

Curriculum Vitae

Nicholas A. Barber

Department of Biological Sciences
Northern Illinois University
449 Montgomery Hall
DeKalb, IL 60115

nbarber@niu.edu
Phone (815) 753-4215

EDUCATION & EMPLOYMENT

NORTHERN ILLINOIS UNIVERSITY

Assistant Professor, August 2012 – present

Visiting Assistant Professor, August 2011 – August 2012

UNIVERSITY OF MASSACHUSETTS-AMHERST

Postdoctoral Research Associate, June 2009 – July 2011

Supervisor: Dr. Lynn S. Adler

UNIVERSITY OF MISSOURI-ST. LOUIS

Doctor of Philosophy in Ecology, April 2009

Advisor: Dr. Robert J. Marquis

ST. LOUIS UNIVERSITY

Bachelor of Science in Biology, *Magna cum Laude*, December 2003

FUNDING AWARDS

- | | |
|-----------|--|
| 2017 | The Nature Conservancy of Illinois, "Control methods for invasive honeysuckle," \$9,900 |
| 2017 | NIU Research & Artistry Grant, \$14,000 |
| 2016 | NSF-EAGER, "The ecosystem consequences of management disturbances: examining the community–trait–function relationships of consumers in a restored grassland," \$200,000 |
| 2016 | Lake County Forest Preserve District, "Ecological Assessment of District Lands," \$175,000 |
| 2016 | Friends of Nachusa Grasslands, "community assembly of dung beetls in tallgrass prairie restoration," \$500 |
| 2015 | Lake County Forest Preserve District, "Ecological Assessment of District Lands," \$40,663 |
| 2015 | Friends of Nachusa Grasslands, "Impacts of bison on dung beetle community assembly in restored and remnant tallgrass prairies," \$750 |
| 2014 | Lake County Forest Preserves District, "Ecological Assessment of District Lands," \$30,296 |
| 2013 | NIU Research & Artistry Grant, \$10,000 |
| | NIU Undergraduate Research Apprenticeship Program, \$500 |
| 2012 | NIU OSEEL Undergraduate Research Assistantship Program, \$1,500 |
| 2011-2012 | NIU Institute for the Study of Environment, Sustainability, and Energy Research Grant, \$1,500 |
| 2008-2009 | Chancellor's Graduate School Dissertation Fellowship. \$14,600 Tuition, fees, and stipend for 12 months. |
| 2008 | American Ornithologists Union Student Research Award, \$1,600 |
| 2007 | University of Missouri TWA Scholarship, \$7,000 |
| 2005-2008 | U.S. E.P.A. Science to Achieve Results (STAR) Fellowship, \$91,661 Tuition, fees, stipend, and \$5,000 for research provided annually. |

2006 St. Louis Audubon Scholarship in Graduate Studies, \$1,650
 2005 University of Missouri TWA Scholarship, \$6,000

PUBLICATIONS (*Indicates undergraduate author)

