor	2023-current	Forest Habitat
Kelly French	PhD	Chair/Advisor	2022-current	Tree Physiology
Tawn Speetjens	PhD	Chair/Advisor	2023-current	Restoration Ecology
Rebekah Ohara[+]	**PhD**	Co-Chair/Advisor	**Completed – 2024**	Community Forestry
Sylvia Park[+]	**PhD**	Co-Chair/Advisor	**Completed – 2024**	Tree Physiology
Brianne Innusa	**MS**	Chair/Advisor	**Completed – 2024**	Forest Restoration
Caleb Kell	**MS**	Chair/Advisor	**Completed – 2023**	Forest Restoration
Emily Thyroff[+,*]	**PhD**	Co-Chair/Advisor	**Completed – 2023**	Forest Restoration
Aziz Ebrahimi	**PhD**	Chair/Advisor	**Completed – 2022**	Forest Genetics
Tawn Speetjens	**MS**	Chair/Advisor	**Completed – 2022**	Restoration Ecology
Madeline Montague van Eck Scholar	**MS**	Chair/Advisor	**Completed – 2021**	Tree Physiology
Lilian Ayala Fulbright Scholar+	**MS**	Co-Chair/Advisor	**Completed – 2020**	Tree Improvement
Andrea Brennan van Eck Scholar	**PhD**	Chair/Advisor	**Completed – 2020**	Tree Physiology
Caleb Redick van Eck Scholar	**MS**	Chair/Advisor	**Completed – 2019**	Restoration Ecology
Andrei Toca[+,*]	**PhD**	Co-Chair/Advisor	**Completed – 2019**	Tree Physiology
Jana Bockstette[+,*]	**MS**	Co-Chair/Advisor	**Completed – 2018**	Mine Reclamation
Weston Schempf	**MS**	Chair/Advisor	**Completed – 2018**	Mine Reclamation
Wenhui Shi[+,*]	**PhD**	Co-Chair/Advisor	**Completed – 2018**	Tree Physiology
Emily Thyroff	**MS**	Chair/Advisor	**Completed – 2018**	Forest Restoration
Mariam Valladares Fulbright Scholar	**MS**	Chair/Advisor	**Completed – 2018**	Landscape Ecology
Kyle Earnshaw van Eck Scholar	**PhD**	Chair/Advisor	**Completed – 2017**	Forest Restoration
Jennifer Lesko Ross Fellow	**MS**	Chair/Advisor	**Completed – 2017**	Forest Restoration
Charlotte Owings[+]	**MS**	Co-Chair/Advisor	**Completed – 2015**	Restoration Ecology
Safiullah Khurram	**MS**	Chair/Advisor	**Completed – 2015**	Forest Restoration
Amy Miller van Eck Scholar	**MS**	Chair/Advisor	**Completed – 2014**	Forest Restoration
Philip Crystal	**MS**	Chair/Advisor	**Completed – 2013**	Tree Physiology
Caleb Brown van Eck Scholar	**MS**	Chair/Advisor	**Completed – 2012**	Forest Restoration
Owen Burney	**PhD**	Chair/Advisor	**Completed – 2011**	Plantation Establishment

Joshua Sloan van Eck Scholar	**PhD**	Chair/Advisor	**Completed – 2011**	Tree Physiology
Phillip Woolery van Eck Scholar	**MS**	Chair/Advisor	**Completed – 2010**	Plantation Establishment
Rosa Goodman van Eck Scholar	**MS**	Chair/Advisor	**Completed – 2009**	Plantation Establishment
Justin Schmal	**MS**	Chair/Advisor	**Completed – 2009**	Nursery Propagation
Martin Gauthier van Eck Scholar	**PhD**	Chair/Advisor	**Completed – 2008**	Tree Physiology
Ryan Woods	**MS**	Chair/Advisor	**Completed – 2008**	Forest Stand Management
Mindy Bumgarner van Eck Scholar	**MS**	Chair/Advisor	**Completed – 2007**	Nursery Propagation
Michael Nicodemus	**PhD**	Chair/Advisor	**Completed – 2007**	Tree Physiology
Anthony Davis van Eck Scholar	**PhD**	Chair/Advisor	**Completed – 2006**	Tree Physiology
Robert Morrissey	**MS**	Chair/Advisor	**Completed – 2006**	Forest Stand Management
Zonda Birge	**MS**	Chair/Advisor	**Completed – 2005**	Nursery Propagation
Barrett Wilson	**MS**	Chair/Advisor	**Completed – 2005**	Tree Physiology
Anthony Davis	**MS**	Chair/Advisor	**Completed – 2003**	Mine Reclamation
Michael Szuter	PhD	Co-Chair/Advisor	2014-16[†]	Tree Physiology
Kate Zellers	PhD	Chair/Advisor	2010-12[†]	Tree Physiology
Patricio Alzugaray	PhD	Chair/Advisor	2002-03[†]	Plantation Establishment
Annette Eilert[*]	PhD	Member	2023-current	Forest Health
Kinga Stolarek[*]	PhD	Member	2024-current	Forest Regeneration
Aaron Wehrman[*]	MEM	Member	2023-current	Forest Restoration
Pandu Wirabuana[*]	PhD	Member	2023-current	Silviculture
Bodil Häggström	PhD	Member	Completed – 2024	Forest Regeneration
Kylle Roy	PhD	Member	Completed – 2023	Forest Entomology
Shuyi Yang[*]	PhD	Member	Completed – 2023	Tree Improvement
David Savage	PhD	Member	Completed – 2022	Biodiversity Monitoring
Taylor Nelson	MS	Member	Completed – 2021	Leaf Chemistry
Oscar Nilsson[*]	PhD	Member	Completed – 2020	Forest Regeneration
Diana Eckert[*]	PhD	Member	Completed – 2020	Tree Physiology
Brian Hogan[*]	PhD	Member	Completed – 2019	Forest Soils
Daniel Soto[*]	PhD	Member	Completed – 2017	Forest Restoration
Cecilia Malmqvist[*]	PhD	Member	Completed – 2017	Tree Physiology
Prem Pokharel[*]	MS	Member	Completed – 2017	Mine Reclamation
Bradley Kaufmann[*]	MS	Member	Completed – 2016	Nursery Propagation
Patrick Duffy	MS	Member	Completed – 2014	Forest Ecology
Kejia Pang	PhD	Member	Completed – 2014	Forest Genetics
Oriana Krauss	MS	Member	Completed – 2014	Forest Genetics
Chris Currey	PhD	Member	Completed – 2013	Plant Physiology
Bridget McNassar[*]	MS	Member	Completed – 2013	Nursery Propagation
Mercedes Uscola[*]	PhD	Member	Completed – 2013	Tree Physiology
Jessica Johnston	MS	Member	Completed – 2012	Mine Reclamation
Brian Bailey	MS	Member	Completed – 2011	Forest Stand Management
Scott Rogers	MS	Member	2006-08	Forest Genetics
Jeff Moore	PhD	Member	Completed – 2005	Wildlife Ecology
Michael Taylor[*]	MS	Member	Completed – 2005	Plantation Establishment

[†]Co-advised with B. Dunning (E. Bell), T. Idol (E. Thyroff), J. Couture (M. Park), Z. Ma (R. Ohara), K. Woeste (L. Jacobo), J. Oliet/P. Villar-Salvador (A. Toca), S. Lanhaüsser (J. Bockstette), Guolei Li/Shuchai Su (W. Shi), M. Jenkins (C. Owings)

[*]Swedish Agricultural University, Sweden (K. Stolarek, B. Häggström, O. Nilsson, External Evaluator); University College Dublin, Ireland (S. Yang, B. Hogan, External Evaluator); University of Alberta, Canada (J. Bockstette, P. Pokharel); University of Alcalá, Spain (A. Toca, M. Uscola); Beijing Forestry University, China (W. Shi); Linné University, Sweden (A. Eilert, D. Eckert, C. Malmqvist, External

Evaluator); University of Hawaii at Manoa (A. Wehrman, P. Wirabuana, E. Thyroff, B. Kaufmann); University of Idaho (B. McNassar); Oregon State University (D. Soto, M. Taylor)
†*Resigned for personal reasons*

