

EMILY GRMAN

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Department of Biology
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PROFESSIONAL PREPARATION

2014-present Assistant professor, Eastern Michigan University
2011-2014 Postdoctoral research associate, Michigan State University
2004-2011 Ph.D., Michigan State University
1999-2003 B.S. *summa cum laude*, Phi Beta Kappa, Beloit College

PUBLICATIONS

- Wilcox, K. R*., A. T. Tredennick*, S. E. Koerner, **E. Grman**, L. M. Hallett, M. L. Avolio, K. J. La Pierre, G. R. Houseman, F. Isbell, D. S. Johnson, . . . (34 additional authors). Asynchrony among local communities stabilizes ecosystem function of metacommunities. *Ecology Letters* DOI 10.1111/ele.12861. (* indicates co-first authors)
- T. Clark, C. Friel, **E. Grman**, Y. Shachar-Hill, and M. Friesen. 2017. Modeling mutualisms: challenges and opportunities for data integration. *Ecology Letters* 20:1203-1215. DOI: 10.1111/ele.12810.
- Zirbel, C. R., T. Bassett, **E. Grman**, and L. A. Brudvig. 2017. Plant functional traits and environmental conditions shape community assembly and ecosystem functioning during restoration. *Journal of Applied Ecology* 54:1070-1079.
- Grman, E.**, T. Bassett, C. R. Zirbel, and L. A. Brudvig. 2015. Dispersal and establishment filters influence the assembly of restored prairie plant communities. *Restoration Ecology* 23:892-899.
- Avolio, M. L., K. J. La Pierre, G. R. Houseman, S. E. Koerner, **E. Grman**, F. Isbell, D. S. Johnson, and K. R. Wilcox. 2015. A framework for quantifying the magnitude and variability of community responses to global change drivers. *Ecosphere* 6:280.
- Grman, E.**, J. L. Orrock, C. W. Habeck, J. A. Ledvina, and L. A. Brudvig. 2015. Beta diversity in post-agricultural woodlands: tests of drivers and the role of scale. *Ecography* 38:614-621.
- Grman, E.**, T. Bassett, and L. A. Brudvig. 2014. A prairie plant community dataset for addressing questions in community assembly and restoration. Data Paper in *Ecology* 95:2363.
- Grman, E.** and L. A. Brudvig. 2014. Beta diversity among prairie restorations increases with species pool size, but not through enhanced species sorting. *Journal of Ecology* 102:1017-1024.
- Brudvig, L.A., **E. Grman**, C. W. Habeck, J. L. Orrock, and J. A. Ledvina. 2013. Strong legacy

- of agricultural land use on soils and understory plant communities in longleaf pine woodlands. *Forest Ecology and Management* 310:944-955.
- Grman, E.**, T. Bassett, and L. A. Brudvig. 2013. Confronting contingency in restoration: management and site history determine outcomes of assembling prairies, but site characteristics and landscape context have little effect. *Journal of Applied Ecology* 50:1234-1243. Selected as Editor's Choice.
- Grman, E.** and T. M. P. Robinson. 2013. Resource availability and imbalance affect plant-mycorrhizal interactions: a field test of three hypotheses. *Ecology* 94:62-71.
- Grman, E.** 2013. Seedling light limitation across a natural productivity gradient. *Journal of Plant Ecology* 6:193-200. Selected as Editor's Choice.
- Grman, E.**, T. M. P. Robinson, and C. A. Klausmeier. 2012. Ecological specialization and trade affect the outcome of negotiations in mutualism. *The American Naturalist* 179:567-581.
- Grman, E.** 2012. Plant species differ in their ability to reduce allocation to non-beneficial arbuscular mycorrhizal fungi. *Ecology* 93:711-718.
- Ewert, D. N., J. B. Cole, and **E. Grman**. 2011. Wind energy: guidelines for siting and operating wind turbines in the Great Lakes region. *The Nature Conservancy*.
<http://conserveonline.org/library/wind-energy-great-lakes-regional-guidelines/view.html>
- Grman, E.**, J. A. Lau, D. R. Schoolmaster, Jr., and K. L. Gross. 2010. Mechanisms contributing to stability in ecosystem function depend on the environmental context. *Ecology Letters* 13:1400-1410.
- Grman, E.** and K. N. Suding. 2010. Within-year soil legacies contribute to priority effects during establishment of California grassland plants. *Restoration Ecology* 18:664-670.
- E. T. Kiers, L. S. Adler, **E. L. Grman**, and M. G. A. van der Heijden. 2010. Manipulating the jasmonate response: How do methyl jasmonate additions mediate characteristics of aboveground and belowground mutualisms? *Functional Ecology* 24:434-443.
- Grman, E. L.** and H. M. Alexander. 2005. Factors limiting fruit production in *Asclepias meadii* in northeastern Kansas. *The American Midland Naturalist* 153:245-256.

