

Stephen J. Murphy

Center for Conservation and Sustainable Development

Missouri Botanical Garden

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Google Scholar Profile (<https://bit.ly/2vZLv8H>)

EDUCATION

Ph.D. 2018, The Ohio State University (Columbus, OH); Evolution, Ecology, & Organismal Biology, with a Graduate Minor in Statistical Data Analysis.

Advisor: Liza S. Comita

M.S. 2012, Ohio University (Athens, OH); Environmental and Plant Biology

Advisor: Brian C. McCarthy

B.S. 2009, Denison University (Granville, OH); Biology

Advisor: Andrew C. McCall

APPOINTMENTS

Current Postdoctoral Fellow in Spatial Ecology, Missouri Botanical Garden

2018 Adjunct Faculty, Otterbein University

2017 Presidential Fellow, The Ohio State University

2012-2016 Graduate Teaching Assistant, The Ohio State University– 4 semesters

Graduate Research Assistant, The Ohio State University– 3 semesters

Visiting Assistant in Research, Yale University (New Haven, CT) – 4 semesters

2010-2012 Graduate Research Assistant, Ohio University – 1 quarter

Graduate Teaching Assistant, Ohio University – 5 quarters

2010 Forest Monitoring Technician, Penn State University & The National Park Service

2009 Forest Ecology Intern, Highstead Inc. (Redding, CT)

2008-2009 Teaching Assistant, Denison University – 3 semesters

2008 Summer Research Technician, University of Maryland (Blandy Farm in Boyce, VA)

TEACHING

Otterbein University

Introduction to Organismal Biology and Ecology (BIO 1020)

The Ohio State University

Introduction to the Science of Biology (BIOL 1101); Human Biology (BIOL 1102);

Ecology (EEOB 3410)

Ohio University

Plant Ecology (PBIO 209); Introduction to Biology (BIOL 101); Sustainable Agriculture (T3 402B); Biostatistics (PBIO 415/515)

Denison University

Ecology and Evolution (BIOL 201), Plant Reproduction & Evolution (BIOL 300)

PUBLICATIONS

12. McCall, A.C., S. Case, K. Espy, G. Adams, **S.J. Murphy**. 2018. Leaf herbivory induces resistance against florivores in *Raphanus sativus*. **Botany** 96: 337–343.
11. **Murphy, S.J.**, T. Wiegand, L.S. Comita. 2017. Distance-dependent seedling mortality and long-term spacing dynamics in a neotropical forest community. **Ecology Letters** 20:1469–1478.
10. Fotis, A.T., **S.J. Murphy**, R.D. Ricart, M. Krishnadas, J. Whitacre, J.W. Wenzel, S.A. Queenborough, L.S. Comita. 2018. Aboveground biomass is driven by mass-ratio effects and stand structural attributes in a temperate deciduous forest. **Journal of Ecology** 106:561–570.
9. Audino, L.D., **S.J. Murphy**, L. Zambaldi, J. Louzada, L.S. Comita. 2017. Drivers of community assembly in tropical forest restoration sites: role of local environment, landscape and space. **Ecological Applications** 27:1731–1745.
8. **Murphy, S.J.** and B.C. McCarthy. 2017. Neighborhood interactions and local edaphic gradients have a weak influence on long-term vegetation dynamics in an old-growth forest community. **Forest Ecology & Management** 389:314–322.
7. **Murphy, S.J.**, K. Xu, L.S. Comita. 2016. Tree seedling richness, but not neighborhood composition, influences insect herbivory in a temperate deciduous forest community. **Ecology and Evolution** 6:1–10.
6. **Murphy, S.J.**, K. Salpeter, L.S. Comita. 2016. Higher β -diversity observed for herbs over woody plants is driven by stronger habitat filtering in a tropical understory. **Ecology** 97:2074–2084.
5. **Murphy, S.J.**, L.D. Audino, J. Whitacre, J. Eck, J.W. Wenzel, S.A. Queenborough, and L.S. Comita. 2015. Species associations structured by environment and land-use history promote beta-diversity in a temperate forest. **Ecology** 96:705–715.
4. Comita, L.S., S.A. Queenborough, **S.J. Murphy**, J. Eck, K. Xu, M. Krishnadas, N. Beckman, Y. Zhu. 2014. Testing predictions of the Janzen-Connell hypothesis: A meta-analysis of experimental evidence for distance- and density-dependent seed and seedling survival. **Journal of Ecology** 102:845–856.
3. **Murphy, S.J.** and B.C. McCarthy. 2014. Temporal change in the herbaceous understory community of an old-growth forest: from seasons to decades. **Plant Ecology** 215:221–232.
2. McCall, A.C., **S.J. Murphy**, C. Venner, and M. Brown. 2012. Florivores prefer white over pink petal color morphs in wild radish (*Raphanus sativus*). **Oecologia** 172:189–195.
1. **Murphy, S.J.** and B.C. McCarthy. 2012. Evidence for topographic control of tree spatial patterning in an old-growth, mixed mesophytic forest in southeastern Ohio, USA. **Journal of the Torrey Botanical Society** 139:181–193.