Post-Doctoral Research Scientists, Staff, and Technicians Supervised

Staff Member	Degree	Position	Year(s)	Research Focus
Mojtaba Zamani	Ph.D.	Post-doc	2024-current	Forest Genetics
Aziz Ebrahimi	Ph.D.	Post-doc	2023-current	Forest Genetics
Andrei Toca	Ph.D.	Post-doc	2020-2024	Tree Physiology
Emily Thyroff	Ph.D.	Post-doc	2023-2024	Forest Restoration
Carrie Fearer	Ph.D.	Post-doc	2022	Forest Health
Indira Paudel*	Ph.D.	Post-doc	2019-2022	Tree Physiology
Kyle Rose	Ph.D.	Post-doc	2019	Forest Ecophysiology
Anna Sugiyama	Ph.D.	Post-doc	2018-2019	Restoration Ecology
Mercedes Uscola	Ph.D.	Post-doc	2014-2018	Tree Physiology
Nathaniel Lichti	Ph.D.	Post-doc	2012-2016	Forest Ecology
Jeanne DeNoyer Osnas*	Ph.D.	Post-doc	2014-2016	Functional Ecology
Arjan de Bruijn	Ph.D.	Post-doc	2011-2015	Forest Ecology
Joshua Sloan	Ph.D.	Post-doc	2011-2015	Tree Physiology
Harmony Dalgleish	Ph.D.	Post-doc	2011-2012	Forest Ecology
Anisul Islam	Ph.D.	Post-doc	2006-2009	Tree Physiology
Francis Salifu van Eck Scholar	Ph.D.	Post-doc	2004-2008	Tree Physiology
Amy Ross-Davis	Ph.D.	Post-doc	2006-2007	Plant Propagation
Kent Apostol	Ph.D.	Post-doc	2005-2006	Tree Physiology
Kevyn Wightman	Ph.D.	Post-doc	2002-2003	Plantation Establishment
Brianne Innusa	M.S.	Staff	2024-current	Mine Reclamation
Caleb Redick	M.S.	Staff	2020-2024	Mine Reclamation
Weston Schempf	M.S.	Staff	2019-2021	Mine Reclamation
Bradley Kaufmann	M.S.	Staff	2017-2018	Plant Propagation
Robert Masuda	M.S.	Staff	2015-2017	Senior Advisor
Derrick Heacock	B.S.	Technician	2012-2015	Tree Physiology
Justin Schmal	M.S.	Technician	2010-2011	Plantation Establishment
Robert Morrissey	M.S.	Technician	2007-2008	Forest Stand Management
Owen Burney	M.S.	Technician	2007	Plantation Establishment
Nathan King	M.S.	Technician	2005-2007	Plantation Establishment
Josh Vaughan	B.S.	Technician	2005-2007	Plantation Establishment
Marcus Selig	M.S.	Technician	2003-2005	Forest Stand Management
Amy Ross-Davis	M.S.	Technician	2002	Plantation Establishment

Co-Advisor with J. Dukes

Visiting International Scientists

Staff Member	Title and University	Year(s)	Research Focus
Mariana Saito	PhD Student, University of São Paulo, Brazil	2023-2024	Forest Pathology
Mojtaba Zamani	PhD Graduate, Tehran University, Iran	2023-2024	Forest Genetics
Camila Montoya	BS Student, Zamorano University, Honduras	2020	Forest Management
Aziz Ebrahimi	PhD Graduate, Tehran University, Iran	2017-2019	Forest Genetics

Indira Paudel	PhD Graduate, Hebrew University of Jerusalem, Israel	2018	Tree Physiology
Jose Sigala	PhD Student, Technological University of Madrid	2017	Forest Restoration
Silvia Medina-Villar	PhD Graduate, University of Alcalá, Spain	2016-2017	Forest Restoration
Guolei Li	Associate Professor, Beijing Forestry University, China	2015-2016	Reforestation
Daniel Soto	PhD Student, Austral University, Chile	2015	Forest Restoration
Mariam Valladares	BS Graduate, Zamorano University, Honduras	2015	Forest Restoration
Andrei Toca	PhD Student, University of Alcalá, Spain	2015-2017	Tree Physiology
Yeqing Ying	Associate Professor, Zhejiang University, China	2013-2014	Tree Physiology
Pedro Villar-Salvador	Professor, University of Alcalá, Spain	2011, 2014	Tree Physiology
Barbara Mariotti	Research Scientist, University of Florence, Italy	2012	Tree Physiology
Magnus Löf	Professor, Swedish University of Agriculture Science	2011	Forest Restoration
Bira Malavasi	Professor, Western Parana University, Brazil	2011	Tree Physiology
Marlene Malavasi	Professor, Western Parana University, Brazil	2011	Seed Science
Mercedes Uscola	PhD Student, University of Alcalá, Spain	2011	Tree Physiology
Shucai Zeng	Professor, South China Agricultural University	2011	Forest Ecology
John Kershaw	Professor, University of New Brunswick, Canada	2005-2006	Silviculture
Juan Oliet	Professor, University of Córdoba, Spain	2003-2004	Tree Physiology

Undergraduate Honors Researchers

Student*	Year	Research Topic
Dylan Tridle	2024	Machine learning to facilitate restoration of an endangered forest
Melody Mount	2016	Quantifying wind-dispersed chestnut blight spores
Carmen Dobbs	2013	Capsicum uptake in forest trees
Matthew Aghai	2008	Response of black walnut to simulated browse: morphology
Olga Kildisheva	2008	Response of black walnut to simulated browse: physiology
Rosa Goodman	2005	Water oak seedling dormancy
Joshua Sloan	2005	Carbon labeling of northern red oak seedlings
Rosa Goodman	2004	Northern red oak seed viability

Theses and Dissertations Supervised

Ayala Jacobo LM. 2020. Freeze tolerance and genetic variability of *Acacia koa* A. Gray, a key Hawaiian tree species. M.S. Thesis, Purdue University. 70 p. Current Position: Forestry Researcher, Paraguayan Institute of Agricultural Technology.

Birge ZKD. 2005. Nutrient loading and retranslocation response of oak seedlings. M.S. Thesis, Purdue University. 72 p. Current Position: Analytical Chemist, Purdue University.

Brennan AN. 2020. A multidisciplinary approach to restoration of butternut (*Juglans cinerea*). Ph.D. Dissertation Purdue University. 216 p. Current Position: ArbNet Program Leader, Morton Arboretum.

Brown CE. 2012. The influence of shade, water stress, and root competition on American chestnut regeneration. M.S. Thesis, Purdue University. 115 p. Current Position: Forester, Pike Lumber Company, IN.

Bumgarner ML. 2007. Propagation of northern red oak (*Quercus rubra*) container seedlings using subirrigation. M.S. Thesis, Purdue University. 80 p. Current Position: Accounts Manager, Sunlight Supply, Inc., CA.

Burney OT. 2011. Terpene biosynthesis and growth allocation of Pacific Northwest conifers. Ph.D. Dissertation Purdue University. 158 p. Current Position: Associate Professor, New Mexico State University.

Crystal PA. 2013. Ecophysiology of butternut (*Juglans cinerea* L.) and naturally occurring hybrids (*J. bixbyi*) with Japanese walnut (*J. ailantifolia* Carr.). M.S. Thesis, Purdue University. 133 p. Current Position: Research Assistant, Amherst College, MA.

Davis AS. 2006. Photoperiod manipulation during nursery culture: effects on *Quercus rubra* seedling development and responses to environmental stresses following transplanting. Ph.D. Dissertation, Purdue

University. 180 p. Current Position: Dean, College of Life Sciences and Agriculture, University of New Hampshire.

Davis AS. 2003. Performance of northern red oak (*Quercus rubra* L.) seedlings under adverse growing conditions. M.S. Thesis, Purdue University. 111 p.

Earnshaw KM. 2017. The adaptive role of heteroblasty in Acacia koa with implications for restoration and management. Ph.D. Dissertation, Purdue University. 165 p. Current Position: Assistant Professor, New Mexico Highlands University.

