

## Jonathan T. Bauer – C.V.

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Assistant Professor  
Miami University  
Department of Biology &  
Institute for the Environment and Sustainability

Updated: October 26, 2018

### EDUCATION

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- Ph.D. Biology, Indiana University, 2014  
Advisor: Heather Reynolds
- M.S. Biology, Illinois State University, 2007  
Advisor: Roger Anderson
- B.S. Biology and Chemistry, Geography minor, Valparaiso University 2004

### POSITIONS

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- 2018 Assistant Professor  
Miami University  
Department of Biology &  
Institute for the Environment and Sustainability
- 2018 Post-doctoral Research Associate  
Michigan State University  
Advisor: Lars Brudvig
- 2016 – 2018 USDA-NIFA Post-doctoral Fellow  
Indiana University and Michigan State University  
Advisors: Lars Brudvig and James Bever
- 2014 – 2015 Post-doctoral Research Associate, Indiana University  
Advisor: James Bever
- 2012 – 2014 USDA-NIFA Pre-doctoral Fellow, Indiana University

### PUBLICATIONS

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- Koziol L, PA Schultz, G House, **JT Bauer**, E Middleton, and JD Bever. *In Press*. Plant microbiome and native plant restoration: The example of mycorrhizal fungi. *Bioscience*
- Bach, EM, G Narvaez-Rivera, K Murray, **JT Bauer**, and KS Hofmockel. 2018. The dynamic life of arbuscular mycorrhizal fungal symbionts. *Ecology* 99:978-979
- Bauer JT**, L Koziol and JD Bever. 2018. Ecology of Floristic Quality Analysis: testing for correlations between coefficients of conservatism, species traits, and mycorrhizal responsiveness. *AoB Plants* 10:plx073
- Flory, SF, **JT Bauer**, RP Phillips, and K Clay. 2017. Effects of a non-native grass decline with succession. *Journal of Ecology* 105:1475–1484

- Whitaker, BW, **JT Bauer**, K Clay, and JD Bever. 2017. Negative plant-phylosphere feedbacks in native Asteraceae hosts – a novel extension of the plant-soil feedback framework. *Ecology Letters* 20:1064-1073
- Bauer JT**, AJ Miller, N Blumenthal, JK Ferguson, and HL Reynolds. 2017. Microbial legacy effects vs. plant-soil feedbacks: Effects on plant community composition and productivity. *Journal of Applied Ecology* 54:1028:1039
- Brudvig, LA, RS Barak, **JT Bauer**, TT Caughlin, DC Laughlin, L Larios, JW Matthews, KL Stuble, NE Turley, and CR Zirbel. 2017. Interpreting variation to advance predictive restoration science. *Journal of Applied Ecology* 54:1018-1027
- Bauer, JT** and HL Reynolds. 2016. Restoring native understory to a woodland invaded by *Euonymus fortunei*: multiple factors affect success. *Restoration Ecology* 24:45-52
- Bauer, JT**, KLM Mack, and JD Bever. 2015. Plant-soil feedbacks as drivers of succession: Evidence from remnant and restored tallgrass prairies. *Ecosphere* 6:158
- Lankau, RA, **JT Bauer**, MR Anderson and RC Anderson. 2014. Long-term legacies and partial recovery of mycorrhizal communities after invasive plant removal. *Biological Invasions* 16:1979-1990
- Shannon, SM, **JT Bauer**, WE Anderson, HL Reynolds. 2014. Invasive shrubs reduce arbuscular mycorrhizal colonization in Eastern deciduous forest mesocosms. *Plant Ecology* 382:317-328
- Flory, SL and **JT Bauer**. 2014. Experimental evidence for indirect facilitation among invasive plants. *Journal of Ecology* 102:12-18
- Bauer, JT**, NM Kleczewski, JD Bever, K Clay and HL Reynolds. 2012. Nitrogen-fixing bacteria, arbuscular mycorrhizal fungi and the productivity and structure of prairie grassland communities. *Oecologia*. 170:1089-1098
- Bauer, JT**, SM Shannon, RE Stoops, and HL Reynolds. 2012. Context dependency of the allelopathic effects of *Lonicera maackii* on seed germination. *Plant Ecology*. 213:1907–1916
- Bauer, JT** 2012. Invasive species: Back-seat drivers of ecosystem change? *Biological Invasions*. 7:1295-1304
- Kleczewski, NM, **JT Bauer**, K Clay, J Bever and HL Reynolds. 2012. A survey of endophytic fungi of switchgrass (*Panicum virgatum*) and their putative roles in plant growth. *Fungal Ecology*.5:521-529