GRANTS AND FELLOWSHIPS

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| 2017 | Summer Research and Creative Activity Award (Eastern Michigan University, \$12,000) |
| 2017 | Faculty Research/Creative Activity Fellowship (Eastern Michigan University; two semesters of 50% teaching release + \$3000) |
| 2016 | Summer Research and Creative Activity Award (Eastern Michigan University, \$12,000) |
| 2016 | REU Supplement to NSF RAPID (\$8,500) |
| 2015 | NSF RAPID (\$137,766 collaborative proposal; \$32,469 to Grman) |
| 2015 | Provost's New Faculty Award (Eastern Michigan University, \$5000) |
| 2015 | Faculty Research/Creative Activity Fellowship (Eastern Michigan University; one semester of 100% teaching release + \$1483) |
| 2009 | NSF Doctoral Dissertation Improvement Grant (\$14,800) |
| 2007 | Rogers Endowed Research Scholarship (Michigan State University, \$2500) |
| 2006-2007 | G. H. Lauff Research Award (Michigan State University, \$1500) |
| 2006-2007 | T. Wayne and Kathryn Porter Fellowship (Michigan State University, \$1700) |
| 2006 | NSF Graduate Research Fellowship (3 years of graduate school support) |

- 2005-2011 Paul Taylor Travel Grant (Michigan State University, \$3277)
 2004 Plant Science Fellowship Professional Enhancement Stipend (Michigan State University, \$2000)
 2004 University Distinguished Fellowship, Michigan State University (2 years of graduate school support)

TEACHING EXPERIENCE

- 2016 Instructor for Terrestrial Ecosystems (BIO 414/514, Eastern Michigan University)
 2016 Co-Instructor for Dynamics of Ecosystem Restoration (ENVI 305W, Eastern Michigan University)
 2014-2017 Instructor for Ecology Laboratory (BIO 311W, Eastern Michigan University)
 2013 Instructor for Restoration Ecology (ZOL 443, Michigan State University)
 2012 Guest lecture: How do communities assemble? Current research in restoration ecology. In Honors Option, Introduction to Ecology (ZOL/PLB 355, Michigan State University)
 2012 Three guest lectures: Succession, filters, and community assembly. In Restoration Ecology (FW 443, Michigan State University)
 2011 Guest lecture: Restoration Ecology. In Ecology and the Environment (BIO 3500, Wayne State University)
 2010 Guest lecture: Mutualism and facilitation. In Population and Community Ecology (PLB/ZOL 896, Michigan State University)
 2008-2009 NSF GK-12 Fellow with Michigan State University/Kellogg Biological Station and Lawton Community Schools, Lawton, MI
 2007-2008 Module presentation: Issues in Conservation Ecology. In Freshman Seminar, Michigan State University.
 2005-2006 Graduate Teaching Assistant, Michigan State University
 Enhancing Linkages between Ecology and Evolution (MTH 490)
 Field Ecology and Evolution (ZOL/PLB 440)
 Ecology Laboratory (ZOL/PLB 355L)
 Biological Sciences: Organisms and Populations (BS110)