Ebrahimi A. 2022. Morpho-physiological and genomics analyses reveal adaptations of hardwood trees to abiotic stressors. Ph.D. Dissertation, Purdue University. 141 p. Current Position: Post-Doctoral Scientist, Purdue University

Freeman CC. 2015. Vegetation and underplanting response to Amur honeysuckle invasion and deer herbivory in mixed hardwood forests. M.S. Thesis, Purdue University. 105 p. Current Position: Project Coordinator, Hardwood Ecosystem Experiment, Purdue University.

Gauthier MM. 2008. Morphological and physiological responses of fine hardwood tree species to plantation thinning. Ph.D. Dissertation, Purdue University. 152 p. Current Position: Forestry Scientist, Quebec Ministry of Natural Resources, Canada.

Goodman RC. 2009. Nitrogen fertilization of intensively managed black walnut plantations in west-central Spain. M.S. Thesis, Purdue University. 109 p. Current Position: Associate Senior Lecturer, Swedish Agricultural University.

Innusa B. 2024. Evaluating resource competition of live oak (Quercus virginiana) regeneration to support maritime forest restoration. M.S. Thesis, Purdue University. 122 p. Current Position: Research Associate, Purdue University.

Kell C. 2023. Comparative silvics of butternut hybrids in afforestation and reforestation plantings. M.S. Thesis, Purdue University. 67 p. Current Position: Tree Breeder, Purdue University.

Khurram S. 2015. Use of plastic bottles as an alternative container type for propagation of forest tree seedlings in restoration programs. M.S. Thesis, Purdue University. 96 p. Current Position: Professor, Department of Forestry and Natural Resources, Kabul University, Afghanistan.

Lesko J. 2017. Restoration of hardwoods through conversion of non-native conifer plantations. M.S. Thesis, Purdue University. 114 p. Current Position: District Forester, IL Division of Forest Resources.

Miller AC. 2013. Naturalized offspring from an 86-year-old Chinese chestnut (*Castanea mollissima*) planting: stand dynamics and genetic relationships. M.S. Thesis, Purdue University. 109 p. Current Position: Carrollton Schools Grants and Partnerships Director, Carrollton, OH.

Montague M. 2021. Linking carbon and nonstructural carbohydrate dynamics in American chestnut (*Castanea dentata*). M.S. Thesis, Purdue University. 97 p. Current Position: Forest Carbon Analyst, Climate Trust.

Morrissey RC. 2006. Natural regeneration of clearcuts in the stem exclusion stage on the Hoosier National Forest. M.S. Thesis, Purdue University. 89 p. Current Position: Post-doctoral scientist, Czech University of Life Sciences, Prague, Czech Republic.

Nicodemus MA. 2007. Nitrogen source effects on black walnut seedling physiology. Ph.D. Dissertation, Purdue University. 182 p. Current Position: Associate Professor, Harding University, AR.

Ohara RD. 2024. Pathways and opportunities for community-based forest management in Hawai'i. Ph.D. Dissertation, Purdue University. 217 p. Current Position: President and CEO, Akaka Foundation for Tropical Forests.

Park S. 2024. Hyperspectral characterization of forest health. Ph.D. Dissertation, Purdue University. 204 p. Current Position: Post-Doctoral Scientist, Purdue University.

Redick CH. 2019. Quantifying impacts of deer browsing and mitigation efforts on hardwood forest regeneration. M.S. Thesis, Purdue University. 96 p. Current Position: Forester, US Army Corp of Engineers.

Schempf WM. 2019. Hardwood reforestation on reclaimed minelands in the eastern interior region: interactions of nursery stocktype, herbicide. And tree shelters on reclamation success. M.S. Thesis, Purdue University. 78 p. Current Position: Tree Improvement Specialist, Texas Forest Service.

Schmal JL. 2009. Exponential nitrogen fertilization of *Quercus robur* seedlings in County Carlow, Ireland. M.S. Thesis, Purdue University. 117 p. Current Position: Forester, WA Department of Natural Resources.

Shi W. 2018. Effects of acorn nutrient and soil fertility on *Quercus variabilis* seedling quality and outplanting performance. Ph.D. Dissertation, Beijing Forestry University. 134 p. Current Position: Lecturer, College of Forestry and Biotechnology, Zhejiang A & F University, Hangzhou, China.

Sloan JL. 2011. Examination of endogenous and exogenous physiological patterns of post-transplant *Quercus rubra* seedlings. Ph.D. Dissertation, Purdue University. 140 p. Current Position: Assistant Professor, New Mexico Highlands University.

Speetjens TM. 2022. Regeneration of hemiparasitic Hawaiian sandalwood *(Santalum paniculatum* Hook. & Arn.): the role of seedling nutrition and plant hosts. M.S. Thesis, Purdue University. 93 p. Current Position: PhD Student, Purdue University.

Thyroff E. 2023. Regeneration of ʻiliahi (*Santalum paniculatum*): hemiparasitic relationships in Hawaiian tropical dry forests. Ph.D. Dissertation, University of Hawaii at Manoa. 93 p. Current Position: Tropical Nursery Specialist, USDA Forest Service.

Thyroff E. 2018. Restoration of maritime forests: evaluating limiting factors of *Quercus virginiana* (live oak) regeneration. M.S. Thesis, Purdue University. 93 p. Current Position: Tropical Nursery Specialist, USDA Forest Service.

Toca OA. 2018. The role of nitrogen in frost tolerance, root growth dynamics and hydraulic conductance of ecologically distinct pine species. Ph.D. Dissertation, Alcalá University, Spain. 173 p. Current Position: Post-Doctoral Scientist, New Mexico State University.

Valladares M. 2018. Landscape transitions and socioeconomic drivers as predictors of fire frequency. M.S. Thesis, Purdue University. 125 p. Current Position: Ph.D. student, University of Puerto Rico.

Wilson BC. 2005. Physiological indicators of black walnut seedling dormancy. M.S. Thesis, Purdue University. 76 p. Current Position: Research Horticulturist, Longwood Gardens, Inc., PA.

Woods R. 2008. Influence of density reduction on growth responses, stem quality, and understory dynamics in pole-size hardwood stands in the Hoosier National Forest. M.S. Thesis, Purdue University. 78 p. Current Position: Forester, Camp Atterbury, IN.

Woolery PO. 2010. Influence of planting stocktype and simulated browse on northern red oak seedling development. M.S. Thesis, Purdue University. 100 p. Current Position: Extension Educator, Agriculture and Natural Resources, Purdue University.

EXTENSION

I conduct an extension program that applies knowledge in forest regeneration and restoration to the practices of nursery seedling propagation, plantation establishment, and forest management. Through synthesis of scientific discoveries into extension presentations, workshops, and publications, I teach conceptual thinking and problem-solving skills. The following summarizes my productivity in extension and outreach: (** indicates that co-author was a graduate student; ** indicates that co-author was an undergraduate student; + indicates co-author was a post-doctoral scientist*)

Extension Publications (39) and Symposia (28): 64

1. *Redick CH, Farlee L, Jackson L, Jacobs DF. **2024**. Managing white-tailed deer impacts on Indiana woodlands. Purdue University Extension – Forestry and Natural Resources, FNR-641-W. 23 p. Available online
2. Jacobs DF, Ed. **2023**. Tropical Hardwood Tree Improvement and Regeneration Center 2022 Annual Report. 54 p. Available online.
3. Jacobs DF, Ed. **2022**. Tropical Hardwood Tree Improvement and Regeneration Center 2021 Annual Report. 51 p. Available online.
4. *Speetjens TM, *Thyroff EC, Yeh AKF, Jacobs DF. **2021**. Propagation of ʻiliahi (*Santalum paniculatum* Hook. & Arn.), a valuable endemic Hawaiian sandalwood species. *Tree Planters' Notes* 64:33-49.
5. Jacobs DF, Ed. **2021**. Tropical Hardwood Tree Improvement and Regeneration Center 2020 Annual Report. 58 p. Available online.
6. *Brennan AN, Jacobs DF. **2020**. Seed propagation protocol for pure and hybrid butternut (*Juglans cinerea* L.) *Tree Planters' Notes* 63:39-50.
7. Jacobs DF, Ed. **2020**. Tropical Hardwood Tree Improvement and Regeneration Center 2019 Annual Report. 41 p. Available online.
8. *Brennan A, Jacobs DF. **2018**. Stratification and germination of pure butternut (*Juglans cinerea*) and hybrid butternut (*Juglans x bixbyi*) seeds. Purdue University Cooperative Extension Service, Hardwood Tree Improvement and Regeneration Center E-Newsletter: 11(2).

