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EDUCATION

Ph.D. in Ecology, Evolution, and Conservation Biology, University of Illinois at Urbana-Champaign, 2009
Dissertation title: “Species composition and genetic structure of grassland plant communities and their influence on spiders and herbivorous insects”
Advisor: Lawrence M. Hanks

M.S. in Natural Resources and Environmental Sciences, University of Illinois at Urbana-Champaign, 2005
Thesis title: “Effects of prescribed burning on small mammals and snakes in Midwestern grassland and ecology of the prairie kingsnake (*Lampropeltis calligaster calligaster*)”
Advisors: Jeffrey D. Brawn, Patrick J. Weatherhead

B.S. with Distinction in Entomology with a concentration in Wildlife Conservation, University of Delaware, Newark, DE, 2002
Thesis title: “Obtaining and utilizing growing degree-days to accurately predict ornamental plant pest populations”
Advisor: Dewey M. Caron

B.A. in Biology, University of Delaware, Newark, DE, 2002

RESEARCH EXPERIENCE

Post Doctoral Research Associate, Department of Crop Sciences, UIUC, 2009-present

I research the inheritance of virulence in the soybean aphid (*Aphis glycines*) on the gene *Rag1*, which confers resistance to some biotypes of the aphid.

Doctoral Student, Program in Ecology and Evolutionary Biology, UIUC 2005-2009

I studied niche partitioning among orb-weaving spiders and how species diversity of orb-weaving spiders was influenced by succession of a grassland plant community. I also studied ecological divergence among three cytotypes of tall goldenrod (*Solidago altissima*) and the influence on herbivorous insects.

Research Assistant, Department of Entomology, UIUC, summer 2005, 2006

Dr. Lawrence Hanks employed me to evaluate water stress of urban trees and susceptibility to insects.

Master Student, Department of Natural Resources and Environmental Sciences, UIUC, 2003-2005

I evaluated the impact of restoring grasslands via prescribed burning affected bobwhite quail and their predators. I also studied the ecology of the prairie kingsnake (*Lampropeltis calligaster calligaster*)

Wildlife Technician, Department of Natural Resources and Environmental Sciences, UIUC, summer 2003

I assisted Drs. Patrick Weatherhead and Jeffrey Brawn with two projects: 1) collecting data on habitat and thermal preferences of snakes; and 2) studying the ecology of bobwhite quail and their predators.

Ornamental Horticulture Pest Intern, Department of Entomology, UD, summer 2001

Dr. Caron employed me to expand my earlier project (see below). I also determined degree-day means and ranges for pests of ornamental plants and scouted for life cycle events to verify historical data. This was part of a nine-year project through Penn State's Cooperative Extension Service.

Science and Engineering Scholar, Department of Entomology, UD, summer 2000

I was awarded a stipend to do research with Dr. Dewey Caron comparing instruments and contract services that measure degree-days.

TEACHING EXPERIENCE

Graduate Teaching Fellow, NSF GK-12 Education Program, UIUC, 2006-2008

I developed and taught curricula which used modeling, visualization, and hands-on labs. I taught: 215 students in eight eighth grade general science classes at a public school; 55 students in three seventh grade general science classes at a public school; 11 students in an eighth grade evolution class at a private school; and 12 students in a seventh grade animal biology class at a private school.

Teaching Assistant, School of Integrative Biology, UIUC, 2005-2006

I taught lab sections of Animal Biology (IB 104) and Structure and Function (IB 202), which included grading quizzes, exams, and lab reports, organizing study groups, and holding office hours.

Graduate Teaching Certificate, UIUC, 2006

I completed a two-semester program designed to enhance teaching skills. As part of this program, I participated in video-taped critiques of my teaching, attended developmental seminars, and received student feedback and evaluations.

Other Contributions to Teaching Programs

I trained Ecology TAs (IB 203) on collection and identification of aquatic macroinvertebrates, UIUC, 2006

OTHER EXPERIENCE

Sales Rep., Scotts LawnService, Lancaster, PA, 2003

I inspected lawns and identified grasses, weeds, turf diseases and problems, turf pests, and ornamental plants and their diseases and pests and recommended treatment strategies.