- Herold, J, MR Anderson, **JT Bauer**, V Borowicz and RC Anderson. 2011. Comparison of the effect of early and late removal of second-year garlic mustard (*Alliaria petiolata*) on first-year plants and deciduous forest spring and summer dominant herbaceous groundlayer species in central Illinois, USA. *Ecological Restoration*. 29:225-233
- Bauer, JT**, and SL Flory. 2011. Decline in a native species (*Senna hebecarpa*, Caesalpiniaceae) resulting from an experimental invasion of *Microstegium vimineum* (Poaceae). *American Midland Naturalist*. 165:1 105-115
- Anderson, RC, MR Anderson, **JT Bauer**, M Slater, J Herold, P Baumhardt, VA Borowicz. 2010. Effect of Removal of Garlic Mustard (*Alliaria petiolata* Brassicaceae) on Arbuscular Mycorrhizal Fungi Inoculum Potential in Forest Soils. *The Open Ecology Journal*. 3:41-47
- Bauer JT**, RC Anderson and MR Anderson. 2010. Competitive interactions among first-year and second-year plants of the invasive biennial garlic mustard (*Alliaria petiolata*) and native ground layer vegetation. *Restoration Ecology*. 18:5 720-728

*In Review*

- Crawford KM, **JT Bauer**, LS Comita, MB Eppinga, DJ Johnson, SA Mangan, SA Queenborough, AE Strand, KN Suding, J Umbanhowar, and JD Bever. Evolutionary history determines plant coexistence via pathogen-mediated plant-soil feedback

**GRANTS**

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Principal Investigator, unless otherwise noted

- NSF – REU supplements to DEB-1720899 CAREER: Resolving drivers of variation in grassland community assembly and restoration. PI: Lars Brudvig, I was a co-author of these REU proposals. \$7,350. 2017 & 2018
- USDA – National Institute of Food and Agriculture. Agriculture and Food Research Initiative Competitive Grant No. 2016-67012-24680. Ecosystem services and plant diversity in re-established grasslands; a study of restoration chronosequences. \$144,000. 2015
- NIMBioS Working Group. Theory of Plant-Soil Feedback: Phenomenological, Mechanistic and Spatial Models. PIs: James D. Bever and Maarten Eppinga, I was a co-author of this proposal. 2013
- USDA – National Institute of Food and Agriculture. Agriculture and Food Research Initiative Competitive Grant No. 2012-67011-19765. Effects of plant-microbial interactions on diversity, productivity and ecosystem services in native prairie species. \$62,369. 2012
- Indiana Academy of Science. Plant-soil feedback in tallgrass prairie: the role of AMF and rhizobia and the consequences for ecosystem function. \$651. 2012

Indiana Academy of Science. Plant-soil feedback in remnant and restored tallgrass prairie. \$1,608. 2010

Indiana University Sustainability Research Development Grant. Exotic Invasive Remediation in Dunn's Woods: Integrating Research, Teaching & Outreach for Sustainability. Co-author with Heather Reynolds, Roger Hangarter and Jim Capshew. \$10,000. 2010

Indiana Native Plant and Wildflower Society. Fighting Back: Using Native Species to Prevent Re-Invasion by Exotic Shrubs. \$497. 2009

Amos W. Butler Audubon Society. Fighting Back: Using Native Species to Prevent Re-Invasion by Exotic Shrubs. \$984.50. 2009

Illinois Native Plant Society. Effects of Garlic Mustard (*Alliaria petiolata*, Brassicaceae) Control on Native Plants and Intra-specific Competition Between First- and Second-year Garlic Mustard Plants. \$750. 2005.

#### **INVITED PRESENTATIONS**

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Restoring plant-microbe interactions. Miami University 2/1/2018

Restoring plant-microbe interactions. Eastern Washington University 1/19/2018

Restoring plant-microbe interactions. Penn State, Altoona 1/12/2018

Restoring plant-microbe interactions to the tallgrass prairie. Eastern Michigan University Biology Seminar 10/26/2017

Who's Driving? Invasive plant species as drivers, passengers, and backseat drivers. A panel discussion on invasive species management and ecosystem restoration. Indiana University 9/21/2017

Plant-microbe interactions in ecological restoration. Michigan State University, Eco-resource and Ecosystem restoration workshop for visiting scholars from Jiangnan University 8/14/2017

Plant-soil feedbacks and secondary succession: How feedbacks shape plant community response to disturbance and restoration efforts. Ecological Society of America Meeting 2017

Testing plant-soil feedback theory in ecological restoration. Minnesota State University, Mankato 2/6/2017

Life-history tradeoffs, plant microbial interactions, and the recovery and restoration of plant communities following anthropogenic disturbance. Ecological Society of America Meeting 2016

- Utilizing plant-microbial interactions to restore late-successional plant communities. Society for Ecological Restoration, Midwest-Great Lakes Chapter Annual Meeting 2016
- Plant-microbial interactions and life-history tradeoffs: implications for succession and restoration. Eastern Illinois University Biology Seminar. 2/23/2016
- Invasive species as back-seat drivers of environmental change: Complex interactions in the restoration of forest understories. Ohio Invasive Plants Research Conference. 2/11/2016
- Plant-microbial interactions in secondary succession and their application to ecological restoration. Illinois State University. Department of Biological Sciences Seminar. 9/17/2015
- Plant-microbial interactions in secondary succession and their application to ecological restoration. University of Illinois, Chicago. Ecology and Evolution Departmental Seminar. 9/8/2015
- Plant-soil feedbacks, soil microbial inoculations, and the restoration of native diversity. Ecological Society of America Meeting 2015
- Plant-soil feedbacks and tallgrass prairie restoration. North American Congress for Conservation Biology 2014
- Plant-microbe interactions in ecological restoration. Michigan State University 1/14/2014
- Invasive Species: Back-seat drivers of ecosystem change? Advance College Project workshop for high school biology teachers. Indiana University 11/4/2013.
- How do soil microbial communities affect ecological restoration? Southern Illinois University, Edwardsville. Biology Seminar. 4/8/2013.
- Invasive Plants: Cause or symptom of environmental change? Valparaiso University Biology Colloquium. 9/2/2011.
- Effects of four years of garlic mustard (*Alliaria petiolata*) removal on native vegetation and mycorrhizae. Ecology Society of America Meeting 2010