9. +Uscola M, Khadduri N, Haase DL, Trobaugh J, Jacobs DF. **2016**. Effect of nursery photoperiod manipulation on Coastal Douglas-fir seedling development: early results. *Tree Planter's Notes* 59:69-75.
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27. Landis TD, Jacobs DF. **2008**. Hot planting opens new outplanting windows at high elevations and latitudes. Forest Nursery Notes. USDA Forest Service Pacific Northwest Region Vol. 28, Issue 1, pp.19-23.

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53. +Salifu KF, Jacobs DF, *Birge ZKD. **2005**. Maximizing nutrient storage in nursery culture to promote retranslocation and growth of outplanted seedlings. *In Proceedings of the Thin Green Line: A Symposium on the State-of-the-Art in Reforestation*. Ontario Ministry of Natural Resources, Ont. For. Res. Inst. Inf. Pap. No. 160:86-91.
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65. +Ross-Davis AL, Jacobs DF, *Davis AS. **2003**. Conservation tree plantations: Success in relation to ownership characteristics, motivations to afforest, and silvicultural practices. The Indiana Forester 23:2.

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Book Chapters: 12

We published **USDA Agriculture Handbook #730** in 2008 for Native American Tribal Communities growing native plants in small nurseries. The manual received favorable reviews in the journal, *Ecological Restoration* and we received the Outstanding Technology Transfer Publication Award for 2009 from the USDA Forest Service Rocky Mountain Research Station. Sections were adapted for a nursery manual published in Argentina (citations below). In 2014, we published a new nursery manual addressing tropical environments as **USDA Agriculture Handbook #732**. This manual was also named the Outstanding Technology Transfer Publication for 2014 by the USDA Forest Service Rocky Mountain Research Station.

1. Wilkinson KM, Jacobs DF. **2014**. Crop planning: propagation protocols, schedules, and records. Ch. 4 *in*: *Tropical nursery manual: a guide to starting and operating a nursery for native and traditional plants*. USDA Forest Service Agriculture Handbook 732. pp. 67-84. Washington, DC.
2. Jacobs DF, Landis TD, Luna T, Haase DL. **2014**. Propagation environments. Ch. 5 *in*: *Tropical nursery manual: a guide to starting and operating a nursery for native and traditional plants*. USDA Forest Service Agriculture Handbook 732. pp 89-99. Washington, DC.
3. Landis TD, Jacobs DF, Wilkinson KM, Luna T, **2014**. Growing Media. Ch. 5 *in*: *Tropical nursery manual: a guide to starting and operating a nursery for native and traditional plants*. USDA Forest Service Agriculture Handbook 732. pp 101-121. Washington, DC.
4. Jacobs DF, Landis TD. **2014**. Plant Nutrition and Fertilization. Ch. 12 *in*: *Tropical nursery manual: a guide to starting and operating a nursery for native and traditional plants*. USDA Forest Service Agriculture Handbook 732. pp. 232-251. Washington, DC.
5. Jacobs DF, Landis TD, Wilkinson KM. **2014**. Hardening. Ch. 15 *in*: *Tropical nursery manual: a guide to starting and operating a nursery for native and traditional plants*. USDA Forest Service Agriculture Handbook 732. pp. 292-301. Washington, DC.
6. Dumroese RK, Jacobs DF, Wilkinson KM. **2012**. Planificación y registros. pp. 115-126 *in*: *Producción de plantas en viveros forestales*. CFI-CIEFAP-UNPSJB. Buenos Aires, Argentina.
7. Dumroese RK, Jacobs DF, Wilkinson KM. **2012**. Fases de cultivo: establecimiento y crecimiento rápido. pp. 133-144 *in*: *Producción de plantas en viveros forestales*. CFI-CIEFAP-UNPSJB. Buenos Aires, Argentina.
8. Jacobs DF, Wilkinson KM. **2008**. Planning crops and developing propagation protocols. Ch. 4 *in*: *Nursery manual for native plants: a guide for tribal nurseries*. USDA Forest Service Agriculture Handbook 730. pp. 32-53. Washington, DC.
9. Jacobs DF, Landis TD, Luna T. **2008**. Propagation environments. Ch. 5 *in*: *Nursery manual for native plants: a guide for tribal nurseries*. USDA Forest Service Agriculture Handbook 730. pp. 54-75. Washington, DC.
10. Jacobs DF, Landis TD, Luna T. **2008**. Growing media. Ch. 8 *in*: *Nursery manual for native plants: a guide for tribal nurseries*. USDA Forest Service Agriculture Handbook 730. pp 76-93. Washington, DC.
11. Jacobs DF, Landis TD. **2008**. Fertilization. Ch. 12 *in*: *Nursery manual for native plants: a guide for tribal nurseries*. USDA Forest Service Agriculture Handbook 730. pp. 200-215. Washington, DC.
12. Jacobs DF, Landis TD. **2008**. Hardening. Ch. 14 *in*: *Nursery manual for native plants: a guide for tribal nurseries*. USDA Forest Service Agriculture Handbook 730. pp. 216-227. Washington, DC.

Invited Extension Presentations: 74

2022 -- What site and management factors determine the fate of hardwood trees planted on reclaimed coal mines? Indiana Society of Mining and Reclamation Technology Transfer Seminar. **Jasper, Indiana**.

-- Establishment success of mine reclamation tree plantings in relation to site factors and management. Indiana DNR Division of Reclamation Annual Meeting. **Bloomington, Indiana**.

2018 -- Using the target plant concept to promote mine reclamation. Indiana Society of Mining and Reclamation Technology Transfer Seminar. **Evansville, Indiana**.
--Productivity-diversity relationships in hardwood plantations. Hardwood Tree Improvement and Regeneration Center 2018 Advisory Committee Meeting. **West Lafayette, Indiana.**
--The Tropical Hardwood Tree Improvement and Regeneration Center. Hawaii Native Plants Grower's Meeting. **Waimea, Hawaii.**

2016 -- The Tropical Hardwood Tree Improvement and Regeneration Center. Hawaii Native Plants Grower's Meeting. **Volcano, Hawaii.**

2015 -- Effect of nursery photoperiod manipulation on Coastal Douglas-fir seedling development. Western Forestry and Conservation Nursery Association. **Eugene, Oregon**.

2013 -- Advances in fertilization for forest regeneration. Northeast and Southern Nursery Associations Meeting. **Lafayette, Indiana**.
--Effect of nursery photoperiod manipulation on seedling root development following planting. Western Forest and Conservation Nursery Association. **Olympia, Washington.**

2012 -- Subirrigation as an innovative new technology to reduce water consumption for native plant nursery production. National Resource Conservation Service. **Honolulu, Hawaii**.

2011 -- Reforestation of a salvage-logged high-elevation clearcut: Engelmann spruce seedling response to tree shelters after eleven growing seasons. Western Forestry and Conservation Nursery Association. **Denver, Colorado**.
-- Outplanting considerations during drought. Nāhelehele Dry Forest Symposium. **Kona, Hawaii**.
-- Influence of stocktype and fertilizer rate on field performance of *Acacia koa* competing with exotic kikuyu grass in a dry tropical forest. Nāhelehele Dry Forest Symposium Field Tour. **Pu'u Wa'awa'a State Forest Reserve, Hawaii**.

2010 --Reviving the American chestnut: Snatching a species from the brink of extinction. Purdue University College of Agriculture Science Café, **Lafayette, Indiana.**
-- Gaining ground: The American chestnut in a new century. Tri-State Forest Stewardship Conference. **Sinsinawa, Wisconsin**.
-- Fertilizing trees. Indiana Nut Growers' Association Conference. **Indianapolis, Indiana**.

2009 -- Fertilization of hardwood seedlings on reclaimed mine lands. Indiana Department of Natural Resources Division of Reclamation Special Seminar. **Jasonville, Indiana**.
-- Influence of stocktype and simulated browse on growth of northern red oak seedlings. 100th Northern Nut Growers' Association Conference. **West Lafayette, Indiana**.
-- Nursery density and family effects on black walnut growth. 100th Northern Nut Growers' Association Conference. **West Lafayette, Indiana**.
-- Influence of mineral nutrition on susceptibility and recovery of planted seedlings to ungulate browse. Western Forestry and Conservation Nursery Association. **Moscow, Idaho**.