- In press **Barber, N. A.** and W. L. Widick*. Localized effects of tornado damage on ground beetle communities and vegetation in a forested preserve. *Natural Areas Journal*.
- In press **Barber, N. A.** Cross-compartment herbivory effects on antagonists and mutualists and their consequences for plant fitness. In: Ohgushi, T., Wurst, S., and Johnson, S., eds. *Aboveground-belowground Community Ecology*. Springer.
- 2017a **Barber, N. A.**, K. A. Lamagadeleine-Dent, J. E. Willand, K. W. McCravy, and H. P. Jones. Species and functional trait re-assembly of ground beetle communities in restored grasslands. *Biodiversity and Conservation*. doi:10.1007/s10531-017-1417-6
- 2017b **Barber, N. A.**, K. M. Chantos-Davidson, R. A. Peralta*, J. P. Sherwood*, and W. D. Swingley. Soil microbial community composition in tallgrass prairie restorations converge with remnants across a 27-year chronosequence. *Environmental Microbiology* 19:3118-3131.
- 2017 DiGiovanni, J. P., W. P. Wysocki, S. V. Burke, M. R. Duvall, and **N. A. Barber**. The role of hemiparasitic plants: influencing tallgrass prairie quality, diversity and structure. *Restoration Ecology* 25:405-413.
- 2017 Pischl, P. H. and **N. A. Barber**. Plant responses to arbuscular mycorrhizae under elevated temperature and drought. *Journal of Plant Ecology* 10:692-701.
- 2016 **Barber, N. A.**, H. P. Jones, M. R. Duvall, W. P. Wysocki, M. J. Hansen, D. J. Gibson. Phylogenetic diversity is maintained despite richness losses in restored tallgrass prairie plant communities. *Journal of Applied Ecology* 54:137-144.
- 2016 Boyer, M. D. H.*, N. L. Soper Gordon, **N. A. Barber** and L. S. Adler. Floral damage induces resistance to florivory in *Impatiens capensis*. *Arthropod-Plant Interactions* 10:121-131.
- 2016 Minton, M. M., **N. A. Barber**, and L. L. Gordon*. Effects of arbuscular mycorrhizal fungi on induced defense in two *Solanum* species. *Plant Ecology and Evolution* 149:157-164.
- 2015 **Barber, N. A.** and R. T. Fahey. Consequences of phenology variation and oxidative defenses in *Quercus*. *Chemoecology* 25:261-270.
- 2015 **Barber, N. A.**, N. J. Milano*, E. T. Kiers, N. Theis, V. Bartolo*, R. V. Hazzard, and L. S. Adler. Root herbivory indirectly affects above- and belowground community members and directly reduces plant performance. *Journal of Ecology* 103:1509-1518.
- 2015 Milano, N.*, L. S. Adler, and **N. A. Barber**. Conspecific and heterospecific aboveground herbivory both reduce preference by a belowground herbivore. *Environmental Entomology*.
- 2015 Orrock, J. L., H. P. Dutra, R. J. Marquis, and **N. A. Barber**. Apparent competition and native consumers exacerbate the strong competitive effect

- of an exotic plant species. *Ecology*. doi: 10.1890/14-0732.1
- 2014 Theis, N., N. A. Barber, S. D. Gillespie, R. V. Hazzard, and L. S. Adler. Attracting mutualists and antagonists: Plant trait variation explains the distribution of specialist herbivores and pollinators on crops and wild gourds. *American Journal of Botany* 101:1314-1322.
- 2014 **Barber, N. A.** and N. L. Soper Gorden. How do belowground organisms influence plant–pollinator interactions? *Journal of Plant Ecology*. doi: 10.1093/jpe/rtu012
- 2013a **Barber, N. A.**, N. Theis, E. T. Kiers, R. V. Hazzard, and L. S. Adler. Linking agricultural practices, mycorrhizal fungi, and traits mediating plant-insect interactions. *Ecological Applications* 23:1519-1530.
- 2013b **Barber, N. A.**, E. T. Kiers, R. V. Hazzard, and L. S. Adler. Context-dependency of arbuscular mycorrhizal fungi on plant-insect interactions in an agroecosystem. *Frontiers in Plant Science* 4:1-10.
- 2013 **Barber, N. A.** Arbuscular mycorrhizal fungi are necessary for the induced response to herbivores by *Cucumis sativus*. *Journal of Plant Ecology* 6:171-176.
- 2012 **Barber, N. A.**, L. S. Adler, N. A. Theis, R. V. Hazzard, and E. T. Kiers. Herbivory reduces plant interactions with above- and belowground antagonists and mutualisms. *Ecology* 93:1560-1570.
- 2012 **Barber, N. A.** and J. Wouk*. Winter predation by insectivorous birds and consequences for arthropods and plants in summer. *Oecologia* 170:999-1007.
- 2012 **Barber, N. A.** Clay caterpillars: a tool for ecology and evolution laboratories. *American Biology Teacher* 74:513-517.
- 2011 **Barber, N. A.** & R. J. Marquis. Light environment and the impacts of foliage quality on herbivorous insect attack and bird predation. *Oecologia* 166:401-409.
- 2011 **Barber, N. A.** & R. J. Marquis. Leaf quality, predation, and stochastic processes in the assembly of a diverse herbivore community. *Ecology* 92:699-708.
- 2011 **Barber, N. A.**, L. S. Adler, & H. Bernardo. Effects of above- and belowground herbivory on growth, pollination, and fitness in cucumber. *Oecologia* 165:377-386.
- 2010 Mooney, K. A., D. S. Gruner, **N. A. Barber**, S. A. Van Bael, S. M. Philpott, & R. Greenberg. Interactions among predators and the cascading effects of vertebrate insectivores on arthropod communities and plants. *Proceedings of the National Academy of Sciences of the USA* 107:7335-7340.
- 2010 **Barber, N. A.** Light environment and leaf characteristics affect distribution of oak lacebugs (Heteroptera: Tingidae). *Environmental Entomology* 39:492-497.
- 2009 **Barber, N. A.** and R. J. Marquis. Spatial variation in top-down direct and indirect effects on white oak (*Quercus alba* L.). *American Midland Naturalist* 162:169-179.
- 2008 **Barber, N. A.**, R. J. Marquis, and W. P. Tori. Invasive prey impacts the

