

Jane R. Foster

CURRICULUM VITAE

US Forest Service Southern Research Station
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RESEARCH INTERESTS

Forestry, landscape and ecosystem ecology, tree physiology and forest community response to disturbance interactions and climate change, resource management for climate mitigation and adaptation, human landuse change and sustainable use of natural resources, geospatial quantitative methods to exploit image and GIS data, landscape simulation models, tree rings and dendroecology.

EDUCATION

- 2011 PhD, Forestry
University of Wisconsin Madison, WI
Dissertation: *Forest insect defoliation patterns and carbon dynamics: linking remote sensing with simulation modeling* (Adviser: Dr. David Mladenoff)
- 2000 MS, Forest Science
Yale School of Forestry and Environmental Studies New Haven, CT
Thesis: *Spatial and temporal patterns of beaver pond establishment in a New England forest* (Adviser: Dr. David Skelly)
- 1996 BA, Biology
Yale University New Haven, CT

PROFESSIONAL APPOINTMENTS

- 2022-Present, Research Ecologist, US Forest Service Southern Research Station
- 2019-2022, Assistant Research Professor, University of Vermont Rubenstein School of Environment and Natural Resources
- 2017-2019, Senior Research Associate, Rubenstein School of Natural Resources, University of Vermont
- 2013-2016, Postdoctoral Fellow, Northeast Climate Adaptation Science Center, University of Minnesota
- 2011-2013, Postdoctoral Associate, University of Minnesota, Mentor: Dr. Anthony D'Amato
- 2005-2011, Research Assistant, University of Wisconsin-Madison, Adviser: Dr. David Mladenoff
- 2000-2005, Remote Sensing Analyst, University of Maryland Center for Environmental Science, Appalachian Laboratory, Dr. Philip Townsend
- 1999, 2000, Teaching Fellow, "Observing the Earth from Space," Yale University

1999, Teaching Assistant, Ecosystem Measurement Field Course, Yale School of Forestry and Environmental Studies.

1999-2000, GIS Coordinator, Yale School Forests

1996-1998, Remote Sensing Research Assistant, Yale Center for Earth Observation

1995-1996, Collections Assistant, Yale Peabody Museum of Natural History

FELLOWSHIPS AND AWARDS

NASA Earth System Science Fellowship, 2008-2011, \$90,000

CALS Wisconsin Distinguished Graduate Fellowships, 2008, *Declined*

Forestry Award, Yale School of Forestry and Environmental Science, 1998-2000, \$14,000

USDA-NIFA Professional Enhancement Award, 2010, \$500

NAFEW Best Student Presentation – Disturbance Interactions, 2009, \$500

NASA-MSU Professional Enhancement Award, 2007, \$500

CURRENT RESEARCH GRANTS AND PROPOSALS

NSF EPSCoR Research infrastructure – Leveraging Intelligent Informatics and Smart Data for Improved Understanding of Northern Forest Ecosystem Resiliency. PIs: Weiskittel, A., Beard-Tisdale, M., Abedi, A., D’Amato, A.W., Ollinger, S. \$6,000,000, 08/01/2019-07/31/2024.

NSF Macrosystems Biology and NEON Science - Collaborative Research: MSA: Incorporating canopy structural complexity to improve model forecasts of functional effects of forest disturbance. PIs and Co-I: Hardiman, B., Matthes, J.H., Fahey, B., **Foster, J.R.**, \$299,385, 09/01/2019-08/31/2023.

USDA Forest Service Southern Research Station FY2023: Testing the resilience of Mature and Old-Growth Forest carbon capture to canopy disturbance at NEON sites. Foster, J.R. \$120,000, 09/25/2023-09/25/2025.

SUBMITTED PROPOSALS (PENDING & NOT AWARDED)

USFS Mature & Old-Growth Initiative EO14072 Agency Response: Forecasting Transitions of Mature to Old-Growth Forest Structure on Eastern National Forests: Integrating Long-term Studies and New Technologies for Carbon Stewardship. J. Foster, T. Keyser, J. Forrester, C. Martens, A. Ouimette, J. Fraser, A. D’Amato, \$695,000, 2024-2028.

USFS Mature & Old-Growth Initiative EO14072 Agency Response: The Francis Marion National Forest 35 years after Hurricane Hugo: A Framework for Multi-decadal Response and Recovery Trajectories of Old-growth stands following a Catastrophic Tropical Storm. J. Atkins, C. Trettin, J. Foster, A. Kamoske, A. Nathanson, B. Song, Z. Dai, J. Walter. 2024-2027.

