

NOELLE G. BECKMAN

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RESEARCH INTERESTS: SCALING FROM SEEDSCAPES TO ECOSYSTEMS

- *Theoretical, spatial, & empirical ecology of plants, particularly tropical trees*
- *Plant-animal/plant-microbe interactions, functional trait variation, and life history strategies*
- *Integrating empirical and quantitative approaches to investigate multi-scale processes*
- *Seed dispersal ecology under global change*

ACADEMIC APPOINTMENTS

- 2017 **Assistant Professor**, Biology Department and Ecology Center
Utah State University
- 2015 - **Postdoctoral Fellow**, National Socio-Environmental Synthesis Center (SESYNC)
2017 University of Maryland
- 2012 - **Postdoctoral Fellow**, Mathematical Biosciences Institute (MBI)
2015 The Ohio State University
- 2010 - **Postdoctoral Fellow**, Population Biology Program of Excellence, School of Biological Sciences
2012 University of Nebraska-Lincoln

EDUCATION

- 2010 **Ph.D.** Ecology, Evolution, and Behavior, **Minor** Statistics
University of Minnesota-Twin Cities
Co-advisors: Dr. Helene C. Muller-Landau, Dr. Claudia Neuhauser
Committee: Dr. Linda L. Kinkel, Dr. David Tilman, Dr. Sanford Weisberg
Smithsonian Tropical Research Institute advisor: Dr. S. Joseph Wright
- 2002 **B.S.** Biology, *cum laude*
Washington and Lee University
Academic advisor: Dr. John S. Knox, *Honors advisor:* Dr. Lawrence E. Hurd

AWARDS

- 2015 - 2017 National Science Foundation (NSF) National Socio-Environmental Synthesis Center (SESYNC) Postdoctoral Fellowship
- 2012 - 2015 National Science Foundation (NSF) Mathematical Biosciences Institute (MBI) Postdoctoral Fellowship
- 2010 - 2012 Postdoctoral Fellowship, Program of Excellence in Population Biology, University of Nebraska-Lincoln
- 2010 Philip C. Hamm Memorial Scholarship, UMN
- 2008 - 2009 Doctoral Dissertation Fellowship, UMN
- 2005 - 2008 National Science Foundation Graduate Research Fellowship
- 2004 - 2005 University of Minnesota Graduate Fellowship
- 2004 National Science Foundation Graduate Fellowship Honorable Mention

2002 Biology Research Award, Washington and Lee University
2000, 2001 Christian A. Johnson Scholar, Washington and Lee University
1998 - 2002 Robert E. Lee Scholarship, Washington and Lee University

PUBLICATIONS (PEER-REVIEWED)

- 2017 15. Tiansawat, P., **N. G. Beckman**, and J.W. Dalling. 2017. Pre-dispersal seed predators and fungi differ in their effect on *Luehea seemannii* capsule development, seed germination, and dormancy across two Panamanian forests. *Biotropica*. *In press*.
- 2014 14. Comita, L. S., S. A. Queenborough, S. Murphy, J. L. Eck, K. Xu, M. Krishnadas, **N. G. Beckman**, and Y. Zhu. 2014. Testing predictions of the Janzen-Connell hypothesis: A meta-analysis of experimental evidence for distance- and density-dependent seed and seedling survival. *Journal of Ecology* 102 (4): 845-856.
13. Stephenson, N. L., A. J. Das, R. Condit, S. E. Russo, P. Baker, **N. G. Beckman**, *et al.* 2014. Rate of tree carbon accumulation increases continuously with tree size. *Nature*. DOI: 10.1038/nature12914
➤ **Recommended** by *Faculty of 1000*
12. **Beckman, N. G.**, R. Dybzinski, and D. Tilman. 2014. Neighborhoods have little effect on fungal attack or insect predation of developing seeds in a grassland biodiversity experiment. *Oecologia* 174 (2): 521-532.
- 2013 11. **Beckman, N. G.** and H. S. Rogers. 2013. Consequences of seed dispersal for plant recruitment in tropical forests: Interactions within the seedscape. *Biotropica* 45 (6): 666-681.
10. **Beckman, N. G.** 2013. The distribution of fruit and seed toxicity during development for eleven Neotropical trees and vines. *PLoS ONE* 8 (7): e66764.
- 2012 9. **Beckman, N. G.**, C. Neuhauser, and H. C. Muller-Landau. 2012. The interacting effects of clumped seed dispersal and distance- and density-dependent mortality on seedling recruitment patterns. *Journal of Ecology* 100 (4): 862-873.
- 2011 8. **Beckman, N. G.** and H.C. Muller-Landau. 2011. Linking fruit traits to variation in predispersal vertebrate seed predation, insect seed predation, and pathogen attack. *Ecology* 92: 2131-2140.
- 2007 7. **Beckman, N. G.** and H. C. Muller-Landau. 2007. Differential effects of hunting on pre-dispersal seed predation and primary and secondary seed removal of two Neotropical tree species. *Biotropica* 39 (3): 328-339.
➤ **Editors' Choice** in *Science* 316: 955
6. Wright, S. J., K. E. Stoner, **N. Beckman**, R. T. Corlett, R. Dirzo, H. C. Muller-Landau, G. Nuñez-Iturri, C. A. Peres, B. C. Wang. 2007. The plight of large animals in tropical forests and the consequences for plant regeneration. *Biotropica* 39 (3): 289-291.
5. Mollov, D. S., M. C. Hayslett, K. A. Eichstaedt, **N. G. Beckman**, M. L. Daughtrey, B. E. Lockhart. 2007. Identification and characterization of a Carlavirus causing veinal necrosis of *Coleus*. *Plant Disease* 91 (6): 754-757.
4. Marsh, D.M., R.B. Page, T.J. Hanlon, H. Bareke, R. Corritone, N. Jetter, **N. G. Beckman**, K.J. Gardner, D.E. Seifert and P.R. Cabe. 2007. Ecological and genetic evidence that low-order