AWARDS AND SCHOLARSHIPS

2017 <i>Forests</i> Graduate Student/Post-Doc Travel Award	\$800
2017 Presidential Fellowship Award, Ohio State University	3 semesters of support
2016 Ray Travel Award, Ohio State University	\$1,000
2016 Rea Fellowship, Carnegie Museum of Natural History	\$6,000
2016 Alumni Grant for Graduate Research and Scholarship, Ohio State University	\$1,958
2016 Osburn Scholarship for excellence in research, Dept. of EEOB, O.S.U.	\$1,679
2015 Rea Fellowship, Carnegie Museum of Natural History	\$6,000
2015 Botany-in-Action Fellowship, Phipps Conservatory	\$5,000

2014 Grant-in-aide of Research, Sigma Xi Research Society	\$700
2014 Beatley Fund Award, Dept. of EEOB, Ohio State University	\$1,200
2014 Botany-in-Action Fellowship, Phipps Conservatory	\$5,000
2013 Rea Fellowship, Carnegie Museum of Natural History	\$6,000
2012 PA Botany Symposium Small Scholarship, PA Natural Heritage Program	\$75
2012 J.T. Callahan Student Travel Award, E.S.A. Long-term Studies Section	\$300
2012 Best poster presentation in plant biology at the 2012 Ohio University Student Expo	\$150
2012 Plant Science Doctoral Fellowship, Michigan State University	<i>declined</i>
2012 Original Work Grant, Ohio University Graduate Student Senate	\$750
2011 Travel Grant, Ohio University Graduate Student Senate	\$500
2011 Original Work Grant, Ohio University Graduate Student Senate	\$750
2011 Applied Research Scholarship, Phi Delta Theta, Ohio University chapter	\$1,115

PUBLISHED ABSTRACTS

10. Murphy, S.J., J.W. Wenzel, L.S. Comita. 2017. Multiple interactive drivers influence seedling demography in a temperate forest. **102nd Annual Meeting of the Ecological Society of America**, Portland, OR.
9. Murphy, S.J., T. Wiegand, L.S. Comita. 2016. Distance-dependent seedling mortality and the long-term spacing dynamics of a tropical tree community. **101st Annual Meeting of the Ecological Society of America**, Ft. Lauderdale, FL.
8. Murphy, S.J., K. Salpeter, L.S. Comita. Higher beta-diversity observed for herbs than for woody species in a neo-tropical forest understory is driven by stronger resource-based habitat filtering. 2015. **100th Annual Meeting of the Ecological Society of America**, Baltimore, MD.
7. Murphy, S.J., L.D. Audino, J. Whitacre, J. Eck, J. Wenzel, S.A. Queenborough, and L.S. Comita. 2014. Species associations structured by environment, space, and land-use history promote beta-diversity in a mixed species forest community. **99th Annual Meeting of the Ecological Society of America**, Sacramento, CA.
6. Murphy, S.J., L.D. Audino, J. Whitacre, J. Eck, J.W. Wenzel, S.A. Queenborough, and L.S. Comita. 2014. Species associations structured by environment, space, and land use history promote beta-diversity in a mixed species forest community. **Midwest Ecology and Evolution Conference**, Dayton, Ohio.
5. Murphy, S.J. and B.C. McCarthy. 2012. Modeling fifteen-year patterns in the growth, mortality, and regeneration of trees in an old-growth, mixed-mesophytic forest. **97th Annual Meeting of the Ecological Society of America**, Portland, OR.
4. Murphy, S.J. and B.C. McCarthy. 2012. Compositional shifts in the vegetation of an old-growth forest (Dysart Woods) over 15 years. **73rd Annual Meeting of the Association of Southeastern Biologists**, Athens, GA.
3. Murphy, S.J. and B.C. McCarthy. 2011. The Effects of Slope-aspect on the Spatial Patterning of a Mixed Mesophytic Old-growth Forest. **The 72nd Annual Meeting of the Association of Southeastern Biologists**, Huntsville, AL.
2. Murphy, S.J. and McCarthy, B.C. 2011. The Effects of Slope-aspect on the Spatial Patterning of a Mixed Mesophytic Old-growth Forest. **96th Annual Meeting of the Ecological Society of America**, Austin, TX.