USFS R&D BIL Ecosystem Restoration FY2023: Assessing the impact and reducing the risk of invasive shrubs in forestlands of the midwestern US. L. Pile Knapp, J. Fraser, K. Knight, M. Bataineh, C. Fowler, J. Foster, M. Stambaugh, L. Vickers, J.T. Vogt, G. Wang, \$658,500, 2023-2026.

USFS R&D BIL Ecosystem Restoration FY2023: White oak reforestation in a changing climate, a part of the Chief's reforestation strategy. S. Clark, L. Thompson, D. Dey, C. Schweitzer, J. Foster, R. Baird, S. Brown, M. Saunders, S. Schlarbaum, M. Station, \$1,459,800, 2023-2026.

NSF DISES: Perceptions of ecological risk and the landscape dynamics of forest management, insect outbreaks, and climate change. E. Simons-Legaard, K. Legaard, A. Daigneault, C. Sponarski, J. Foster, \$916,672, 2021-2024.

NSF Dynamics of Integrated Socio-Environmental Systems CNH2: Perceptions of ecological risk and the landscape dynamics of forest management, insect outbreaks, and climate change. \$758,355, 2019.

NASA Earth Science Sustaining Living Systems in a Time of Climate Variability and Change: Maximizing integration of remote sensing time series and dynamic models to meet national targets for sustainable forest management, J. Foster, E. Gustafson, A.W. D'Amato, \$822,748, 2018-2021.

NASA Carbon Monitoring System CMS: From fixed stocks to flux of carbon caused by partial canopy disturbance. J. Foster, A.W. D'Amato, M. Curzon, B. Palik, J. Bradford, \$1,062,430, 2017-2020.

USDA Forest Service Forest Health Evaluation Monitoring Program FY2017: Mapping the interacting and cumulative effects of defoliation from gypsy moth, winter moth, native defoliators and drought stress on northeastern forests. J. Foster, A.W. D'Amato, \$75,050, 2017-2018.

PUBLICATIONS

Published

- [28] Choi, D., LaRue, E., Atkins, J., **Foster, J.R.**, Matthes, J. Hatala, Fahey, R., Thapa, B., Fei, S., Hardiman, B. (2023). Short-term effects of moderate severity disturbances on forest canopy structure. *Journal of Ecology*. <https://doi.org/10.1111/1365-2745.14145>
- [27] Elmore A.J., Brosi S.L., Guinn S.M., Matthews E., Schmit J.P., Brolis A., **Foster J.R.** (2023). Dendroecological data for forested parks in the National Capital Region Network. Natural Resource Data Series. NPS/NCRN/NRDS—2023/1393. National Park Service. Fort Collins, Colorado. <https://doi.org/10.36967/2297322>
- [26] Thapa, B., Wolter, P. T., Sturtevant, B. R., **Foster, J. R.**, & Townsend, P. A. (2023). Linking frass and insect phenology to optimize annual forest defoliation estimation. *MethodsX*, 10, 102075.
- [25] LaRue, E. A., Fahey, R., Fuson, T. L., **Foster, J. R.**, Matthes, J. H., Krause, K., & Hardiman, B. S. (2022). Evaluating the sensitivity of forest structural diversity characterization to LiDAR point density. *Ecosphere*, 13(9). <https://doi.org/10.1002/ecs2.4209>.
- [24] Pastore, M.A., Classen, A.T., D'Amato, A.W., **Foster, J.R.**, Adair, E.C. (2022). Cold-air pools as microrefugia for ecosystem functions in the face of climate change. *Ecology* 103(8), e3717.
- [23] Andrews, C.A., **Foster, J.R.**, Weiskittel, A., D'Amato, A.W., Simons-Legaard, E. (2022). Integrating historical observations alters projections of eastern North American spruce-fir habitat under climate change. *Ecosphere* 13 (4).
- [22] Gough, C. M., **Foster, J. R.**, Bond-Lamberty, B., & Tallant, J. M. (2022). Inferring the effects of partial defoliation on the carbon cycle from forest structure: challenges and opportunities. *Environmental Research Letters: ERL*, 17(1), 011002.
- [21] Teitelbaum, C.S., Sirén, A.P.K., Coffel, E., **Foster, J.R.**, Frair, J.L., Hinton, J.W., et al. (2021). Habitat use as indicator of adaptive capacity to climate change. *Diversity and Distributions* 27 (4).
- [20] Nevins, M.T.* , J.A., D'Amato, A.W., **Foster, J.R.**, (2021). Future forest composition under a changing climate and adaptive forest management in southeastern Vermont, USA. *Forest Ecology and Management* 479, 118527.
- [19] Woodall, C.W., Westfall, J.A., D'Amato, A.W., **Foster, J.R.**, Walters, B.F, (2018). Decadal changes in tree range stability across forests of the eastern U.S. *Forest Ecology and Management* 429: 503–510.
- [18] Lucash, M.S., Scheller, R.M., Sturtevant, B.R., Gustafson, E.J., Kretchun, A., **Foster, J.R.** (2018). More than the sum of its parts – How disturbance interactions shape forest dynamics under climate change. *Ecosphere* 9 (6): e02293.
- [17] **Foster, J.R.** (2017). Xylem traits, leaf longevity and growth phenology predict growth and mortality response to defoliation in northern temperate forests. *Tree Physiology* 37:1151-1165.