2008 -- Root-collar diameter and third-year survival of three bottomland hardwoods planted on former agricultural fields in the Lower Mississippi Alluvial Valley. Southern Forest Nursery Association Conference. **Asheville, North Carolina**.
-- Using polymer-coated controlled-release fertilizers in reforestation. Idaho Department of Lands Regeneration Workshop. **Moscow, Idaho**.
-- Seedling growing regimes and the potential for using blackout techniques to arrest growth. Idaho Department of Lands Regeneration Workshop. **Moscow, Idaho**.
-- Assessing seedling quality. Idaho Department of Lands Regeneration Workshop. **Moscow, Idaho**.
-- The Target Seedling Concept and the role of stocktype in a reforestation program. Idaho Department of Lands Regeneration Workshop. **Moscow, Idaho**.

2007 -- Natural regeneration of clearcuts in the stem exclusion stage on the Hoosier National Forest. Hoosier National Forest Staff Meeting. **Bedford, Indiana**.
-- Natural regeneration of clearcuts in the stem exclusion stage on the Hoosier National Forest. Indiana Division of Forestry Annual Meeting. **Angola, Indiana**.
-- HTIRC: Keeping Indiana competitive in the USA and global market. Indiana Department of Natural Resources, Division of Forestry Annual Meeting. **Pokagon, Indiana**.

-- Effects of fall fertilization on morphology, growth, and cold hardiness of red pine seedlings. Northeastern Forest and Conservation Nursery Association Conference. **Concord, New Hampshire**.
-- Performance of nutrient loaded red oak and white oak seedlings on mine lands. Northeastern Forest and Conservation Nursery Association Conference. **Concord, New Hampshire**.
-- Nursery cultural techniques to facilitate restoration of *Acacia koa*. USDA Forest Service Forestry Short Course. **Pu'u Wa'awa'a, Hawaii**.
-- Inoculating *Acacia koa* with Bradyrhizobium and applying fertilizer in the nursery. USDA Forest Service Forestry Short Course. **Pu'u Wa'awa'a, Hawaii**.
-- Natural regeneration of clearcuts in the stem exclusion stage on the Hoosier National Forest. Indiana Society of American Foresters Summer Meeting. **Tell City, Indiana**.
-- Crop tree thinning in naturally regenerated clearcuts on the Hoosier National Forest. Indiana Society of American Foresters Summer Meeting. **Tell City, Indiana**.
-- Is thawing of frozen root plugs necessary? Joint meeting of the Western and British Columbia Nursery Associations. **Sidney, British Columbia**.
-- Is thawing of frozen root plugs necessary? Intermountain Container Grower's Association Meeting. **Moscow, Idaho**.
-- New techniques to improve ecological restoration. 21st Annual Surface Mined Land Reclamation Technology Transfer Seminar. **Jasper, Indiana**.

2006 -- Current and future innovations in hardwood tree planting. Wisconsin Department of Natural Resources Statewide Forestry Meeting. **Appleton, Wisconsin**.
-- Propagation of *Acacia koa* seedlings using subirrigation. Western Forestry and Conservation Nursery Association. **Eugene, Oregon**.
-- Water oak seedling dormancy. Southern Forest Nursery Association Biennial Conference. **Tyler, Texas**.
-- Seedling quality standards for bottomland hardwood afforestation. Southern Forest Nursery Association Biennial Conference. **Tyler, Texas**.
-- Hoosier National Forest oak clearcut study findings 1986-2004. Indiana Society of American Forester's Meeting. **Bedford, Indiana**.
-- Is thawing of frozen root plugs necessary? *Symposium entitled*: Components of Successful Reforestation Programs: From Seed to Free-to-Grow. Western Forestry and Conservation Nursery Association. **Eugene, Oregon**.
-- Effects of nursery blackout on Douglas-fir seedling development. *Symposium entitled*: Components of Successful Reforestation Programs: From Seed to Free-to-Grow. Western Forestry and Conservation Nursery Association. **Eugene, Oregon**.

2005 -- Oak regeneration: even and uneven aged systems. Joint meeting of the Indiana Chapters of the Society of American Foresters and the Wildlife Society. **Indianapolis, Indiana**.
-- Successful stock production for forest regeneration. The Thin Green Line: a Symposium on the State-of-the-Art in Reforestation. **Thunder Bay, Ontario**.
-- Influence of genotype and sowing density on morphological quality of black walnut seedlings. Northeastern Forest and Conservation Nursery Association Conference. **Springfield, Missouri**.
-- Exponential nutrient loading as a means to optimize nursery fertility of oak species. Northeastern Forest and Conservation Nursery Association Conference. **Springfield, Missouri**.
-- Evaluation of northern red oak seed viability using X-ray analysis. Northeastern Forest and Conservation Nursery Association Conference. **Springfield, Missouri**.
-- American chestnut as a future resource to enhance mine reclamation productivity. 19th Annual Surface Mined Land Reclamation Technology Transfer Seminar. **Jasper, Indiana**.

2004 -- Regeneration Research at the Hardwood Tree Improvement and Regeneration Center. Pike Lumber Company Educational Meeting. **West Lafayette, Indiana**.
-- Mineral nutrition of conifers. Indiana Christmas Tree Growers' Association Meeting. **Turkey Run State Park, Indiana**.

-- Seedling quality standards for afforestation in the lower Mississippii Alluvial Valley. Joint meeting of the Southern and Northeastern Forest Nursery Associations. Charleston**, South Carolina**.
-- Variation in nutrient release of polymer-coated fertilizers. Western Forest and Conservation Nursery Association Conference. **Medford, Oregon**.
-- Stocktype and harvest gap size influence northern red oak regeneration success. Indiana Society of American Forester's Meeting. **Greencastle, Indiana**.
-- Natural regeneration 21-33 years after clearcutting on the Hoosier National Forest. Indiana Society of American Forester's Meeting. **Greencastle, Indiana**.
-- Influence of nursery cultural treatments on performance of northern red oak seedlings. 18th Annual Surface Mined Land Reclamation Technology Transfer Seminar. **Jasper, Indiana**.
-- Exponential nutrient loading as a means to optimize nursery fertility of oak species. Northeastern Forest and Conservation Nursery Association Conference. **Springfield, Missouri**.
-- Fine hardwood tree improvement. National Hardwood Lumbermen's Association 107th Annual Convention. **Toronto, Ontario**.

2003 -- Fertilizer basics and beyond. Indiana Arborist Association Conference. Indianapolis, Indiana.
-- Establishment success of conservation tree plantings in Indiana. Indiana Society of American Foresters Annual Meeting. **Jasper, Indiana**.
-- Restoration of a Rocky Mountain spruce-fir forest. Western Forest and Conservation Nursery Association Conference. **Coeur d'Alene, Idaho**.
-- Performance of plantation-grown American chestnut in southwest Wisconsin. Indiana Chapter of the American Chestnut Foundation Bi-Annual Meeting. **Indianapolis, Indiana**.
-- Success of hardwood tree plantations in Indiana and implications for nursery managers. Northeastern Forest and Conservation Nursery Association Conference. **Springfield, Illinois**.
-- Cold hardiness testing of hardwood seedlings. Northeastern Forest and Conservation Nursery Association Conference. **Springfield, Illinois**.
-- Recent trends in hardwood seedling quality assessment. Northeastern Forest and Conservation Nursery Association Conference. **Springfield, Illinois**.
-- Developing a regional hardwood seedling standard. Auburn University Southern Forest Nursery Management Cooperative Contact Meeting. **Crossnore, North Carolina**.
-- Controlled-release fertilizers available for use in reforestation. Forest Nursery Association of British Columbia 23rd Annual Conference. **Courtenay, British Columbia**.
-- Variation in nutrient release of polymer-coated fertilizers. Forest Nursery Association of British Columbia 23rd Annual Meeting. **Courtenay, British Columbia**.