INVITED PRESENTATIONS

- 2017 Grman, E. Michigan prairies: concept and application. Michigan Botanical Club meeting, Matthaei Botanical Gardens, Ann Arbor MI.
 2017 Grman, E. Michigan prairies: concept and application. Sierra Club Huron Valley Group meeting, Matthaei Botanical Gardens, Ann Arbor MI.
 2016 Grman, E. Michigan prairies: concept and application. Michigan Consortium of Botanists meeting, Grand Valley State University, Allendale MI.
 2016 Grman, E., and C. R. Zirbel. Restoration ecology research at the Sand Creek Preserve Prairie. Field trip for the Michigan Botanical Club's 2016 Foray at the Sand Creek Preserve, Kalamazoo MI.
 2015 **Grman, E.** Beta diversity in restored prairies: causes and consequences. Annis Water Resources Institute, Grand Valley State University, Muskegon MI.

- 2015 **Grman, E.** Beta diversity in restored prairies: causes and consequences. Tyson Research Center, Washington University in St. Louis, Eureka MO.
- 2015 Zirbel, C. R., **E. Grman**, T. Bassett, and L. A. Brudvig. Functional traits as predictors of community assembly and ecosystem function in restored prairies. Ecological Society of America Annual Meetings, Baltimore MD.
- 2013 **Grman, E.** Plant community assembly in restorations. Fisheries and Wildlife Graduate Student Organization, Michigan State University, East Lansing MI.
- 2011 **Grman, E.** Towards resolving context dependency in the plant-mycorrhizal symbiosis. Ecology, Evolutionary Biology, and Behavior, Michigan State University, East Lansing MI.
- 2010 **Grman, E.** Resource-based controls on the abundance of arbuscular mycorrhizal fungi. Ecology Graduate Group, Indiana University, Bloomington IN.
- 2006 **Grman, E.**, H. Alexander. Factors limiting Mead's milkweed fruit production in eastern Kansas. Symposium on Ecology, Evolution, and Conservation of a Rare Prairie Plant: Mead's Milkweed. The University of Kansas, Lawrence KS.

CONTRIBUTED PRESENTATIONS

- 2016 **Grman, E.**, C. R. Zirbel, T. Bassett, and L. A. Brudvig. Beta diversity and dominant species each contribute to ecosystem multifunctionality in restored prairies. Ecological Society of America Annual Meetings. Fort Lauderdale, FL (oral presentation).
- 2016 Zirbel, C. R., **E. Grman**, T. Bassett, and L. A. Brudvig. In what ways do taxonomic, functional, and phylogenetic diversity predict ecosystem multi-functionality during restoration? Ecological Society of America Annual Meetings. Fort Lauderdale, FL (oral presentation).
- 2015 Bassett, T., L. A. Brudvig, **E. Grman**, and C. Zirbel. Diversity drives stability in restored grasslands. Ecological Society of America Annual Meetings. Baltimore, MD (oral presentation).
- 2013 Bassett, T. **E. Grman**, and L. A. Brudvig. Can diversity resist invasion in prairie restorations? A simple question with no simple answers. Science, Practice & Art of Restoring Ecosystems Conference. East Lansing, MI (oral presentation).
- 2013 Bassett, T. **E. Grman**, and L. A. Brudvig. Land-use history determines levels of invasion in diverse prairie restorations. Science, Practice & Art of Restoring Ecosystems Conference. East Lansing, MI.
- 2013 **Grman, E.**, T. Bassett, and L. A. Brudvig. Confronting contingency in restoration: management and site history determine outcomes of assembling prairies. Ecological Society of America Annual Meetings. Minneapolis, MN (oral presentation).
- 2012 **Grman, E.** and L. A. Brudvig. Stochastic processes, not species sorting, drive positive effects of species pool richness on community diversity in prairie restorations. Ecological Society of America Annual Meetings. Portland, OR (oral presentation).
- 2012 Bassett, T., L. A. Brudvig, and **E. Grman**. Land use history trumps effect of diversity on function in prairie restoration. Ecological Society of America Annual Meetings. Portland, OR (poster presentation).
- 2012 Suwa, T., **E. Grman**, R. Prunier, and J. A. Lau. Does mutualism contribute to variation in legume response to N enrichment? Ecological Society of America Annual Meetings. Portland, OR (oral presentation).