- [16] Curzon, M.T., D'Amato, A.W., Fraver, S., Palik, B.J., Bottero, A., **Foster, J.R.**, Gleason, K.E. (2017). Harvesting influences functional identity and diversity over time in forests of the northeastern U.S.A. *Forest Ecology and Management* 400:93-99.
- [15] Itter, M.S., Finley, A.O., D'Amato, A.W., **Foster, J.R.**, and J.B. Bradford. (2017). Variable effects of climate on forest growth in relation to climate extremes, disturbance, and forest dynamics. *Ecological Applications* 27:1082-1095.
- [14] Gustafson, E.J., de Bruijn, A., Lichti, N., Jacobs, D.F., Sturtevant, B.R., **Foster, J.R.**, Miranda, B., Dalgleish, H.J. (2017). The implications of American chestnut reintroduction on landscape dynamics and carbon storage. *Ecosphere* 8:e01773.
- [13] **Foster, J.R.**, Finley, A.O., D'Amato, A.W., Bradford, J.B., and S. Banerjee. (2016) Predicting tree biomass growth in the temperate-boreal ecotone: is tree size, age, competition or climate response most important? *Global Change Biology* 22:2138-2151. DOI: 10.1111/gcb.13208
- [12] **Foster, J.R.** and A.W. D'Amato. 2015. Montane forest ecotones moved downslope in northeastern US in spite of warming between 1984 and 2011. *Global Change Biology* 21:4497-4507. DOI:10.1111/gcb.13046
- [11] **Foster, J.R.**, D'Amato, A.W. and J.B. Bradford. 2014. Looking for age-related growth decline in natural forests: unexpected biomass patterns from tree rings and simulated mortality. *Oecologia* 175:363-374.
- [10] de Bruijn, A., Gustafson, E., Sturtevant, B.R., **Foster, J.R.**, Miranda, B.R., Lichti, N.I. and D.F. Jacobs. 2014. Toward more robust projections of forest landscape dynamics under novel environmental conditions: Embedding PnET within LANDIS-II. *Ecological Modelling* 287:44-57.
- [9] **Foster, J.R.**, Townsend, P.A. and D.J. Mladenoff. 2013. Mapping asynchrony between gypsy moth egg-hatch and forest leaf-out: putting the phenological window hypothesis in a spatial context. *Forest Ecology and Management* 287:67-76.
- [8] **Foster, J.R.**, Townsend, P.A., and D.J. Mladenoff. 2013. Spatial dynamics of a gypsy moth defoliation outbreak and dependence on habitat characteristics. *Landscape Ecology* 28:1307-1320.
- [7] **Foster, J.R.**, Burton, J.I., Forrester, J.A., Liu, F., Muss, J.D., Sabatini, F.M., Scheller, R.M., and D.J. Mladenoff. 2010. Evidence for a recent increase in forest growth is questionable. *Proceedings of the National Academy of Sciences* 107:E86-E87.
- [6] Townsend, P.A., Singh A., **Foster, J.R.**, Rehberg, N.J., Kingdon, C.C., Eshleman, K.N. and S.W. Seagle. 2012. A general Landsat model to predict canopy defoliation in broadleaf deciduous forests. *Remote Sensing of Environment* 119:255-265.
- [5] **Foster, J.R.**, Townsend, P.A. and C.E. Zganjar. 2008. Spatial and temporal patterns of gap dominance by low-canopy lianas detected using EO-1 Hyperion and Landsat Thematic Mapper. *Remote Sensing of Environment* 112:2104-2117.
- [4] McNeil, B.E., deBeurs, K.M., Eshelman, K.N., **Foster, J.R.**, and P.A. Townsend. 2007. Maintenance of ecosystem nitrogen limitation by ephemeral forest disturbance: An assessment using MODIS, Hyperion, and Landsat ETM. *Geophysical Research Letters* 34 (19):L19406.