2002 -- Incorporating controlled-release fertilizer technology into outplanting. Joint meeting of the Southern and Northeastern Forest Nursery Associations. **Gainesville, Florida**.
-- Ecophysiological response of Douglas-fir seedlings to polymer-coated fertilizers. Joint meeting of the Western and British Columbia Nursery Associations. **Olympia, Washington**.
-- Establishment success of conservation tree plantings in Indiana. Indiana Association of Consulting Foresters Annual Meeting, **Lizton, Indiana**.

2001 -- Slow-release fertilization. 23rd Annual Intermountain Container Seedling Growers' Association Meeting. **Hamilton, Montana**.

Extension Workshops: 31

1. Tropical Hardwood Tree Improvement and Regeneration Center 2023 Advisory Committee Meeting. Conducted workshop and field day. Hilo, HI. 25-26 January 2023. Participants: ~45.
2. Tropical Hardwood Tree Improvement and Regeneration Center 2022 Advisory Committee Meeting. Conducted workshop and field day. Kealakekua, HI. 2, 4 March 2022. Participants: ~30.
3. Tropical Hardwood Tree Improvement and Regeneration Center 2020 Advisory Committee Meeting. Conducted workshop and field day. Honolulu, HI. 13, 16 December 2019. Participants: ~30.
4. Tropical Hardwood Tree Improvement and Regeneration Center 2019 Advisory Committee Meeting. Conducted workshop and field day. Hilo, HI. 28-29 January 2019. Participants: ~30.

5. Hardwood Tree Improvement and Regeneration Center 2018 Advisory Committee Meeting. Co-conducted field day. West Lafayette, IN. 26 September 2018. Participants: ~50.
6. Tropical Hardwood Tree Improvement and Regeneration Center 2018 Advisory Committee Meeting. Co-conducted workshop and field day. Hilo, HI. 22-23 January 2018. Participants: ~20.
7. Hardwood Tree Improvement and Regeneration Center 2017 Advisory Committee Meeting Field Tour. Co-conducted workshop and field day. West Lafayette, IN. 24 October 2017. Participants: ~50.
8. Tropical Hardwood Tree Improvement and Regeneration Center 2016 Advisory Committee Meeting Field Tour. Co-conducted workshop and field day. Hilo, HI. 4-6 October 2016. Participants: ~20.
9. Koa tree improvement and silviculture workshop. Co-organized and co-conducted workshop for USDA Forest Service and collaborators. 15-19 February 2016. Participants: 12.
10. Hardwood Tree Improvement and Regeneration Center 2015 Advisory Committee Meeting Field Tour. Co-conducted field day. West Lafayette, IN. 27 October 2015. Participants: ~80.
11. Hardwood Tree Improvement and Regeneration Center 2014 Advisory Committee Meeting Field Tour. Co-conducted field day. West Lafayette, IN. 27 March 2014. Participants: ~60.
12. Northeast and Southern Nursery Associations Meeting. Co-conducted field day. West Lafayette, Indiana. 23 July 2013. Participants: ~60.
13. Hardwood Tree Improvement and Regeneration Center 2012 Advisory Committee Meeting Field Tour. Co-conducted field day. West Lafayette, IN. 25 April 2012. Participants: ~50.
14. Southeastern Purdue Agricultural Center Forestry Field Day. Co-conducted workshop. Butlerville, IN. 11 November 2011. Participants: ~35.
15. Emerging Silvicultural Technologies for *Acacia koa* restoration. Organized and co-conducted workshop. USDA Forest Service Institute of Pacific Islands Forestry. Hilo, HI. 3-4 March 2010. Participants: 60.
16. Forestry Workshop for National Guardsmen in USAID Afghanistan Rebuilding Mission. Co-conducted workshop. John S. Wright Forestry Center, IN. 26 January 2010. Participants: 12.
17. Forestry Workshop for National Guardsmen in USAID Afghanistan Rebuilding Mission. Co-conducted workshop. John S. Wright Forestry Center, IN. 12 November 2009. Participants: 30.
18. Tree Planting Demonstration for Mined Land Reclamation. Co-conducted field day. Greene-Sullivan State Forest, IN. 25 September 2007. Participants: 30.
19. 12th Annual British Columbia Nursery and Landscape Association Nursery Growers Short Course. Co-conducted workshop. Abbotsford, British Columbia. 25 January 2005. Participants: 70.
20. *Conference entitled* Managing wildlife for sustainable forests - Managing forests for sustainable wildlife. Joint meeting of the Indiana Chapters of the Society of American Foresters and the Wildlife Society. Moderated session on oak regeneration and delivered session synthesis. Indianapolis, IN. 3-5 March 2005. Participants: ~100.
21. Minnesota Department of Natural Resources Silviculture Workshop. Co-conducted workshop for forestry professionals, delivering seminars on natural oak regeneration, hardwood plantation establishment, and hardwood seedling quality. Cloquet Forestry Center, MN. 13-14 December 2005. Participants: 120.
22. 85th Convention of the American Farm Bureau Meet the Researchers Program. Stationed booth detailing use of controlled-release fertilizer technology to enhance tree plantation establishment. Honolulu, HI. 11-12 January 2004. Participants: ~2000.
23. Tree Planting and Weed Management Workshop for Forestry and Nursery Professionals. Co-organized and co-conducted workshop including both classroom sessions and field tours. W.K. Kellogg Biological Field Station. Hickory Corners, MI. 22-23 June 2004. Participants: 27.
24. Northeastern Tree Improvement Specialist Meeting. Co-organized meeting. Minoqua, WI. 7-10 September 2004. Participants: 20.
25. Hardwood, Shrub, and Forb Seed Conditioning Workshop. Co-organized and co-conducted workshop. Topeka, IL. 14-16 September 2004. Participants: 15.
26. Managing Natural Resources Around Your Home: A Field Day. Co-conducted workshop. Throckmorton Purdue Agricultural Center. 16 October 2004. Participants: 5.
27. 9th Workshop on Seedling Physiology and Growth Problems in Oak Plantings. Co-organized and co-conducted workshop. J.S. Wright Forestry Center, IN. 18-20 October 2004. Participants: 42.
28. LUSTR Forest Renewal Cooperative Workshop on Tree Seedling Nutrition and Fertilization. Co-conducted workshop in seedling fertilization for nursery managers. Weyerhaeuser Learning Center, Dryden, Ontario. 6 August 2003. Participants: 35.

29. Joint Meeting of the Indiana Nut Growers' Association and Indiana Chapters of the American Chestnut Foundation and the Walnut Council. Co-organized and co-conducted meeting. J.S. Wright Forestry Center, IN. 14 September 2003. Participants: ~150.
30. Southeastern Purdue Agricultural Center Forestry Field Day. Co-conducted workshop describing research activities at SEPAC to professional foresters. Butlerville, IN. 18 September 2003. Participants: ~100.
31. Southeastern Purdue Agricultural Center Forestry Field Day. Co-conducted workshop describing research activities to professional foresters. Butlerville, IN. 10 September 2002. Participants: ~60.

Extension Short Courses: 5

1. Tree Crop Improvement Study Tour. Presented lectures on nursery production and plantation establishment, and organized field tours for forest scientists from India as part of 10-day study tour sponsored by USAID and US Forest Service International Programs. 4 September 2014. Participants: 12.
2. Tree Nursery Management. Presented short course to Brazilian graduate students and nursery managers (*translated to Portuguese*). Center for Agrarian Sciences, Western Paraná State University, Brazil.12-15 April 2010. Participants: 30.
3. Forest Management for the Private Woodland Owner. Presented one of eight evening workshop sessions on *Forest Plantation Culture*. Plainfield, IN. 7 March 2007. Participants: 30.
4. Forest Management for the Private Woodland Owner. Presented one of eight evening workshop sessions on *Forest Plantation Culture*. Plainfield, IN. 20 February 2006. Participants: 35.
5. Tree Nursery Management. Hawaii Community College/University of Hawaii Course No. 032N606, 24 contact hours. Presented 5 of 16 lecture modules, including *Propagation Environments*, *Crop Planning and Growing Schedules*, *Growing Media*, *Fertilization*, and *Hardening* to nursery managers from throughout Pacific Islands. Co-organized daily field trips. Hilo, HI. 27-30 May 2003. Participants: 30.

