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## J. MASON HEBERLING

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### EDUCATION

- 2015      **Ph.D.** in Biology, Syracuse University, Syracuse, NY  
*Functional traits and resource-use strategies of native and invasive plants in Eastern North American forests*  
Advisor: Jason Fridley
- 2010      **B.S.** in Biology (Statistics minor), highest distinction,  
Penn State University, University Park, PA  
Mentor: Katriona Shea
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### PROFESSIONAL EXPERIENCE

- 2017-2018      **NSF Postdoctoral Fellow**, Carnegie Museum of Natural History  
Pittsburgh, PA  
Sponsors: Stephen Tonsor & Susan Kalisz
- 2017-present      **Research Assistant Professor**, Ecology and Evolutionary Biology  
University of Tennessee Knoxville
- 2016-present      **Research Associate**, Botany, Carnegie Museum of Natural History
- 2015-2016      Postdoctoral Research Associate, Ecology and Evolutionary Biology  
University of Tennessee Knoxville  
Mentor: Susan Kalisz
- 2014-2016      Visiting Scholar, Dept. of Biological Sciences, University of Pittsburgh
- 2010-2015      PhD candidate, Department of Biology, Syracuse University, Syracuse, NY
- 2008-2010      Research Assistant, Department of Biology, Penn State, University Park, PA  
Mentor: Katriona Shea
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## GRANTS, FELLOWSHIPS, AND AWARDS

- 2018-2021 NSF Advancing Digitization of Biodiversity Collections (ADBC)  
*Digitization PEN: Connecting Rust Belt dynamics to the Mid-Atlantic Megalopolis Project utilizing the Carnegie Museum herbarium* (PI, with Bonnie Isaac, Carnegie Museum) \$173,614
- 2017-2018 NSF Postdoctoral Research Fellowship in Biology, Research using Collections  
*Leveraging centuries of herbarium data to track invasion processes: functional trait shifts, local adaptation, and rapid evolution*
- 2016 Alexander Gourevitch Memorial Award, Dept. of Biology, Syracuse University
- 2015 All University Doctoral Prize, College of Arts and Sciences, Syracuse University
- 2012-2015 NSF Graduate Research Fellowship
- 2010-2012 Syracuse University Graduate Fellowship
- 2011 Conference Travel Grant, Department of Biology, Syracuse University
- 2009-2010 Morrow Family Endowed Prize, Penn State Eberly College of Science
- 2009 NSF Research Experience for Undergraduates (REU)
- 2009 Summer Discovery Grant, Office of Undergraduate Education, Penn State  
(Declined award for other funding)
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## PUBLICATIONS (peer-reviewed, submitted, or advanced stages in prep)

- In prep Hedrick, B. P.\*, **Heberling, J. M.**+, Meineke, E.+, Turner, K. G.+, Grassa, C. J., Kennedy, J., Clarke, J., Cook, J., Edwards, S. V., Davis, C. The future of natural history collection digitization. Target: *PNAS*.  
+ = contributed equally
- Heberling, J.M.**, McDonough Mackenzie, C., Fridley, J.D., Kalisz, S. & Primack, R.B. Phenological mismatch with trees reduces wildflower carbon budgets.
- In review **Heberling, J.M.**, Burke, D.J. Utilizing herbarium specimen roots to quantify historical mycorrhizal communities. Target: *Applications in Plant Sciences*
- Heberling, J.M.**, Prather L.A. & Tonsor, S.J. The changing uses of herbarium data in an era of global change.
- Heberling, J.M.** & Isaac, B.L. iNaturalist as a tool to expand the research value of museum specimens. Target: *Applications in Plant Sciences*