- [3] **Foster, J.R.** and P.A. Townsend. 2004. Linking hyperspectral imagery and forest inventories for forest assessment in the central Appalachians. Proceedings, 14th Central Hardwoods Forest Conference 2004 March 16-19; Wooster, OH. Gen. Tech. Rep. NE-316. Newtown Square, PA: U.S. Department of Agriculture. Forest Service. Northeastern Research Station.
- [2] Townsend, P.A., **Foster, J.R.**, Chastain, R.A., Jr. and W.S. Currie. 2003. Application of imaging spectroscopy to mapping canopy nitrogen in the forests of the central Appalachian mountains using Hyperion and AVIRIS. *IEEE Transactions on Geoscience and Remote Sensing* 41:1347-1354.
- [1] Townsend, P.A. and **J.R. Foster**. 2002. A synthetic aperture radar-based model to assess historical changes in lowland floodplain hydroperiod. *Water Resources Research* 38(7):1115.

In Review

Visser, M.D., Detto, M., Meunier, F., Wu, J., **Foster, J.**, Marvin, D.C., Bongalov, B., Nunes, M.H., Coomes, D., Verbeeck, H., Guzman, J.A., Sanchez-Azofeifa, A., Chandler, C.J., van der Haijden, G.M.F., Boyd, D.S., Foody, G.M., Cutler, M.E.J., Broadbent, E.N., Serbin, S.S., Schnitzer, S., Rodriguez-Ronderos, M.E., Pacala, S. (*In review*). Why can we detect lianas from space? doi: <https://doi.org/10.1101/2021.09.30.462145>

Pastore, M.A., Classen, A.T., D'Amato, A.W., English, M.E., Rand, K., **Foster, J.**, Adair, E.C. (*In review*). Frequent and strong cold-air pooling drives temperate forest composition.

In preparation

Foster, J.R., D'Amato, A.W., Kosiba, A., Ouimette, A., Schaber, P. (*In prep.*). Unexpected forest dynamics in a vulnerable ecotone from Maine to North Carolina.

Foster, J.R., LaRue, E., Hatala Matthes, J., Fahey, R., Hardimann, B. (*In prep.*). Landsat metrics of foliar biomass predict changes in ground-measured forest structure across a gradient of partial canopy disturbance at NEON sites.

Foster, J.R., Pastore, M., Rand, K., English, M., D'Amato, A.W., King, D., Classen, A., Adair, E.C. (*In prep.*) Spatial-temporal patterns of clear-sky cold-air pooling in the Northeastern US from MODIS land surface temperature and distributed temperature sensors.

Foster, J.R., D'Amato, A.W., Sass, E. et al. (*In Prep.*). Modeling future forest habitat for boreal birds under climate change in the Adirondacks with Landis-II.

Foster, J.R., D'Amato, A.W. (*In Prep.*). Forecasting potential climate change refugia to guide conservation of subalpine species.

Foster, J.R., Scheller, R.M., Sturtevant, B.R. and D.J. Mladenoff. (*In revision*). Forest insect defoliation and carbon dynamics: simulating multiple defoliators in temperate landscapes with Landis-II.

Foster, J.R., Scheller, R.M., Miranda, B., (*In revision*). LANDIS-II Biomass Insects v3.0 Extension User Guide.

Proceedings and technical reports

M.K. Janowiak, A D'Amato, C.W. Swanston, L. R. Iverson, F. R. Thompson, W. D. Dijak, S. Matthews, M. P. Peters, A. Prasad, J. S. Fraser, L. A. Brandt, P. R. Butler-Leopold, S.D. Handler, P. D. Shannon, D. Burbank, J. Campbell, C. Cogbill, M. J. Duveneck, M. R. Emery, N. Fisichelli, **J. Foster**, J. Hushaw, L. Kenefic, A. Mahaffey, T. L. Morelli, N. Reo, P. G. Schaberg, K. R. Simmons, A. Weiskittel, S. Wilmot, D. Hollinger, E. Lane, L. Rustad, and P. H. Templar. 2018. New England and northern New York forest ecosystem vulnerability assessment and synthesis: A report from the New England Climate Change Response Framework project. General Technical Report NRS-173. <https://doi.org/10.2737/NRS-GTR-173>

Young, J., Fleming, G., Townsend, P.A., and **J.R. Foster**. 2006. Vegetation of Shenendoah National Park in Relation to Environmental Gradients: Final Report (v1.1). USGS-NPS Vegetation Mapping Program, US Department of Interior National Park Service.

Foster, J.R., C.C. Kingdon and P.A. Townsend. 2002. Predicting tropical forest carbon from EO-1 hyperspectral imagery in Noel Kempff Mercado National Park, Bolivia. In Proceedings of the 2002 International Geoscience and Remote Sensing Symposium.

Townsend, P.A. and **J.R. Foster**. 2002. Comparison of EO-1 Hyperion to AVIRIS for mapping forest composition in the Appalachian Mountains, USA. In Proceedings of the 2002 International Geoscience and Remote Sensing Symposium.