- abundance and distribution of native predators. *Ecology* 89:2678-2683.
- 2008 Van Bael, S. A., S. M. Philpott, R. Greenberg, P. Bichier, **N. A. Barber**, K. A. Mooney, and D. S. Gruner. Birds as predators in tropical agroforestry systems. *Ecology* 89:928-934.
- 2008 Valone, T. J. and **N. A. Barber**. An empirical evaluation of the insurance hypothesis in diversity-stability models. *Ecology* 89:522-531.
- 2006 Lill, J. T., R. J. Marquis, R. E. Forkner, J. Le Corff, N. Holmberg, and **N. A. Barber**. Leaf pubescence affects distribution and abundance of generalist slug caterpillars (Lepidoptera: Limacodidae). *Environmental Entomology* 35:797-806.
- In revision Ausland, C. and **N. A. Barber**. Context-dependency of mutualist influence on plant growth and defense: does nutrient loading affect plant mutualisms?
- In review Herakovich, H., C. J. Whelan, **N. A. Barber**, and H. P. Jones. The effects of bison reintroduction, prescribed fire, and time since restoration on grassland bird nest success in tallgrass prairie.

STUDENTS MENTORED

- 2017 Katelyn Janz, NIU, BIOS 370 directed research in biology, NIU Student Engagement Fund recipient
Nicole Wagner, NIU, ENVS 490 independent research, NIU Student Engagement Fund recipient
Robert Frizzell, NIU, BIOS 370 directed research in biology
Zachary Fatima, NIU, BIOS 370 directed research in biology
Mustafa Thahab, NIU, BIOS 370 directed research in biology
Tammy Scheck, NIU, ENVS 490 independent research
Amanda Stone, NIU, BIOS 370 directed research in biology
- 2016 Catherine Ausland, NIU, BIOS MS student (thesis advisor)
Anna Farrell, NIU, BIOS MS student (thesis advisor)
Sheryl Hosler, NIU, BIOS MS student (thesis advisor)
John Vanek, NIU, BIOS MS student (thesis co-advisor)
Kaleb Baker, NIU, BIOS 370 directed research in biology
Dania Muhammed-Hussein, NIU, BIOS 370 directed research in biology
- 2015 Phyllis Pischl, NIU, BIOS MS student (thesis advisor)
Jane DiGiovanni, NIU, BIOS MS student (thesis co-advisor)
Dylan Luzbetak, NIU Research Rookies Program
William Widick, NIU, BIOS 370 directed research in biology
Dylan Clark, NIU, BIOS 370 directed research in biology
Armando Marquez, NIU, BIOS 370 directed research in biology
- 2014 Rene Peralta, UC-Irvine, NIU REU
Jared Sherwood, Butler University, NIU REU
Angela Layng, NIU, BIOS 370 directed research in biology
Baret Bailey, NIU, BIOS 370 directed research in biology
Jessica Otto, NIU, BIOS 370 directed research in biology
Andre Menue, NIU, BIOS 370 directed research in biology
- 2013 Michelle Minton, NIU, BIOS 770 directed graduate research in biology