- Shouman, S., Mason, N.W.H., **Heberling, J.M.**, Kichey, T., Closset-Kopp, D., Kobeissi, A. & Decocq, G. Leaf functional traits at home and abroad: a community perspective of sycamore maple invasion.
- 2018 **Heberling, J.M.**, Cassidy, S., Fridley, J.D. & Kalisz, S. Carbon gain phenologies of spring-flowering perennials in a deciduous forest indicate a novel niche for a widespread invader. *New Phytologist*, in press
- Heberling, J.M.** & Mason, N.W.H. Are endemics functionally distinct?: Leaf traits of native and invasive woody species in a New Zealand forest. *PLOS ONE* 13(5):e0196746
- 2017 Shouman, S., Mason, N.W.H., Kichey, T., **Heberling, J.M.**, Closset-Kopp, D. & Decocq, G. Functional shift of sycamore (*Acer pseudoplatanus* L.) towards greater plasticity and shade tolerance in its invasive range. *Perspectives in Plant Ecology, Evolution, & Systematics* 29: 30-40.
- Heberling, J.M.** & Isaac, B.L. Herbarium specimens as exaptations: new uses for old collections. *American Journal of Botany*. 104(7): 963-965.
- Wavrek, M., **Heberling, J.M.**, Fei S & Kalisz, S. Herbaceous invaders in temperate forests: a systematic review of their ecology and proposed mechanisms. *Biological Invasions* 19(11): 3079-3097.
- Heberling, J.M.**, Brouwer, N.L. & Kalisz, S. Effects of deer on the photosynthetic performance of invasive and native forest herbs. *AoB PLANTS Special Issue: Interactions between white-tailed deer and invasive plants in North American forests*. 9: plx011.
- Heberling, J.M.**, Jo, I., Kozhevnikov, A., Lee, H. & Fridley, J.D. Biotic interchange in the Anthropocene: strong asymmetry in East Asian and eastern North American plant invasions. *Global Ecology and Biogeography*, 26: 447-458.
- 2016 **Heberling, J.M.** & Fridley, J.D. Invaders do not require high resource levels to maintain physiological advantages in a temperate deciduous forest. *Ecology* 97: 874-884
- Heberling, J.M.**, Kichey, T., Decocq, G. & Fridley, J.D. Plant functional shifts in the invaded range: a test with reciprocal forest invaders of Europe and North America. *Functional Ecology* 30: 875-884
- 2013 **Heberling, J.M.** & Fridley, J.D. Resource-use strategies of native and invasive plants in Eastern North American forests. *New Phytologist* 200: 523-533.
- 2012 **Heberling, J.M.** & Fridley, J.D. Biogeographic constraints on the worldwide leaf economics spectrum. *Global Ecology and Biogeography* 21: 1137-1146.

- Siefert, A., Ravenscroft, C., Althoff, D., Alvarez-Yapiz, J., Carter, E., Glennon, K., **Heberling, J.M.**, Jo, I., Pontes, A., Sauer, A., Willis, A. & Fridley, J.D. Scale dependence of vegetation-environment relationships: a meta-analysis of multivariate data. *Journal of Vegetation Science* 23: 942-951.
- 2011 Russo, L., Stehouwer, R., **Heberling, J.M.** & Shea, K. The composite insect trap: an innovative combination trap for biologically diverse sampling. *PLoS ONE* 6(6): e21079.
- Zhang R., **Heberling, J.M.**, Haner, E. & Shea, K. Tolerance of two invasive thistles to repeated disturbance. *Ecological Research* 26: 575-581.
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**PUBLISHED ABSTRACTS** (first author only)

- 2018 **Heberling, J.M.**, Tonsor, S.J. & Prather, L.A. “The changing roles of herbaria in an era of global change: A systematic review” Ecological Society of America Annual Meeting, New Orleans, LA, USA. Organized Oral Session: “New Uses For Old Collections: Herbarium Data in an Era of Ecological Change” (co-organized with S. Tonsor and A. Prather) <https://eco.confex.com/eco/2018/meetingapp.cgi/Session/14000>
- 2017 **Heberling, J.M.** “The changing roles of herbaria in an era of global change” International Council of Museums Committee for Museums and Collections of Natural History (ICOM NAT HIST) Meeting, Pittsburgh, PA, USA.
- Heberling, J.M.** “Old collections with new uses: the roles of herbaria in the Anthropocene” Northeast Natural History Conference, Cromwell, CT, USA.
- 2016 **Heberling, J.M.** & Kalisz, S. “Physiological mechanisms behind *Alliaria petiolata* success and native decline: deer increase invader photosynthetic rates” 101th Ecological Society of America Annual Meeting, Ft. Lauderdale, FL, USA.
- Heberling, J.M.**, Brouwer, N.L. & Kalisz, S. “Plant invasion mediated by deer overabundance: linking demographic patterns and ecophysiological mechanisms” Botany 2016 Meeting (Botanical Society of America), Savannah, GA, USA.
- 2015 **Heberling, J.M.** & Fridley, J.D. “Physiological ecology of forest invaders along experimental light and nutrient gradients: does invader advantage depend on disturbance?” 100th Ecological Society of America Annual Meeting, Baltimore, MD, USA.
- 2014 **Heberling, J.M.**, Kichey, T., Decocq, G., Fridley, J.D. "Pre-adapted to invade? Resource-use strategies of reciprocal woody invaders in

Northeastern US and France." Northeast Natural History Conference, Springfield, MA, USA.