Foster, J.R. and P.A. Townsend. 2002. Mapping forest composition in the Central Appalachians using AVIRIS: Effects of topography and phenology. In Proceedings of the 11th JPL Airborne Earth Science Workshop, R.O. Green, Ed. Pasadena, CA, 2002.

Townsend, P.A. and **J.R. Foster**. 2002. Terrain normalization of AVIRIS and Hyperion imagery in forested landscapes. In Proceedings of the 11th JPL Airborne Earth Science Workshop, R.O. Green, Ed. Pasadena, CA, 2002.

Smith, R.B., **Foster, J.R.**, Kouchoukos, N., Gluhosky, P.A., Young, R., J. Zhang and E. Depauw 2000. Hydrologic trends in the Middle East: Modeling and Remote Sensing. ICARDA, Aleppo, Syria.

Kouchoukos, N., Smith, R.B., Gleason, A., Thenkabail, P., Hole, F., Barkoudah, Y., Albert, J., Gluhosky, P. and **J. Foster**. 1998. Monitoring the distribution, use, and regeneration of natural resources in semi-arid Southwest Asia. In: Transformations of Middle Eastern Natural Environments: Legacies and Lessons. Albert, J., Bernhardsson, M. and R. Kenna, Editors. Bulletin Series Yale School of Forestry and Environmental Studies 103.

TEACHING

- 2015** Guest Lecturer, Landscape Ecology, University of Wisconsin-Madison.
- 2012** Guest Lecturer, Silviculture, University of Minnesota.
- 2011** Guest Lecturer, Landscape Ecology, University of Wisconsin-Madison
- 2009** Guest Lecturer, Landscape Ecology, University of Wisconsin-Madison
- 2000** Teaching Fellow, Observing the Earth from Space, Yale University.
- 1999** Teaching Fellow, Observing the Earth from Space, Yale University.
- 1999** Teaching Assistant, Ecosystem Measurement Field Course (3 week-long sessions), Yale School of Forestry and Environmental Studies.
- 2011** Education Chair, 2008-2010 Instructor, Hooper Sailing Club, University of Wisconsin-Madison.

PRESENTATIONS

Organization of Symposia, Invited Speaker

- 2023 **Foster, J.R.** Recent range-wide expansion of montane red spruce highlights unexpected potential for restoration. Ecology & Evolutionary Biology Seminar, University of Tennessee, Knoxville, March 31, 2023, Knoxville, TN, USA.
- 2021 **Foster, J.R.**, D'Amato, A.W., Kosiba, W., Schaberg, P. Recent range-wide expansion of montane red spruce suggests where favorable restoration conditions may persist for decades. Red Spruce Restoration Workshop, September 10-12, 2021, Burlington, VT, USA.
- 2019 **Foster, J.R.**, Unexpected expansion of montane tree species under climate change: The puzzling case of red spruce in the eastern US. Rutgers University, October 24, 2019, New Brunswick, NJ.
- 2019 **Foster, J.R.**, Unexpected expansion of montane tree species under climate change: The puzzling case of red spruce in the eastern US. Bryn Mawr College, October 7, 2019, Bryn Mawr, PA.
- 2019 **Foster, J.R.**, Persistence of mixedwoods in montane and ecotone environments under changing climate. North American Forest Ecology Workshop, June 5, 2019, Flagstaff, AZ.
- 2018 **Foster, J.R.**, D'Amato, A.W. Climate change will alter montane forests, but how fast? Fusing Landsat time series and spatially dynamic vegetation models to inform montane forest management. ForestSAT 2018, University of Maryland, October 5, 2018, College Park, MD.
- 2017 **Foster, J.R.** Landsat time series predict wood growth from tree-rings using departures in mean phenology. Hanover Forest Science Seminar Series, Michigan State University Department of Forestry, October 24 2017, East Lansing, MI.
- 2017 **Foster, J.R.**, D'Amato, A.W. Forecasting climate change refugia and potential migration rates for montane species with a spatially dynamic vegetation model. Presented at the International Association of Landscape Ecology (IALE) Annual Meeting, April 9-13, 2017, Baltimore, MD.