- Lindsey Gordon, NIU, BIOS 370 directed research in biology
 Sarah Nelson, NIU, Undergraduate Research Apprenticeship
 Taylor Skokan, Stanford University, NIU REU, project, "Effects of restoration age and recent burn history on carabid assemblages of restored grasslands."
 Eduardo Robleto, University of Nevada-Las Vegas, NIU REU, project, "Ground beetle diversity and seed predation in the Nachusa Grasslands in Illinois."
- 2012 Elizabeth Justus, NIU, BIOS 370 directed research in biology
 Daniel Calderon, NIU, BIOS 370 directed research in biology
- 2011 Kaila Colyott, NIU, BIOS 370 directed research in biology
 Erica Fitzpatrick, UMass-Amherst NSF-REU, project, "Arbuscular mycorrhizal effects on generalist and specialist herbivore preference and performance."
 Isaac Han, UMass-Amherst, research assistant practicum
 Michael Esposito, UMass-Amherst, research assistant practicum
- 2010 Nelson Milano, UMass-Amherst REU, project, "Effects of aboveground herbivory on belowground herbivore preference."
 Paul Caradonna, Humboldt State University, and Craig Connolly, College of the Holy Cross, "Efficiency of cucumber pollinators in western Massachusetts."
 Grace Pold, McGill University; UMass-Boston REU, project, Climate change and herbivory.
 Alexandra Clifford, Hampshire College; senior thesis data analyses and use of R for statistics.
 Allison Mullin, UMass-Amherst, research assistant practicum
 Erica Fitzpatrick, UMass-Amherst, research assistant practicum
- 2007 Kathleen Beilsmith, Parkway North High School; Students and Teachers as Research Scientists, project, "Edge effects of bird predation on insect herbivores."

CONTRIBUTED TALKS & POSTERS (*Indicates undergraduate author)

- Barber, N. A., P. Whiston*, S. Hosler, and H. P. Jones. 2017. Structure and function of dung beetle communities in response to grazing and prescribed fire in restored tallgrass prairie. Ecological Society of America, Portland, OR.
- Jones, H. P., N. A. Barber, A. M. Burke, K. Savage and N. Steijn. 2017. Small mammal response to prescribed fire and recent bison introduction in a restored grassland prairie. Ecological Society of America, Portland, OR.
- Heise, J. A.*, H. P. Jones, N. A. Barber, R. C. Blackburn, K. Chantos. 2017. Floral and soil stoichiometric (C:N) response to prescribed fire in tallgrass prairie. Ecological Society of America, Portland, OR.
- Adler, L. S., K. Michaud, S. P. Ellner, N. A. Barber, P. C. Stevenson, S. H. McArt, R. E. Irwin. 2017. Causes and consequences of flowering plant species and trait variation for pathogen transmission and bumble bee health. Ecological Society of America, Portland, OR.
- Jones, H. P., N. A. Barber, A. M. Burke, K. Savage and N. Steijn. 2017. Small mammal