**CONTRIBUTED PRESENTATIONS**

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- Ecological Society of America Meetings 2006, 2009 – 2014, 2018  
Midwest-Great Lakes Society for Ecological Restoration 2017  
Indiana Academy of Science 2011 – 2014  
World Conference on Ecological Restoration 2013  
The Science Practice and Art of Restoring Native Ecosystems, Stewardship Network Conference 2013  
Society for Conservation Biology 2008  
Illinois State Academy of Science Annual Meeting 2005 – 2007

## TEACHING

Miami University – Assistant Professor 2018 – present  
2018 – IES 278 Food Systems

Indiana University – Associate Instructor 2008-2012  
Labs Taught: Biology of Birds, Biology for Elementary Education Majors

Teagle Collegium on Inquiry in Action Fellowship 2010-2011 – This was a competitive fellowship at Indiana University to train graduate students in the scholarship of teaching and learning. Fellows developed innovative teaching practices and collected evidence that these practices improve student learning. My project focused on volunteer retention and student learning in ecological restoration-focused service learning activities.

Adjunct Instructor (instructor of record), Brown Mackie College Michigan City 2007-2008  
Courses Taught: Statistics, Microbiology, Anatomy & Physiology, Algebra, Pre-Algebra

Teaching Assistant at Illinois State University 2004 – 2007  
Labs Taught: Concepts in Biology (non-majors biology), The Cellular and Molecular Basis of Life (intro biology for majors, semester 1), The Diversity of Life (intro biology for majors, semester 2), Ecology, Restoration Ecology

Teaching Assistant at Valparaiso University 2003-2004: Geomorphology

## MENTORING

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### Graduate Students

Sidney Nobel – M.S. Botany – 2018 – present  
Tristan Barley – M.En. – 2018 – present

### Undergraduate Research – Students and Projects:

Jenna Walters – Research Experience for Undergraduates (REU) Student – Pollen dispersal within and among prairie fragments  
Alexandrea Peake – REU Student – Pollination rates in restored tallgrass prairies.  
Anja Miller – Independent Research Project – Plant-soil feedback effects on rhizobia  
Noah Blumenthal – Independent Research Project – Plant-soil feedback effects on mycorrhizal fungi  
Rachel Irvine – Senior Thesis – Plant-soil feedbacks in native and invasive tallgrass prairie species  
Maia Kirk – Independent Research Project – AMF responses to different species of tallgrass prairie plants  
Austin Rutherford – Senior Thesis – Drought stress relations between *Euonymus fortunei* and native plant species  
Rebecca Stoops – Independent Research Project – small mammal effects on native plant restoration

## PROFESSIONAL SERVICE

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### Symposium Organizer:

- “Soil Microbial Communities as Facilitators of Ecosystem Restoration and Recovery” Ecological Society of American Meeting. Co-organized with Nina Wurzburger. 2016
- “Soil Microbes in Ecological Restoration” Midwest-Great Lakes Society for Ecological Restoration Annual Meeting 2016. Co-organized with Liz Koziol and Elizabeth Bach.
- “The (very) little things that run the world” Utilizing microbial communities to restore plant communities and ecosystem function. North American Congress for Conservation Biology 2014

Restoration Ecology Section of the Ecological Society of America  
Social Media Coordinator and Website Manager 2015 - present  
@ESArestore  
<http://www.esa.org/restorationecology/>  
Section Chair 2017 – present

### Peer Review:

Grant Proposals: Research Grants Council of Hong Kong, National Science Foundation DEB (2015 & 2016), USDA-NIFA Exploratory Research Program  
Conferences: Ecological Society of America Symposium Proposals (2017, 2018)  
Manuscripts: American Midland Naturalist (4), American Naturalist, Annals of Botany (2), *Annales Botanici Fennici*, Basic and Applied Ecology, Biological Invasions (5), Ecological Applications, Ecology (2), Ecology Letters, Environmental Microbiology, Forests, Fungal Ecology, Invasive Plant Science and Management (2), Journal of the Torrey Botanical Society (3), Journal of Ecology (2), Journal of Applied Ecology, Natural Areas Journal (2), *Oecologia* (2), *Oikos*, Plant Ecology (3), Proceedings of the Indiana Academy of Science, Plant and Soil (2), PLOS ONE (2), Restoration Ecology (2)