- 2017 **Foster, J.R.**, D'Amato, A.W. Compositional shifts in spruce-fir forests: What do we observe 1985-2010 and predict for 2010-2100? Presented at the Society of American Foresters Green Mountain Division Annual Meeting, February 17 2017, Fairlee, VT.
- 2016 **Co-Organizer** of oral and poster sessions "Ecological (a)synchrony of forest responses to climate I and II" with Julio L. Betancourt, Franco Biondi and John B. Bradford. American Geophysical Union (AGU) Fall Meeting, December 12-16, 2016, San Francisco, CA.
- 2016 **Foster, J.R.** Reconciling the surprising rebound in montane spruce-fir forests with dire predictions of their fate under a warming New England climate. Yale Remote Sensing User Group seminar series, October 3 2016, New Haven, CT.
- 2016 **Foster, J.R.** Elevational shifts in montane forest ecotones: evidence, causes, and consequences. Presented at the Northeast Mountain Science Conference, April 18-19, Burlington, VT.
- 2015 **Foster, J.R.**, D'Amato, A.W., and J. Bradford. Simulation of insect impacts on forest dynamics: Landsat defoliation maps predict growth declines in tree ring data. Presented at 9th the International Association of Landscape Ecology (IALE) World Congress, July 5-10 2015, Portland, OR.
- 2012 **Foster, J.R.**, Scheller R.M. and D.J. Mladenoff. Effects of insect defoliation and forest management on aboveground carbon. Presented at the 27th annual meeting of U.S. Regional Association of the International Association of Landscape Ecology (IALE), April 8-12 2012, Newport, RI.

Contributed

- 2023 **Foster, J.R.**, LaRue, E., Matthes, J., Fahey, R., Choi, D., Hardiman, B. Changes in tree demography and health-status explain agreement between Landsat time series and forest structure at disturbed NEON sites. Presented at the Annual Meeting of the Ecological Society of America (ESA), August 6-11 2023, Portland, OR.
- 2023 **Foster, J.R.**, Pastore, M., Rand, K., English, M., Finnerty, C., Adair, C., Classen, A., King, D., Lutz, D., Nelson, S., D'Amato, A.W. Climatology of cold-air pooling for montane watersheds and forests of the Northeastern US from MODIS data. International Association of Landscape Ecology (IALE) North America Annual Meeting, March 19-23, Riverside, CA, USA.
- 2022 Landry, E.*, Contosta, A., **Foster, J.R.**, Ollinger, S.V. Response of Forest Canopy Structure to Moderate Disturbances: Multi-temporal Approaches Using NEON's Longitudinal Airborne LiDAR. American Geophysical Union (AGU) Fall Meeting, December 12-16, 2022, Chicago, IL, USA.
- 2022 Choi, D.H., LaRue, E., Atkins, J., **Foster, J.R.**, Matthes, J.H., Fahey, R.T., Thapa, B., Fei, S., Hardiman, B.S. Understanding the spatial and temporal climate patterns across the Northeastern U.S. American Geophysical Union (AGU) Fall Meeting, December 12-16, 2022, Chicago, IL, USA.
- 2021 **Foster, J.R.**, LaRue, E., Hatala Matthes, J., Fahey, R., Hardiman, B. Landsat time series and disturbed forest structure at NEON tower sites. American Geophysical Union (AGU) Fall Meeting, December 13-16, 2021, New Orleans, LA, USA.

- 2021 Ouimette, A., Ollinger, S.V., Hastings, J., Johnson, C.E., **Foster, J.R.**, Weiskittel, A., D'Amato, A.W. Including microbial processes is important for modelling carbon and nitrogen dynamics during wood decay. American Geophysical Union (AGU) Fall Meeting, December 13-16, 2021, New Orleans, LA, USA
- 2018 **Foster, J.R.**, D'Amato, A.W. Unexpected expansion of spruce and fir varies at ecotones across the eastern US. American Geophysical Union (AGU) Fall Meeting, December 10-14, 2018, Washington, D.C.
- 2017 **Foster, J.R.**, D'Amato, A., Itter, M., Curzon M., Reinikainen, M. Landsat time-series for the masses: predicting wood biomass growth from tree-rings using departures in mean phenology from Google Earth Engine. American Geophysical Union (AGU) Fall Meeting, December 11-15, 2017, New Orleans, LA.
- 2017 D'Amato, A.W., **Foster, J.R.** Future distribution of sugar-maple dominated forests on the Green Mountain National Forest under climate change. Poster presented at Forest Ecosystem Monitoring Cooperative (FEMC) Conference, December 15, 2017, Burlington, VT.
- 2017 **Foster, J.R.**, D'Amato, A.W. Forecasting migration rates of montane species under climate change with a spatially dynamic vegetation model. Presented at the North American Forest Ecology Workshop (NAFEW), June 19-22, Edmonton, CA.
- 2016 Morelli, T.L., DeLuca, W.V., Duclos, T.R., **Foster, J.R.**, Siren, A.P. A community perspective on the effects of climate change on species distributions in the boreal forest of the northeastern United States. American Geophysical Union (AGU) Fall Meeting, December 12-16, 2016, San Francisco, CA.
- 2016 **Foster, J.R.**, D'Amato, A.W. Forecasting climate change refugia for montane species; how harvest and disturbance affect species persistence. Presented at Eastern CANUSA (ECANUSA) Conference on Forest Science, September 30-October 1 2016, Burlington, VT.
- 2016 **Foster, J.R.**, D'Amato, A.W. Forecasting potential climate change refugia to guide conservation of montane species. Presented at 101st Annual Meeting of the Ecological Society of America (ESA), August 7-12 2016, Ft. Lauderdale, FL.
- 2013 **Foster, J.R.**, D'Amato, A.W. and J. Bradford. Sensitivity of tree species and forest types to past weather variability using dendrochronological techniques. Presented at 98th Annual Meeting of the Ecological Society of America (ESA), August 4-9 2013, Minneapolis, MN.
- 2013 **Foster, J.R.**, D'Amato, A.W. and J. Bradford. Sensitivity of tree species and forest types to moisture stress from tree ring reconstructions of biomass growth. Presented at the Next Generation Climate Data Products Workshop, July 15-19, National Center for Atmospheric Research, Boulder, CO.
- 2013 **Foster, J.R.**, D'Amato, A.W. and J. Bradford. Sensitivity of tree species and forest types to weather variability from tree ring reconstructions of biomass growth. Presented at the 9th North American Forest Ecology Workshop, June 16-20, Bloomington, IN.
- 2012 **Foster, J.R.**, D'Amato, A.W. and J. Bradford. Biomass increment patterns derived from tree rings on the Superior National Forest. . Presented at 97th Annual Meeting of the Ecological Society of America (ESA), August 5-10 2012, Portland, OR.