INTENSIVE TRAINING

Multimodel Inference Workshop, University of Missouri, St. Louis, MO, September 2008.

Flow Cytometry Training, BD FACSCanto flow cytometer, Roy J. Carver Biotechnology Center, Urbana, IL, May 2006.

Grant Support:

External

The Illinois Native Plant Society Research Fund, 2009.

The Entomological Foundation Educational Mini-Grant, 2008.

Grant-in-Aid of Research from Sigma Xi, The Scientific Research Society, 2008.

The Illinois Native Plant Society Research Fund, 2008.

Prairie Biotic Research, Inc. Grant, 2008.

The Illinois Native Plant Society Research Fund, 2007.

Illinois State Academy of Science Student Research Grant, 2007.

Internal

UIUC Program in Ecology, Evolution, and Conservation Biology Travel Grant, 2009.

UIUC Program in Ecology, Evolution, and Conservation Biology Summer Research Grant, 2008.
 UIUC Program in Ecology, Evolution, and Conservation Biology Travel Grant, 2008.
 UIUC Francis M. and Harlie M. Clark Research Support Grant, 2008.
 UIUC Francis M. and Harlie M. Clark Research Support Grant, 2007.
 UIUC Program in Ecology, Evolution, and Conservation Biology Summer Research Grant, 2007.
 UIUC Program in Ecology, Evolution, and Conservation Biology Travel Grant, 2007.
 UIUC Graduate College Conference Travel Grant, 2006.
 Philip W. Smith Memorial Fund, Illinois Natural History Survey, 2006.
 University of Delaware Undergraduate Research Grant, 2001.

HONORS

Student and Young Professional Award from the Entomological Society of America, 2008.
 Sponsored attendance at the Entomological Foundation Dinner and Dance, National Meeting of the Entomological Society of America, 2008.
 UIUC School of Integrative Biology Program Enhancement Fund, 2008.
 Research Assistantship from the Program in Ecology, Evolution, and Conservation Biology, 2008.
 Best Student Paper in the Education Division at the Illinois State Academy of Science meeting, 2008.
 AAAS/Science Program for Excellence in Science, 2008.
 Student and Young Professional Award from the Entomological Society of America, 2007.
 Entomological Society of America – North Central Branch, Insect Digital Image Salon (2 images), 2007.
 Elected a member of Phi Kappa Phi, 2006.
 Elected to full membership of Sigma Xi, 2006.
 The Chancellor's List, 2005, 2006.
 List of Teachers ranked as Excellent ("outstanding" rating), UIUC, for IB 202 Structure and Function, 2006.
 Membership Grant from the American Ornithologists' Union, 2005-2008.
 List of Teachers ranked as Excellent ("outstanding" rating), UIUC, for IB 104 Animal Biology, 2005
 National Dean's List, 2002.
 Degree with Distinction, 2002.
 Science and Engineering Scholar, 2000.
 Golden Key National Honor Society, 2000.
 Three-time recipient of the George M. Worrilow Agricultural Scholarship, 1999-2002
 Freshman Honor Certificate, 1999.
 Two-time recipient of the Glenside Community Fair Association Scholarship, 1998-2002, 2003.
 Recipient of the Ruth C. Jones Scholarship, 1998-2002.
 Recipient of a University of Delaware Educational Scholarship, 1998-2002.
 University of Delaware's Dean's List 7 times, 1998-2002.
 Member of the UD Honors Program, 1998-2002.

AFFILIATIONS

American Association for the Advancement of Science
 Illinois State Academy of Science
 Entomological Society of America
 International Society for Pest Information
 Ecological Society of America
 UIUC Graduate Students in Ecology and Evolutionary Biology
 National Association of Biology Teachers

PROFESSIONAL SERVICE

Service to Disciplinary and Professional Societies

Co-Chair, Division of Science, Mathematics, and Technology Education, Illinois State Academy of Science 2008-2009.

Volunteer, National Meeting of the Entomological Society of America, San Diego, CA, 2007.

Moderator, Section Cd: Behavior and Ecology. National Meeting of the Entomological Society of America, San Diego, CA, 2007.