News Media: 30

1. Interviewed by Steve Koppes for story entitled "Biotechnology offers holistic approach to restoration of at-risk forest tree species" by College of Agriculture, Purdue University. July 2023.
2. Interviewed by Steve Koppes for story entitled "Analysis of global tree population explains baffling trends in species richness" by College of Agriculture, Purdue University. August 2022.
3. Interviewed by Greg Edge and Brad Hutnik for story entitled "Right Tree, Right Place, Right Time" produced as a SilviCast by Wisconsin Department of Natural Resources, 15 April 2021.
4. Interviewed by Brian Wallheimer for story entitled "Purdue pursues industry hardwood partnerships through NSF-backed center" by College of Agriculture, Purdue University. October 2020.
5. Interviewed by Brian Wallheimer for story and video entitled "Using the unused: from trash to trees" published in *Envision,* College of Agriculture, Purdue University. Spring 2018.
6. Interviewed by Terry Dickson for story entitled "Professors come home to Georgia to plant live oaks in research plots" published by the Florida-Times Union newspaper, 5 January 2016.
7. Interviewed by Helen Thompson for a news feature entitled "*Plant science: The chestnut resurrection*" published in *Nature* 490:23-23, 4 October 2012.
8. Interviewed by Linda McGurk for story entitled "USDA, Canada partnering to promote agroforestry R&D" published by Farm World newspaper, 9 May 2012.
9. Interviewed by Alejandra Martins for story entitled "Para que no haya un mundo sin nueces" published by BBC Mundo (in Spanish), 1 December 2011.
10. Interviewed by Tim Wall for story entitled "Walnut industry may crack under climate pressure" published by Discovery News, 1 December 2011.
11. Interviewed by Brian Wallheimer for story entitled "Walnut trees may not be able to withstand climate change" published as Purdue news release, 28 November 2011.
12. Interviewed by Allan Britnell for story entitled "Bringing back the chestnut" published in the winter 2009/2010 edition of Ontario Nature Magazine.
13. Interviewed by Phil Taylor (Greenwire) for story entitled "American chestnut's revival may combat climate change" published by The New York Times, 1 July 2009.
14. Interviewed by Katie Matern for story entitled "Hybrid chestnut trees hold promise as carbon sponges" published by Inter Press Service, 16 June 2009.

15. Interviewed by Brian Wallheimer for story entitled "American chestnut restoration may mitigate climate change" published as Purdue news release, 10 June 2009.
16. Interviewed by Bill Rooney for story entitled "Resurrection for the American chestnut", published in the Lexington News-Gazette (January 2008).
17. Interviewed by James Slinsky (Outdoor Talk Network) for radio program on American chestnut restoration research, broadcast 29 December 2007 nationwide on 60+ affiliate radio stations.
18. Interviewed by Rick Callahan (Associated Press) for article entitled "Growers bid to revive American chestnut", released 23 November 2007 and disseminated by national media (e.g., Washington Post, Chicago Tribune, Los Angeles Times, Atlanta Journal Constitution, Newsweek).
19. Interviewed by Cathy Lundmark for story entitled "Fighting forest blights: American chestnuts" published in "BioBriefs" column in *BioScience* 57:912 (November 2007).
20. Interviewed by Douglas Main for story entitled "Challenges remain in reintroducing American chestnut" published as Purdue news release, 21 August 2007. Article featured in the 23 August 2007 edition of Purdue Today (distributed to all Purdue faculty and staff) and on the 28 August 2007 Purdue homepage.
21. Interviewed by Douglas Main for story entitled "Return of the king? Research try to bring the American chestnut tree back from the brink." published in Purdue Agricultures Magazine, summer 2007, p. 8-10.
22. Interviewed by Kevin Cullen for article entitled "A wonderful woods is preserved near here", published in the Lafayette Journal and Courier, 29 January 2006.
23. Interviewed by Evelyn Kirkwood for article entitled "Chestnuts disappear from open fire", published in the South Bend Tribune, 25 December 2005.
24. Interviewed by Reni Winter for article entitled "Purdue aiding efforts to breed chestnut tree hybrid", published in the Lafayette Journal and Courier, 31 October 2005.
25. Interviewed by Rick Callahan (Associated Press) for article entitled "Purdue research highlights American chestnut's growth potential", published in the Indianapolis Star, 28 May 2004.
26. Interviewed by Joseph Smith for article entitled "Fast-Growing American Chestnut Should "Do Well" in Restoration Programs", published in the May 2004 edition of the Society of American Forester's *Forestry Source.*
27. Interviewed by Peter Monaghan for article entitled "A glance at the April 5 issue of *Forest Ecology and Management*: Reviving the American chestnut", published in the Magazine and Journal Reader section of the Chronicle of Higher Education, 2 April 2004.
28. Interviewed by Ali Kawa for story entitled "The spreading chestnut trees", aired on WILL AM-580 (NPR affiliate, University of Illinois), 1 April 2004.
29. Interviewed by Jennifer Cutraro for story entitled "Chestnut trees to spread across landscape again, says Purdue scientist" published as Purdue news release, 29 March 2004.

TEACHING

I regularly teach FNR225 (Dendrology), FNR535 (Forest Regeneration), and FNR372 (Summer Practicum: Silviculture), an intensive, weeklong field course in silvicultural management on the Upper Peninsula of Michigan. Each summer, I co-instruct an international exchange course in collaboration with the Swedish Agricultural University (SLU) and North Carolina State University. The following is a specified list of courses taught, followed by a summary of student evaluations in courses for which I served as primary instructor:

Department of Forestry and Natural Resources, Purdue University

- Instructor, Dendrology (FNR225) 3 credits. Fall 2002-2024 (except 2008, 2016, 2023).
- Instructor, Oral Exam Preparation (FNR691) 1 credit. Fall 2022.
- Instructor, Forest Regeneration (FNR535) 3 credits. Fall 2004, 2006, 2009, 2011, 2013, 2015, 2018, 2020
- Instructor, Silviculture week of summer practicum (FNR372) 1 credit. Summer 2003-08, 2015, 2017, 2019-20, 2022, 2024.
- Co-Instructor, International Natural Resources Practicum (FNR460) 3 credits. Summer 2005, 2007-08, 2012-13, 2015-19, 2023-24.
- Co-Instructor, Silviculture (FNR333) 3 credits. Fall 2005, 2006.

Department of Horticulture and Landscape Architecture, Purdue University
- Co-Instructor, Nursery Crops (HORT411) 1 credits. Fall 2004.

Department of Forest Resources, Oregon State University
- Instructor, Silviculture: Reforestation (FOR442) 4 credits. Spring 2000.

Warnell School of Forest Resources, University of Georgia
- Graduate Teaching Assistant, Dendrology. 4 quarters (Fall and Spring 1997-1998).
- Graduate Teaching Assistant, Forest Ecology. 2 quarters (Winter 1997-1998).

Publications
1. Jacobs DF**,** Goodman RC, Weeks SS. **2009**. Stewart's Woods Dendrology Tree Trail Podcast. Purdue University Cooperative Extension Service, FNR-407 (Available Online).
2. Dunning JB, Meilan R, Jacobs DF, Blank GB, Easley TR, Olsson M. **2008**. Collaborative study abroad – Combining efforts to improve undergraduate experience. ***North American Colleges and Teachers of Agriculture Journal*** 52:20-24.

Funding

2007-08 **Purdue University College of Agriculture Instructional Innovation (PI)** **$20,560**
Integrating iPod® technology into natural resources instruction (with J.B. Dunning, Jr., K. Nichols, G.R. Parker, R. Thomas, H. Weeks, Jr., S. Weeks, and R. Williams)

Presentations

2007 -- Integrating iPod® technology into natural resources instruction. Advances in Forest and Natural Resource Management Symposium, **National Taiwan University, Taiwan**.

Invited Instructor for International Courses

2023 -- *Training School on container nursery production and seedling quality assessment for Boreal forest regeneration. COST ACTION 19128 Pan-European Network for Climate Adaptive Forest Restoration and Reforestation.* 15 European students, Skinnskatteberg, Sweden

2023 -- *Forest and Landscapes.* ~25 students from Swedish Agricultural University, Alnarp, Sweden

2021-24 -- *Broadleaves: Forest dynamics, biodiversity and management for multiple-use.* ~20 students from Swedish Agricultural University, Alnarp, Sweden (virtual / in-person, field visit)

2021-23 -- *Forest Regeneration.* ~15 students from Swedish Agricultural University, Alnarp, Sweden (virtual)

2013 -- *Bases ecofisiológicas para la producción de plantas de calidad en vivero para mejorar el establecimiento de plantaciones forestales*. 30 students from Chile. Universidad Austral de Chile, **Valdivia, Chile**.