- 2012 **Grman, E.**, T. Bassett, and L. A. Brudvig. What determines plant community composition in Michigan prairie restorations? The Science, Practice, & Art of Restoring Native Ecosystems, annual conference of the Stewardship Network. East Lansing, MI (poster presentation).
- 2011 **Grman, E.** and T. M. P. Robinson. The availability of nitrogen and phosphorus, and the imbalance between them, influence plant allocation to roots and arbuscular mycorrhizal fungi. Ecological Society of America Annual Meetings. Austin, TX (oral presentation).
- 2011 **Grman, E.** Plant-mycorrhizal interactions and the relative abundance of limiting resources. Kellogg Biological Station, Michigan State University (dissertation seminar).
- 2010 **Grman, E.**, T. M. P. Robinson, and C. A. Klausmeier. Trade-based mutualism: how stoichiometry, uptake efficiencies, population sizes, and resource availability affect the price and the benefit of trade. Ecological Society of America Annual Meetings. Pittsburgh, PA (oral presentation).
- 2009 **Grman, E.**, J. A. Lau, D. R. Schoolmaster, Jr., and K. L. Gross. Compensatory dynamics: their existence and stabilizing effect on ecosystem function are context-dependent. Long Term Ecological Research All Scientists Meeting. Estes Park, CO (poster presentation).
- 2009 **Grman, E.** Not all plants can sanction cheating mycorrhizal fungi. Ecological Society of America Annual Meeting. Albuquerque, NM (oral presentation).
- 2008 **Grman, E.**, J. A. Lau; D. R. Schoolmaster Jr.; K. L. Gross. Evidence for compensatory dynamics: Negative species covariances predominate in early and mid-successional old-fields, among but not within plant functional groups. Ecological Society of America Annual Meeting. Milwaukee, WI (poster presentation).
- 2006 **Grman, E.**, T. Robinson. Does soil N:P ratio determine mycorrhizal response to N additions? Long Term Ecological Research All Scientists Meeting. Estes Park, CO (poster presentation).
- 2005 **Grman, E. L.**, K. N. Suding, E. M. Hayes. Do plant-soil feedbacks increase the resilience of California annual grasslands? Ecological Society of America Annual Meeting. Montreal, Quebec, Canada (poster presentation).

AWARDS

- 2012 Postdoctoral Teaching Scholar award, Michigan State University
- 2010 Distinguished Graduate Student Speaker for Ecology, Evolutionary Biology, and Behavior Program, Michigan State University
- 2008 Best Presentation Award, 2008 Plant Biology Department Retreat
- 2005 Honorable Mention, NSF Graduate Research Fellowship Program

SERVICE

- NSF panel member, 2016
- EMU Interdisciplinary Environmental Science and Society graduation honors awards ceremony planning committee, 2015-2016
- Assisted in designing and implementing EMU Biology Department learning assessment for ecology, 2015-2016
- EMU Biology Department Library Liaison, 2015-2016

MSU Plant Biology departmental retreat planning committee, 2012
Volunteer Wind Energy Intern, The Nature Conservancy (2010-2011): Synthesized scientific literature and gathered expert opinion to develop guidelines for wind turbines to minimize impacts on wildlife. Mentors: Dave Ewert and James Cole
Developed teaching kits enabling K-12 students to investigate my dissertation research questions
Contributed to development of Michigan Science Olympiad State Tournament exam, 2009-2010
Mentored undergraduate and high school students in ecological research, Summer 2007-2009, Spring-Summer 2010
Coordinated matching volunteer high school interns with graduate student mentors, 2010-2011
Reviewer for: *American Naturalist*, *Ecology*, *Ecology Letters*, *Journal of Ecology*, *Plant Ecology*, *Journal of Applied Ecology*, *Restoration Ecology*, *Oecologia*, *Oikos*, *Landscape Ecology*, *Acta Oecologia*, *Ecography*, *Proceedings of the National Academy of Sciences of the USA*, *National Science Foundation*.

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