- 2013 **Heberling, J.M.** & Fridley, J.D. "Functional comparisons of native and invasive plants in Eastern North American forests: do they differ in resource-use strategies?" 56th International Association of Vegetation Science Annual Symposium, Tartu, Estonia.
- 2012 **Heberling, J.M.** & Fridley, J.D. "East Asian plants in Eastern US forests: Are invaders pre-adapted for more efficient resource use?" International symposium on the East Asian flora and its role in the formation of the world's vegetation. Botanical-Garden Institute, Russian Academy of Sciences, Vladivostok, Russia.
- 2011 **Heberling, J.M.** & Fridley, J.D. "Biogeographic constraints on the worldwide leaf economic spectrum." 96th Ecological Society of America Annual Meeting, Austin, TX, USA.
- 2010 **Heberling, J.M.**, Russo, L., Yang, S. & Shea, K. "Complex plant community responses to invasion by the thistle *Carduus acanthoides*." 95th Ecological Society of America Annual Meeting, Pittsburgh, PA, USA.

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#### **INVITED PRESENTATIONS**

- 2017 NSF Postdoc Research Symposium, Harvard University, MA
- 2016 Botanical Society of Western Pennsylvania, Pittsburgh, PA  
Workshop on Biological Invasions in Forests, International Union of Forest Research Organizations, Shepherdstown, WV
- 2015 R.W. Moriarty Seminar Series, Carnegie Museum of Natural History
- 2014 Department of Biological Sciences, University of Pittsburgh, Pittsburgh, PA
- 2013 Ecology and Dynamics of Human Influenced Systems (EDYSAN), Université de Picardie Jules Verne, Amiens, France

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#### **TEACHING EXPERIENCE (ACADEMIC)**

- 2015 Instructor, Function and Structure of Organisms, Penn State New Kensington
- 2015 Guest lecturer, Population Biology, University of Pittsburgh
- 2014 Photosynthesis demonstration, Plant Biology, University of Pittsburgh
- 2013 Guest Lecturer, General Ecology, Onondaga Community College, Syracuse, NY

- 2012 Teaching assistant, Physiology Lab (advanced undergraduate), Syracuse University
- 2011 Teaching assistant, Introductory Biology, Syracuse University
- 2011-2014 Teaching fellow, Future Professoriate Program, Syracuse University
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## **OUTREACH**

- 2017-present *Collected On This Day* ([www.collectedonthisday.com](http://www.collectedonthisday.com))  
Weekly blog featuring specimens and collectors in the Carnegie Museum Herbarium. I work with CM staff to contribute these posts to various social media platforms (e.g., Facebook, Instagram, Tumblr). Facebook posts have reached an estimated 76,833 people (as of 8 Aug 2017).
- 2014 Scientist Demonstrator, West Genesee School District, Camillus, NY  
Conducted a research demonstration to eighth graders.
- 2012 Volunteer, Early College High School Summer Science Institute, with Department of Education, Syracuse University. Guided Syracuse 10-12th grade students through biology hands-on modules.
- 2012 High School Science Tutor, Say Yes to Education program, Nottingham High School, Syracuse City School District. Tutored individual students and small groups in Biology, Earth Science, and Algebra.
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## **ACADEMIC AND SCIENTIFIC SERVICE**

- 2011-present Reviewer for (29 manuscripts): *Oecologia* (x2), *New Phytologist*, *Plant Ecology*, *Photosynthesis Research*, *PLoS ONE* (x2), *Forest Ecology and Management*, *Functional Ecology* (x2), *American Journal of Botany* (x2), *Journal of the Torrey Botanical Society*, *Nature Plants*, *Biological Invasions* (x3), *Ecology Letters*, *Global Ecology and Biogeography* (x2), *Journal of Ecology*, *Journal of Plant Ecology*, *Diversity and Distributions*, *Journal of Vegetation Science* (x3), *Botanica Pacifica*, *International Journal of Plant Biology*, *Botanical Studies*, *Northeastern Naturalist* (x3)
- 2013-2014 Graduate Representative, Undergraduate Curriculum Committee, Department of Biology, Syracuse University
- 2013 Panelist, Pre-doctoral Fellowship Workshops, Office of Research, Syracuse University
- 2012 Vice President, Biology Graduate Student Organization, Syracuse University
- 2012 Library Committee Member and Biology Department Senator, Graduate Student Organization, Syracuse University

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**LABORATORY/TEACHING PROTOCOLS** (not peer-reviewed)

2013 Heberling, J.M. A practical guide to measuring leaf-level photosynthesis.  
[online resource: <https://sites.google.com/site/fridleylab/home/protocols>].

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**PROFESSIONAL AFFILIATIONS**

Ecological Society of America, International Association for Vegetation Science, Botanical Society of America

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