1. Murphy, S.J. and A.C. McCall. 2009. The Effects of Petal Color and Inducible Defenses on Floral Herbivory. **Midwest Ecology and Evolution Conference**, Lincoln, NE.

OTHER PRESENTATIONS

18. Murphy, S.J. 2018. Mechanisms and maintenance of local biodiversity in temperate and tropical forests. Missouri Botanical Garden, St. Louis, MO. **(invited)**
17. Murphy, S.J. 2017. Understory dynamics in a tropical forest community. Dept. of EEOB Darwin Awards Presentations, Ohio State University, Columbus, OH.
16. Murphy, S.J. Species associations structured by environment and land-use history promote beta-diversity at Powdermill Nature Reserve. 2016. Eastern Forest Dynamics Symposium, Carnegie Museum of Natural History, Powdermill Nature Reserve, Rector, PA.
15. Murphy, S.J. Introduction to Biogeography. 2016. Guest Lecture, Ecology (BIOL 2020), Dept. of Biology and Earth Science, Otterbein University, Westerville, OH.
14. Murphy, S.J. Spatial patterns and dynamics of tropical and temperate forests. 2016. Department of Biology and Earth Science Seminar Series, Otterbein University, Westerville, OH. **(invited)**
13. Murphy, S.J. Taking advantage of existing datasets in ecology and evolution. 2016. OSU Dept. of EEOB Graduate Student Forum, Columbus, OH.
12. Murphy, S.J. The forests of southwestern Pennsylvania: a changing landscape. 2016. Monthly meeting of the Botanical Society of Western Pennsylvania, Pittsburgh, PA. **(invited)**
11. Murphy, S.J., K. Salpeter, L.S. Comita. 2015. Higher beta-diversity observed for herbs than for woody species in a neo-tropical forest understory is driven by stronger resource-based habitat filtering. National Center for Ecological Analysis and Synthesis (NCEAS) working group meeting, Guangzhou, China.
10. Murphy, S.J., T. Wiegand, L.S. Comita. 2015. Using point pattern analysis to study distance-dependent mortality of tropical tree seedlings on BCI, Panama. National Center for Ecological Analysis and Synthesis (NCEAS) working group meeting, Leipzig, Germany.
9. Murphy, S.J. Unraveling pattern and process in a temperate forest in southwestern Pennsylvania. 2015. School of Forestry and Environmental Science, Yale University, New Haven, CT.
8. Murphy, S.J. 2014. Species associations structured by environment, space, and land-use history promote beta-diversity in a mixed species forest community. Dept. of EEOB Darwin Awards Presentations, Ohio State University, Columbus, OH.
7. Murphy, S.J. and L.S. Comita. 2013. Using trivariate random labeling to study distance-dependent mortality of tropical tree seedlings on BCI. National Center for Ecological Analysis and Synthesis (NCEAS) working group meeting, Santa Barbara, CA.
6. Murphy, S.J. and B.C. McCarthy. 2012. Compositional shifts in the woody and herbaceous vegetation of Dysart Woods. 2012 Ohio University Student Expo, Athens, OH.
5. Murphy, S.J. 2011. Failed oak regeneration in the Eastern Deciduous Forest: mechanisms and consequences. Guest Lecture, Plant Ecology (BIOL 321), Denison University, Granville, OH.
4. Murphy, S.J. 2011. Introduction to bootstrapping techniques. Guest Lecture, Quantitative Methods in Plant Biology (PBIOL 515), Ohio University, Athens, OH.

3. Murphy, S.J. and B.C. McCarthy. 2011. The effects of slope-aspect on the spatial patterning of an old-growth forest. 2011 Ohio University Student Expo, Athens, OH.
2. Murphy, S.J. 2009. Changes in abundance and distribution of invasive plant species after 5 years. Highstead Summer Intern Symposium, Highstead, Inc., Redding, CT.
1. Murphy, S.J. 2009. Preference and performance of florivores on wild radish (*Raphanus sativus*). Denison University Senior Research Symposium, Granville, OH.