- 2012 **Foster, J.R.**, Scheller, R., Townsend, P., Sturtevant, B. and D.J. Mladenoff. Forest insect defoliation and carbon dynamics: linking remote sensing with simulation modeling. Presented at Landis-II Workshop, January 13 2012, Madison, WI.
- 2010 **Foster, J.R.**, Scheller R.M. and D.J. Mladenoff. Simulation of defoliation outbreaks in deciduous landscapes: How disturbance interactions affect forest carbon sequestration. Presented at 95th Annual Meeting of the Ecological Society of America (ESA), August 1-6 2010, Pittsburgh, PA.
- 2010 **Foster, J.R.**, Scheller R.M. and D.J. Mladenoff. Forest insect defoliation and carbon dynamics: Simulating multiple defoliators with Landis-II. Presented at Wisconsin Ecology Spring Symposium, April 15-16 2010, Madison, WI.
- 2010 **Foster, J.R.**, Scheller R.M. and D.J. Mladenoff. Forest insect defoliation and carbon dynamics: Simulating multiple defoliators with Landis-II. Presented at the 25th annual meeting of U.S. Regional Association of the International Association of Landscape Ecology (IALE), April 5-9 2010, Athens, GA.
- 2010 **Foster, J.R.**, Scheller R.M. and D.J. Mladenoff. Simulating forest insect defoliation and carbon dynamics with Landis-II. Presented at Landis-II Workshop, January 11-13 2010, Madison, WI.
- 2009 **Foster J.R.**, Scheller R.M. and D.J. Mladenoff. Forest insect defoliation and carbon dynamics: simulating multiple defoliator species in shared landscapes with Landis-II. Presented at 7th Annual North American Forest Ecology Workshop, June 22-26 2009, Logan, UT.
- 2008 **Foster J.R.** and D.J. Mladenoff. A review and synthesis of multispecies growth suppression and mortality responses to forest canopy defoliator outbreaks. Presented at 93rd Annual Meeting of the Ecological Society of America (ESA), August 3-8 2008. Milwaukee, WI.
- 2007 **Foster, J.R.**, Scheller R., Townsend P.A., and D.J. Mladenoff. Geostatistical analysis of satellite mapped defoliation intensity: Integrating results and modeling defoliation effects on above-ground biomass. Presented at the annual meeting of U.S. Regional Association of the International Association of Landscape Ecology (IALE). April 9-13 2007. Tucson, AZ.
- 2006 **Foster, J.R.**, Mladenoff D.J. and R.M. Scheller. Modeling insect defoliation outbreaks and their effects on carbon dynamics of forested landscapes. Landis II Developer's Workshop. Madison, Wisconsin.

CONFERENCES

- Annual Meeting of the Ecological Society of America (ESA) August 2023. Portland, OR.
- International Association Landscape Ecology (IALE) – North America, March 2023. Riverside, CA.
- American Geophysical Union (AGU) Fall Meeting, Dec. 13-16, 2021, New Orleans, LA, USA.
- North American Forest Ecology Workshop (NAFEW) June 2019. Flagstaff, AZ.
- American Geophysical Union (AGU) Fall Meeting Dec. 2018. Washington, D.C.
- ForestSAT 2018. College Park, MD.
- American Geophysical Union (AGU) Fall Meeting Dec. 2017. New Orleans, LA.
- American Geophysical Union (AGU) Fall Meeting Dec. 2016. San Francisco, CA.
- ECANUSA Conference, September 30-October 1 2016. Burlington, VT.
- 101st Annual Meeting of the Ecological Society of America (ESA) August 2016. Ft. Lauderdale, FL.