Judge of student posters, Population ecology/genetics Division, Midwest Ecology and Evolution Conference, Kent, OH, 2007.

Volunteer, National Meeting of the Entomological Society of America, Indianapolis, IN, 2006.

Judge of student posters, Zoology Division, Annual Meeting of the Illinois State Academy of Science, Chicago, IL, 2006.

Volunteer, National Meeting of the American Ornithologists' Union, Urbana, IL, 2004.

Meeting Organized

Symposium with M. Da Costa, 2008. The NSF GK-12 Program: insect-based curricula, impact, and extensions. Annual Meeting of the Entomological Society of America. Reno, NV.

Reviews of Journal Manuscripts

American Midland Naturalist, Transactions of the Illinois State Academy of Science

University Service

Student member, selection committee for NSF GK-12 Fellows, UIUC, 2008

Identified peridomestic pests for the Chancellor, UIUC, 13 March, 2008.

Graduates in Ecology and Evolutionary Biology Symposium Committee, UIUC, 2007-2008.

Graduates in Ecology and Evolutionary Biology Symposium Head Student Judge, UIUC, 2007-2008.

Provided insects for walking mechanics analyses by Fred Delcomyn, UIUC, 2006.

Volunteer field/lab assistant: nationwide census of ploidal levels of *Solidago altissima* led by John Nason, Iowa State University, and John Semple, University of Waterloo, 2006.

Volunteer field assistant: location of box turtles used in a telemetry study led by Jake Bowman, UD, 2001.

Student member, Department of Entomology and Applied Ecology hiring committee, UD, 2000.

PUBLIC SERVICE

Identified peridomestic pests for Tassilo Homolatsch, Champaign, IL, 21 October, 2008.

Identified peridomestic pests for Michelle Diehl, Champaign, IL, 28 May, 2008.

Science Outreach Programs, Lancaster, PA and Le Roy, IL (8 elementary classes, Crumbaugh Library Summer Guest Reader Series [twice], Le Roy Parks and Recreation Summer Day Camp), 2002, 2005, 2007.

Volunteer at Robert Allerton Park, Monticello, IL, 2004-2005.

PUBLICATIONS

Refereed Articles

Richardson, ML, RM Mitchell, PF Reagel, and LM Hanks. 2010. Causes and consequences of cannibalism in non-carnivorous insects. Annual Review of Entomology 55:(*In Press*).

- Richardson, ML. 2010. Effects of grassland succession on communities of small mammals in Illinois, USA. *Biologia* 65(1):(*In Press*).
- Richardson, ML, and LM Hanks. 2009. Effects of grassland succession on communities of orb-weaving spiders. *Environmental Entomology* (*In Press*).
- Richardson, ML, and LM Hanks. 2009. Partitioning of niches among four species of orb-weaving spiders in a grassland habitat. *Environmental Entomology* 38(3):651-656.
- Richardson, ML, and J Hari. 2009. Building ecological complexity in the classroom using pea aphids and components of their community. *The American Biology Teacher* 71(5):286-290.
- Richardson, ML. 2009. Using an exploratory Internet activity and trivia game to teach students about biomes. *Science Activities* 46(2):19-24.
- Richardson, ML, and J Hari. 2008. Teaching students about biodiversity by studying the correlation between plant and arthropod biodiversity. *The American Biology Teacher* 70(4):217-220.
- Richardson, ML, and DM Lagos. 2007. Effects of a juvenile hormone analogue, pyriproxyfen, on the apterous form of soybean aphid (*Aphis glycines*). *Journal of Applied Entomology* 131(5):297-302.
- Richardson, ML, PJ Weatherhead, and JD Brawn. 2006. Habitat use and activity of prairie kingsnakes (*Lampropeltis calligaster calligaster*) in Illinois. *Journal of Herpetology* 40(4):423-428.
- Richardson, ML, DM Caron, and DJ Suchanic. 2006. Degree-days for five ornamental pests from an 11-year field study. *Journal of Entomological Science* 41(1):87-89.
- Richardson, ML, and DM Caron. 2005. A comparison of instruments and services used to measure degree-days. *HortTechnology* 15(3):572-576.