2011 -- *Scientific and technical basis of afforestation as a tool for sustainable forest management.* 30 students from South America, Mexico, and Spain, Centro de Investigación Forestal-Instituto Nacional de Investigaciones Agrarias (INIA), **Madrid, Spain**.

SERVICE

Purdue University

Department
- Search Committee, Belcher Chair in Environmental Sustainability Faculty Position (2023-24)
- Associate Head of Extension (2017-2023)
- Associate Head of Research (2015-17)
- Associate Head (2014-15)
- DEIJ Committee (2022-present)
- Chair, Natural Resources Lab Coordinator and Collections Curator Staff Position Search Committee (2022)
- Search Committee, Laboratory Manager Position (2022)

- Chair, Quantitative Forest Ecologist Faculty Position Search Committee (2018)
- Vice-Chair, Budget and Steering Committee (2014-17)
- Search Committee, Natural Resources Lab Coordinator and Collections Curator Staff Position (2016)
- Search Committee, Academic Information Technology Specialist Position (2015)
- Chair, Farm Manager Staff Position Search Committee (2013)
- Search Committee, Sustainable Natural Resources Social Sciences Faculty Position (2013)
- Chair, Forest Ecology Faculty Position Search Committee (2007)
- Search Committee, Forestry Specialist Position (2007)
- Search Committee, Forestry Extension and Research Position (2007)
- Primary Promotion Committee (2006-present)
- Faculty Mentoring Committee (2006-present)
- Search Committee, Sustainable Hardwoods Extension Specialist Position (2006)
- Chair, Hardwood Silviculture Faculty Position Search Committee (2006)
- Panel reviewer for FNR Department USDA CSREES Project (2006)
- Search Committee, Laboratory Manager Position (2005)
- Search Committee, Molecular Tree Physiologist Faculty Position (2003)
- Greenhouse Committee (2003-present; Chair 2003-08)
- Chair, Woodlands Management Committee (Member since 2002; Chair 2005-2015)
- Chair, Forest & Woodland Stewardship, Plan of Work Committee (Dec. 2002-August 2004)
- Curriculum Committee (2002-2008)

College of Agriculture
- Sprit of the Land Grant Award Review Committee (2022-present)
- Agenda and Policy Committee (2020-present)
- Area Faculty Promotion Committee (2014-2016)
- Showalter Professorship Nominating Committee (2013)
- Organization of Tropical Studies (OTS) delegate (May 2012-present)
- Curriculum and Student Relations Committee (November 2004-May 2005)
- Academic Advisor, Delta Theta Sigma, Agricultural Social-Professional Fraternity (2004-2006)
- Academic Advisor, Society of American Foresters Purdue University Student chapter (2003-2009)

University
- Faculty Compensation and Benefits Committee (2020-present)
- University Senate (2014)
- University Resources Policy Committee (2014)
- Faculty Affairs Committee (2006-2008)
- University Senate (2005-2008)

Science Community
- Editor-in-Chief, New Forests (2010-present)
- Associate Editor: Annals of Forest Science (2009-2014), International Journal of Forest Research (2008-2011), New Forests (2007-2010), Northern Journal of Applied Forestry (2007-2010), Native Plants Journal (2005-2008), Special Issue of New Forests on root development (2004)
- Science Advisory Committee, Bosque (2008-present)
- Served as scientific reviewer for 90 manuscripts in 39 journals, including: 7th International Conference on Acid Rock Drainage; Acta Agriculturæ Scandinavica Section B, Soil and Plant Science; American Midland Naturalist; Annals of Forest Science (10); Applied Vegetation Science; Bosque; Canadian Journal of Forest Research (5); Ecosystems (2); Electronic Journal of Biotechnology; Environmental and Experimental Botany (2); Environmental Science and Policy; European Polymer Journal; Forest Ecology and Management (18); Forests; Forestry; Forest Science (4); HortScience (2); HortTechnology; Journal of Agricultural and Food Chemistry; Journal of Arid Environments; Journal of the American Chestnut Foundation; Journal of

Environmental Management; Journal of Environmental Quality; Journal of Experimental Botany; Journal of Forest Research; Journal of Forestry; Land Degradation and Development; Native Plants Journal (5); New Forests (11); New Phytologist; Northern Journal of Applied Forestry (2); Plant Genome; Plant and Soil (2); PLoS One; Rangeland Ecology and Management; Scandinavian Journal of Forest Research (2); Silva Fennica; Southern Journal of Applied Forestry; Tree Physiology (2); Western Journal of Applied Forestry (2)

- Proposal reviewer: USDA AFRI Foundational Knowledge of Agricultural Production Systems program panel (2019); National Fund for Scientific and Technological Development (FONDECYT), Chile (2019); NSF, Ecosystem Studies (2017); Northeastern State Agricultural Experiment Stations (2013); Canada Foundation for Innovation Leaders Opportunity Fund (2010); US Department of State Science Center (2010); NSF, Environmental Sustainability (2009); Georgia National Science Foundation (2009); Canadian Natural Sciences and Engineering Research Council (2007); Forest Science Program, British Columbia Ministry of Forests and Range (2006); Slovak Research and Development Agency (2006)
- External evaluator for promotion documents: Clemson University (2020); Mississippi State University (2020); North Carolina State University (2019); Auburn University (2018); University of Georgia (2018); Northern Arizona University (2017); University of Florida (2012); University of Minnesota (2012); Michigan State University (2011); Brigham Young University (2011); University of Hawaii (2008); Oregon State University (2005); USDA Forest Service (2005, 2006, 2010, 2011, 2016, 2017, 2020)
- External evaluator for evaluation of Senior Lecturer in Silviculture, Swedish Agricultural University (2019).
- Symposia Organizing Committee: IUFRO Forest Seedling Root Development and Function for Reforestation and Restoration, *virtual* (2021); Forest Restoration of Threatened Forest Tree Species, *virtual* (2021); IUFRO 3rd Restoring Forests, Lund, Sweden (2017); IUFRO Forest Regeneration in Challenging Environments, Oregon, USA (2017); *Acacia koa* in Hawaii: Facing the Future, Hawaii, USA (2016); IUFRO Forest Science Publishing, Helsinki, Finland (2015); IUFRO 2nd Restoring Forests, Indiana, USA (2014); IUFRO Nutrient Dynamics of Planted Forests, Washington, USA (2012); IUFRO 1st Restoring Forests, Madrid, Spain (2011); Emerging Silvicultural Technologies for *Acacia koa* Restoration, Hawaii, USA (2010); 16th Central Hardwood Forest Conference, Indiana, USA (2008); 9th Workshop on Seedling Physiology and Growth Problems in Oak Plantings, Indiana, USA (2004)
- Board of Directors, Akaka Foundation for Tropical Forests (2016-present)
- Coordinator, IUFRO Research Group 1.06.00, Restoration of Degraded Sites (2019-present); Coordinator, IUFRO Research Group 2.01.15, Whole Plant Physiology (2013-present); Deputy, IUFRO Research Group 1.06.00, Restoration of Degraded Sites (2015-2019); Deputy, IUFRO Research Group 9.01.06, Forest Science Publishing (2015-present)
- Appalachian Regional Reforestation Initiative Academic Team (2005-present)
- Science Council, The American Chestnut Foundation (2002-present)
- President, Indiana Chapter of the American Chestnut Foundation (2003-2006)
- Board of Directors, The American Chestnut Foundation (2003-2006)
- Executive Committee, Walnut Council (2002-2008)
- Chair, Silviculture Committee, Walnut Council (2002-2006)
- Board of Directors, Indiana Hardwood Lumbermen's Association (2005-2008)
- Forestry Committee, Indiana Hardwood Lumbermen's Association (2005-2008)
- Education Committee, Indiana Hardwood Lumbermen's Association (2005-2007)