WORKING GROUPS

National Center for Ecological Analysis and Synthesis (NCEAS), 2013–2015, “Dance with Neighbors: what have we learned about species coexistence in tree communities from the global stem-mapped forest plots?”
 Organizers: Fangliang He, Thorsten Wiegand, Stephen Hubbell, Richard Condit.
 Meetings held in Santa Barbara, CA, Leipzig, Germany, and Guangzhou, China.

MEMBERSHIPS

The Ecological Society of America
 Sigma Xi Research Society
 Phi Kappa Phi Honor Society
 Golden Key International Honour Society
 Ohio Ornithological Society

SERVICE AND OUTREACH

Peer reviews completed for over 30 manuscripts at over 20 journals:

Ecology (2), *Journal of Ecology* (5), *Functional Ecology* (1), *Journal of Biogeography* (1), *Oecologia* (2), *PLoS One* (1), *Annals of Botany* (1), *Plant Ecology* (2), *Journal of Vegetation Science* (1), *Ecological Indicators* (1), *Ecological Modelling* (1), *Forest Ecology and Management* (1), *Ecological Research* (1), *Carbon Balance and Management* (1), *Journal of Forestry Research* (1), *Plant and Soil* (1), *Ecology and Evolution* (1), *Forests* (8), *Biotropica* (1), *Journal of Tropical Ecology* (1), *Journal of Mountain Science* (1), *Acta Oecologia* (1).

Students mentored: Kaiyang Xu (OSU and Yale; 2013-2015)
 Undergraduate field technicians supervised: Kaiyang Xu (OSU), Andrew Marlin (Notre Dame), Vincent Karr (Ashland College), David Eshelman (Juniata College).

Seminar Committee, Dept. Evolution, Ecology & Organismal Biology, Ohio State (2016–2017)
 Invited participant, Phipps Botany-in-action outreach training workshop (2014)
 Diversity Committee, Dept. Evolution, Ecology & Organismal Biology, Ohio State (2015–2016)
 Treasurer, Graduate Ecology and Evolution Student (GEES) organization (2014–2015)
 Judge, O.S.U. Natural and Mathematical Sciences Undergraduate Research Forum (2013-2015)
 Judge, O.S.U. Denman Undergraduate Research Forum (2013-2015)
 Volunteer, The Ohio State University Museum of Biological Diversity Open House (2013–2016)

Volunteer, after-school nature program at Trimble Elementary School (2011)
Volunteer, American Chestnut Foundation (2011 – 2012)
Committee member, Ohio University Dept. of Plant Biology Awards Committee (2011–2012)

GRADUATE COURSEWORK

@The Ohio State University

Nonparametric Statistics, STAT 6610
Applied Multivariate Statistics, STAT 6560
Statistical Data Analysis II, STAT 5320
Statistical Data Analysis I, STAT 5310
Quantitative Population Ecology, EEOB 5450
Seminars, EEOB 8896:
 Careers for PhDs
 Plant Inventory and Analysis
 Species Coexistence in Plant Communities
 Agent-based Modelling
 Applied Quantitative Modelling
 Plants and Climate Change

@Ohio University

Biostatistics II, BIOS 870
Quantitative Methods in Plant Biology, PBIO 515
Vascular Plant Morphology, PBIO 508
Landscape Ecology, GEOG 517
Plant Physiological Ecology, PBIO 526
Plant Population Biology, PBIO 535
Plant Cell Biology, PBIO 531
Research Ethics, PBIO 517
Soil Ecology, PBIO 514
Topics in Ecology and Evolution, PBIO 599
Writing in the Life Sciences, PBIO 518

ADDITIONAL COURSES, PROGRAMS, AND WORKSHOPS

- 2015 Preparing Future Faculty, The Ohio State University. Faculty mentor: Sarah Bouchard (Otterbein University).
- 2015 Hierarchical Bayesian analysis of species abundance and distribution workshop. Program in Spatial Biodiversity Science & Conservation, Yale University.
- 2014 Dendroecology, 2-week intensive course. Tree Ring Laboratory, University of Arizona.
- 2008 Tropical Biology, 4-week course. DANTA: association for conservation of the tropics.