Book Review

- Richardson, ML. 2009. Review of book *Model Based Inferences in the Life Sciences: A Primer on Evidence*, by DR Anderson, Springer, NY. *Annals of the Entomological Society of America* 102(4):737-738.

Abstracts, Newspaper Articles, Technical papers

- Richardson, ML. 2009. Polyploidy in tall goldenrod affects its phenotype and insect communities. *Erigenia* 22:59-60.
- Richardson, ML. 2008. Demonstrating how abiotic factors influence the distribution of animals. *Transactions of the Illinois State Academy of Science* 100 (Supplement):79-80.
- Richardson, ML. 2007. Using plant-arthropod relationships as a model system to teach biodiversity. *Transactions of the Illinois State Academy of Science* 100 (Supplement):68.
- Mitchell, RF, ML Richardson, PF Reagel, and LM Hanks. 2007. Consequences of cannibalism in non-carnivorous insects. *Transactions of the Illinois State Academy of Science* 100 (Supplement):72.
- Richardson, ML, JD Brawn, and PW Weatherhead. 2006. Effects of prescribed burning on small mammals and snakes in Midwestern grassland. *Transactions of the Illinois State Academy of Science* 99 (Supplement):34
- Richardson, M. 2004. Man leaves more than footprints. *The State Journal-Register*. June 19.
- Caron, DM, and M Richardson. 2003. Accurate Numbers. SE PA IPM Conf. Proc. 15-20.
- Caron, DM, and M Richardson. 2002. Monitoring eastern tent caterpillar egg hatch. *Del. Assn. Nurseryman*.
- Caron, DM, and M Richardson. 2002. Bagworm. *U. Del. Coop. Ext. Publ.* 2 pp.
- Richardson, M, and DM Caron. 2002. Pine needle scale. *U. Del. Coop. Ext. Publ.* 2 pp.
- Richardson, M, and DM Caron. 2002. Birch leafminer. *U. Del. Coop. Ext. Publ.* 2 pp.
- Richardson, M, and DM Caron. 2002. Eastern tent caterpillar. *U. Del. Coop. Ext. Publ.* 2 pp.
- Richardson, M. 2002. Birch leafminer. *Ornamental Hotline*. 5.
- Richardson, M. 2001. Year of the hymenoptera. *New Jersey Beekeepers Assn. News*. 15:5.

- Richardson, M. 2001. Silken nests hide feeding caterpillars. *Garden Check*. 8:6-7.
- Richardson, M. 2001. Yellownecked caterpillars munch shade trees for lunch. *Garden Check*. 7:7.
- Richardson, M. 2001. Wasp nests best attacked after dark - with spray. *Wilmington News Journal*. August 16.
- Richardson, M. 2001. Year of the hymenoptera. *Newsy Bee*. August.
- Richardson, M. 2001. Lace bugs. *Ornamentals Hotline*. 22.
- Richardson, M. 2001. Battling the bad beetles. *Garden Check*. 6:5.
- Richardson, M. 2001. Rosebush leaves fall victim to hungry insect pests. *Wilmington News Journal*. July 19.
- Richardson, M. 2001. Dusky birch sawflies. *Ornamentals Hotline*. 17.
- Richardson, M. 2001. Japanese beetles. *Ornamentals Hotline*. 14.
- Richardson, ML. 2001. Comparison of temperature monitoring methods for GDD accumulation. *SE PA IPM Fact Sheet* 4 pp.
- Richardson, ML. 2001. Comparison of temperature monitoring methods for GDD accumulation. *U. Del. Coop. Ext. Publ.* 4 pp.

INVITED TALKS

- Richardson, ML. 2008. Symposium: The NSF GK-12 Program: insect-based curricula, impact, and extensions. Annual Meeting of the Entomological Society of America. Reno, NV.
- Hari, J and ML Richardson. 2008. Symposium: The NSF GK-12 Program: insect-based curricula, impact, and extensions. Annual Meeting of the Entomological Society of America. Reno, NV.
- Richardson, ML. 2002. Using degree-days to accurately predict ornamental plant pest populations. Fall Meeting of the Southeast Pennsylvania Integrated Pest Management Research Group. Collegeville, PA.
- Richardson, ML. 2001. Growing degree-days for IPM Programs. *Ornamentals Research Expo*, University of Delaware. Newark, DE.
- Richardson, ML. 2001. Growing degree-days, their formulation and instruments used to measure them. Spring Meeting of the Southeast Pennsylvania Integrated Pest Management Research Group. Collegeville, PA.