9th IALE World Congress, July 5-10 2015. Portland, OR.
American Geophysical Union (AGU) Fall Meeting 2014. San Francisco, CA.
98th Annual Meeting of the Ecological Society of America (ESA) August 2013. Minneapolis, MN.
9th North American Forest Ecology Workshop (NAFEW) June 2013. Bloomington, IN.
97th Annual Meeting of the Ecological Society of America (ESA) August 2012. Portland, OR.
95th Annual Meeting of the Ecological Society of America (ESA) August 2010. Pittsburgh, PA.
27th International Association Landscape Ecology Symposium (IALE) April 2012. Newport, RI.
25th International Association Landscape Ecology Symposium (IALE) April 2010. Athens, GA.
7th North American Forest Ecology Workshop (NAFEW). June 2009. Logan, UT.
93rd Ecological Society of America (ESA) Annual Meeting. August 2008. Milwaukee, WI.
23rd International Association Landscape Ecology Symposium (IALE) April 2008. Madison, WI.
22nd International Association Landscape Ecology Symposium (IALE) April 2007. Tucson, AZ.
14th Central Hardwoods Forest Conference. March 2004. Wooster, OH.
11th AVIRIS Earth Sciences and Applications Workshop. March 2002. Pasadena, CA.
NASA EO-1 Science Validation Team Meeting. November 2002. Hilo, HI.
NASA EO-1 Science Validation Team Meeting. April 2002. Greenbelt, MD.
NASA EO-1 Science Validation Team Meeting. May 2001. Tucson, AZ.

SPECIAL TRAINING AND WORKSHOPS

Disturbance and Vegetation Dynamics in Earth System Models Workshop, US Dept. of Energy Office of Science Office of Biological and Environmental Research, March 15-16, 2018, Gaithersburg, MD.

Visionary Meeting on Understanding and Forecasting the Impact of Climate Change on Maine's Forest, 2016, Portland, ME.

Climate Ecology and Tree Growth Workshop, 2016, Harvard Forest, Petersham, MA.

Expert Panel for a Forest Ecosystem Vulnerability Assessment, 2016, USFS Burlington, VT.

Next Generation Climate Data Products Workshop, 2013, NCAR, Boulder, CO.

A Brief Introduction to Bayesian and Hierarchical Bayesian Modeling in Ecology, 2013, ESA Minneapolis, MN.

7th North American Dendroecological Fieldweek, 2007, Great Smoky Mountains NP, TN.

3rd Landis-II Workshop, January 11-13 2010, Madison, WI.

2nd Landis-II Workshop, October 2007, Woodruff, WI.

1st Landis-II Developer's Workshop, October 2006, Madison, WI.

Introduction to IDL (IDL 100 – 3 days). 2001. Herndon, VA.

SKILLS

Statistical programming expertise in R, SAS, Stan, Python, IDL. Official coursework: Statistical Methods for Biosciences I and II, Spatial Statistics, Multivariate Analysis in Landscape/Community Ecology, Sampling Methodology and Practice.

GIS and Image processing/programming expertise using ENVI, IDL, Google Earth Engine Javascript API, ArcGIS, ArcInfo,

R, Python, ERDAS Imagine, ERMapper.

Ecological Modeling and programming experience with LANDIS-II (in C#), PnET-II.

Bayesian modeling experience with rStan, GJAM.

PROFESSIONAL AFFILIATIONS

American Geophysical Union

Ecological Society of America

International Association of Landscape Ecologists – U.S. Chapter

American Association for the Advancement of Science

SERVICE

Steering Committee, Southern Appalachian Spruce Restoration Initiative (SASRI) 2023-

Graduate Student Departmental Representative, 2007-2010

Journal referee

Plos ONE 2016

Ecological Applications 2015, 2017, 2022, 2023

Ecological Modelling

Ecosphere 2015, 2017

Environmental Modelling & Software 2015

Ecology 2014

Landscape Ecology 2014, 2016

Oecologia 2013

Oikos 2017

Ecological Monographs 2013

Canadian Journal of Forest Research 2012, 2018, 2019, 2022,2023

Remote Sensing of Environment 2006, 2007, 2010

Trees Structure and Function 2017

Forest Ecology and Management 2005, 2015

IEEE Transactions on Geoscience and Remote Sensing, 2003