- response to prescribed fire and recent bison introduction in a restored grassland prairie. Ecological Society of America, Portland, OR.
- Whiston, P.*, H. Jones, and N. Barber. 2017. Quantifying the ecosystem services of dung beetles in a restored tallgrass prairie. Midwest Ecology and Evolution Conference, Urbana, IL.
- Weston, M.*, H. Jones, and N. Barber. 2017. Landscapes of fear on the prairie: Bison wallowing impacts on seed predation in a restored grassland. Midwest Ecology and Evolution Conference, Urbana, IL.
- Khalil, I., N. A. Barber, D. Bath, A. Al-Farajji, S. Hum-Musser, and R. O. Musser. 2016. Transcriptomic expression in tomato plants in response to arbuscular mycorrhizal symbioses and caterpillar herbivory. 14th Annual Ecological Genomics Symposium, Kansas City, MO.
- Barber, N. A. and H. P. Jones. 2016. The ReFuGE Project: Restoring Function in Grassland Ecosystems. Nachusa Grasslands Research Symposium, Franklin Grove, IL.
- Barber, N. A., K. A. Lamagdeleine, J. E. Willand, K. W. McCravy. 2016. Species and functional trait re-assembly of ground beetle communities in restored tallgrass prairie. North American Prairie Conference, Normal, IL.
- Barber, N. A., K. W. McCravy, K. A. Lamagdeleine. 2015. Species and functional trait composition of Carabidae communities in a tallgrass prairie restoration chronosequence. Nachusa Grasslands Research Symposium, Franklin Grove, IL.
- Barber, N. A., K. W. McCravy, K. A. Lamagdeleine. 2015. Species and functional trait composition of Carabidae communities in a tallgrass prairie restoration chronosequence. Ecological Society of America, Baltimore, MD.
- Barber, N. A., T. Skokan*, and E. Robleto*. 2014. Ground beetle communities and seed predation in a restored tallgrass prairie chronosequence. Ecological Society of America, Sacramento, CA.
- Barber, N. A., V. Bartolo*, N. J. Milano*, L. S. Adler, and N. Theis. 2014. Effects of root herbivory by *Acalymma vittatum* on floral volatile emissions in cucumber. International Society for Chemical Ecology – Chemical Signals in Vertebrates, Champaign-Urbana, IL.
- Bartolo, V.*, N. A. Barber, N. J. Milano*, L. S. Adler, and N. Theis. 2014. Effects of root herbivory by *Acalymma vittatum* on floral volatile emissions in cucumber. Eastern New England Biological Conference, North Andover, MA.
- Barber, N. A., N. J. Milano*, E. T. Kiers, N. Theis, R. V. Hazzard, and L. S. Adler. 2013. Consequences of root herbivory for aboveground plant interactions with herbivores, pollinators, and a fungal pathogen. Ecological Society of America, Minneapolis, MN.
- Barber, N. A., E. T. Kiers, R. V. Hazzard, and L. S. Adler. 2013. Arbuscular mycorrhizal fungi influence insect herbivory and pollination in an agroecosystem. Plant-Herbivore Interaction Gordon Research Conference, Ventura, CA.
- Barber, N. A., L. S. Adler, R. V. Hazzard, N. A. Theis, and E. T. Kiers. 2012. Linking agricultural management, mycorrhizal fungi, and traits mediating plant-insect interactions. Ecological Society of America, Portland, OR.
- Theis, N. A., N. A. Barber, L. S. Adler, S. Gillespie, R. Hazzard. 2012. Toxic compounds attract mutualists and antagonists: Cucurbitacin content can explain the

- distribution of squash bees and cucumberbeetles to crops and wild plants in the Cucurbitaceae. Botanical Society of America, Columbus, OH.
- Barber, N. A. and L. S. Adler. 2011. Linking mutualisms and antagonisms across the soil surface. Ecological Society of America, Austin, TX.
- Barber, N. A., L. S. Adler, R. V. Hazzard, and E. T. Kiers. 2010. Update: The community ecology of yield: the role of herbivory and pollination in mediating cucumber yield (poster). USDA-NIFA workshop, San Diego, CA.
- Barber, N. A. and L. S. Adler. 2010. Sex, bugs, & cuke 'n poll: aboveground seeds and belowground deeds. Ecological Society of America, Pittsburgh, PA.
- Barber, N. A., L. S. Adler, R. V. Hazzard, and E. T. Kiers. 2010. The community ecology of yield: the role of herbivory and pollination in mediating cucumber yield (poster). USDA-NIFA workshop, Washington, DC.
- Barber, N. A. and R. J. Marquis. 2009. Plant quality and bird predation have additive effects in an oak trophic cascade. Ecological Society of America, Albuquerque, NM.
- Mooney, K. A., D. S. Gruner, N. A. Barber, S. A. Van Bael, S. M. Philpott, & R. Greenberg. 2009. Interactions among predators and the cascading effects of vertebrate insectivores on plants. Ecological Society of America, Albuquerque, NM.
- Barber, N. A. and R. J. Marquis. 2008. Predation and leaf quality shape herbivore community structure on *Quercus alba*. Ecological Society of America, Milwaukee, WI.
- Barber, N. A., R. J. Marquis, W. D. Koenig, and A. M. Liebhold. 2007. Effects of gypsy moths on population dynamics of cuckoos and other forest birds. Ecological Society of America, San Jose, CA.
- Philpott, S. M., S. A. Van Bael, R. Greenberg, P. Bichier, N. A. Barber, K. A. Mooney, and D. S. Gruner. 2007. Birds as predators in tropical agroforestry systems. Ecological Society of America, San Jose, CA.
- Barber, N. A. and R. J. Marquis. 2007. Direct and indirect effects of bird predation on *Quercus alba* and its herbivore community. Midwest Ecology and Evolution Conference, Kent, OH.
- Barber, N. A. and G. R. Camilo. 2003. Avian community structure in a single-tree selection managed forest. Missouri Natural Resources Conference, Osage Beach, Missouri.