CONTRIBUTED TALKS AND POSTERS

- Richardson, ML, and LM Hanks. 2008. Influence of ploidal diversity of host plants on community structure of phytophagous insects. Annual Meeting of the Entomological Society of America. Reno, NV.
- Cosentino, BJ, ML Richardson, and SD Smith. 2008. AIC and other statistical methods to compare multiple models. *Ecolunch*, University of Illinois. Urbana, IL.
- Richardson, ML, and LM Hanks. 2008. Segregation of niches among four species of orb-weaving spiders (Araneidae). Annual Meeting of the Ecological Society of America. Milwaukee, WI.
- Richardson, ML. 2008. Demonstrating how abiotic factors influence the distribution of animals. Annual Meeting of the Illinois State Academy of Science. Urbana, IL.
- Richardson, ML. 2008. Building ecological complexity in GK-12 classrooms: ideas for outreach. Midwest Ecology and Evolution Conference, Ohio University. Athens, OH.
- Richardson, ML, C Whalen, and S Denos. 2008. Real science in real classrooms. NSF GK-12 Annual Meeting, Washington, DC.
- Richardson, ML, and LM Hanks. 2007. Effects of secondary succession on biodiversity of orb-weaving spiders. National Meeting of the Entomological Society of America. San Diego, CA.
- Richardson, ML. 2007. Using plant-arthropod relationships as a model system to teach biodiversity. Annual Meeting of the Illinois State Academy of Science. Springfield, IL.

- Mitchell, RF, ML Richardson, PF Reigel, and LM Hanks. 2007. Consequences of cannibalism in non-carnivorous insects. Annual Meeting of the Illinois State Academy of Science. Springfield, IL.
- Richardson, ML. 2007. Outreach programs in GK-12, a biodiversity project. Midwest Ecology and Evolution Conference, Kent State University. Kent, OH.
- Denos, S, T Smith, ML Richardson, K Rampalli, D Cummins, J Younker and C Whalen. 2007. UIUC GK12 - Modeling and Visualization in the Sciences and Social Sciences. NSF GK-12 Annual Meeting, Washington, DC.
- Richardson, ML, PF Reigel, RF Mitchell, and LM Hanks. 2007. Impact of cannibalism on fitness and population dynamics of non-carnivorous insects. Graduate Students in Ecology and Evolutionary Biology Symposium, University of Illinois. Urbana, IL
- Richardson, ML, PF Reigel, RF Mitchell, and LM Hanks. 2006. Impact of cannibalism on fitness and population dynamics of phytophagous insects. National Meeting of the Entomological Society of America. Indianapolis, IN.
- Richardson, ML, JD Brawn, and PJ Weatherhead. 2006. Effects of prescribed burning on small mammals and snakes in Midwestern grassland. Annual Meeting of the Illinois State Academy of Science. Chicago, IL.
- Richardson, ML. 2004. Prescribed fire's effects on biodiversity in the Midwestern prairie. Natural Resources and Environmental Sciences Symposium, University of Illinois. Urbana, IL.
- Richardson, ML, and DM Caron. 2003. Obtaining and utilizing growing degree-days to accurately predict ornamental plant pest populations. SE PA bi-annual IPM Conference, Villanova University. Villanova, PA.
- Richardson, ML. 2002. Obtaining and utilizing growing degree-days to accurately predict ornamental plant pest populations. Undergraduate Research Symposium, University of Delaware. Newark, DE.
- Richardson, ML, DM Caron, and DJ Suchanic. 2001. Measuring growing degree-days for integrated pest management programs. National Cooperative Extension Agents Meeting. NM.
- Richardson, ML. 2001. Measuring growing degree-days for IPM programs. Scholars Poster Session, University of Delaware. Newark, DE.