INVITED SEMINARS

- | | |
|------|---|
| 2017 | Illinois State University, Northern Illinois University Dept. of Geography, Illinois Natural History Survey |
| 2015 | University of Illinois-Chicago, Western Illinois University |
| 2014 | University of Illinois Urbana-Champaign |
| 2013 | Wright State University, St. Louis University |
| 2011 | Northern Illinois University |
| 2009 | Wilkes University, University of Massachusetts – Amherst |
| 2008 | Whitney R. Harris World Ecology Center |

TEACHING EXPERIENCE

- | | |
|-----------|---|
| 2013–2017 | Instructor, Fundamentals of Organismal Biology, NIU |
| 2015–2017 | Instructor, Prescribed Fire Certification |

2014–2017 Instructor, General Ecology, NIU
 2012–2016 Instructor, Biology of Birds and Mammals, NIU
 2012, 2015 Instructor, Grant-writing seminar for graduate students, NIU
 2010–2013 Instructor, Graduate Seminar in Ecology and Evolution, NIU
 2011–2012 Instructor, Conservation Biology, NIU
 2010 Instructor, “The importance, conservation, and management of plant–animal interactions.” Undergraduate honors seminar, UMass-Amherst
 Co-instructor, Graduate Field Research in Ecology, UMass-Amherst
 2009–2011 UMass-Amherst: Guest lecturer (Topics in Plant Biology, Ornithology),
 Graduate Grant Writing Seminar reviewer, Undergraduate Field
 Research Methods in Conservation panel member
 2008 Washington University: Guest lecturer (Conservation Biology)
 2006 UM-St. Louis: Guest lecturer (Evolutionary Biology)
 2004–2005 Missouri Science Teaching Education Partnerships (NSF GK-12 program)
 Assisted biology teacher at McCluer High School, Florissant, MO, and
 taught Biology of Birds and Mammals course to 11th and 12th graders

AWARDS

2015 Faculty Mentor Award, NIU Office of Engagement and Experiential
 Learning
 2008 University of Missouri-St. Louis, Arnold Grobman Award for Excellence
 in Field Biology
 2005 American Ornithologists Union, Student Membership Award
 2004 St. Louis University, Outstanding Undergraduate Research Award

PROFESSIONAL ACTIVITIES & OUTREACH

Manuscripts reviewed for: *Ecology*, *Ecological Applications*, *Ecosphere*, *Ecology Letters*,
Conservation Biology, *Journal of Animal Ecology*, *Journal of Applied Ecology*,
Functional Ecology, *Oikos*, *Oecologia*, *Ecological Entomology*, *Environmental*
Entomology, *Proceedings of the Royal Society B*, *Biological Invasions*, *Basic and*
Applied Ecology, *Forest Ecology and Management*, *Condor*, *American Journal of*
Botany, *American Midland Naturalist*, *Journal of Insect Science*, *Journal of Insect*
Conservation, *Arthropod-Plant Interactions*, *Plant Ecology*, and *Population Ecology*.

Grants reviewed for: National Science Foundation (ad-hoc and 1 in-person panel),
 Netherlands Organisation for Scientific Research, Israel Science Foundation, Fondo
 Nacional de Desarrollo Científico y Tecnológico (Chile), Whitney R. Harris World
 Ecology Center, St. Louis.

Organizer and moderator, Organized Oral Session, “Re-establishing consumer
 communities and consumer-driven function in restored ecosystems.” 2017 Ecological
 Society of America meeting, Portland, OR.

Member: Ecological Society of America (Plant Population Ecology Section Secretary
 2016–2018), Entomological Society of America

Presentations to public: Athol (MA) Bird & Nature Club, St. Louis Audubon Society,
 Northern Illinois University STEM Café, New England Vegetable & Berry Growers
 Association, Illinois Master Naturalists Program

Compiler, DeKalb, IL, Christmas Bird Count