streams inhibit dispersal by red-backed salamanders (*Plethodon cinereus*). *Canadian Journal of Zoology* 85 (3): 319-327.

- 2005 3. Marsh, D.M., G.S. Milam, N.P. Gorham and **N. G. Beckman**. 2005. Forest roads as partial barriers to terrestrial salamander movement. *Conservation Biology* 19 (6):2004-2008.
- 2004 2. Marsh, D. M. and **N. G. Beckman**. 2004. Effects of forest roads on the abundance and activity of terrestrial salamanders. *Ecological Applications* 14 (6): 1882-1891.
- 2003 1. **Beckman, N. G.** and L. E. Hurd. 2003. Pollen feeding and fitness in a praying mantis: the vegetarian side of a tritrophic carnivore. *Environmental Entomology* 32 (4): 881-885.
➤ cover story

DATA PRODUCTS

- 2017 2. Pimonrat Tiansawat, James Dalling, and **Noelle Beckman**. 2017. Capsule development, seed germination and dormancy of *Luehea seemannii* (Tiliaceae) in two forests in Panama 2008. *Knowledge Network for Biocomplexity*. DOI:10.5063/F16D5QZK
- 2013 1. **Beckman, N.G.** 2013. Data from: The distribution of fruit and seed toxicity during development for eleven Neotropical trees and vines in Central Panama. *Dryad Digital Repository*. DOI: <http://dx.doi.org/10.5061/dryad.b2c80>

PUBLICATIONS IN PREPARATION OR REVIEW

Beckman, N. G. and P. Tiansawat. *In revision*. Trait-Based Approach For Selecting Species for Aerial Seeding. In Elliot, Stephen (ed). *Automated Forest Restoration by Forest Restoration Research Unit*.

J. Zambrano, C. Garzon-Lopez, N. G. Swenson, L. Yeager, C. Fortunel, and **N. G. Beckman**. *In revision for resubmission*. Investigating the effects of landscape fragmentation on plant functional diversity.

Krishnadas, M., **N. G. Beckman**, J. C. Penagos, Y. Zhu, J. Whitacre, J. Wenzel, S. Queenborough, L. S. Comita. *In review*. Environment, more than land-use history, influences species distributions and functional diversity of tree communities in a temperate forest landscape.

N. G. Beckman, B. Jahnes, and Z. L. Sabree. *In review*. Nutritionally-defined diets streamline phylotype diversity and highlight persistent endemic taxa in an emergent model omnivorous invertebrate.

J. Zambrano, **N. G. Beckman**, J. Thompson, M. Uriate, Jess K. Zimmerman and N. G. Swenson. *In prep*. Trait-based neighborhood models of tree demography and scale.

OTHER PUBLICATIONS

- 2016 Burnside, William R., Heather Randell, **Noelle G. Beckman**, Jenny Zambrano, Allison Howard. RE: A socio-environmental perspective on international migration. *Science eLetter*. 25 July 2016.
- 2010 **Beckman, N. G.** 2010. Effects of vertebrates, insects, and pathogens on patterns of early plant recruitment in tropical forests. PhD Dissertation. University of Minnesota –Twin Cities
- 2002 **Beckman, N. G.** 2002. Pollen feeding and its effect on a generalist predator, the Chinese Praying Mantis, *Tenodera sinensis*. Honors thesis. Washington and Lee University

RESEARCH GRANTS (P.I. – UNLESS OTHERWISE NOTED)

- 2017 National Science Foundation (NSF) National Socio-Environmental Synthesis Center (SESYNC) Workshop. Cross-Disciplinary Statistical Applications in the Anthropocene. Leads: Chris Trisos, Noelle G. Beckman, Joe Maher. \$50,000
- 2015 National Science Foundation (NSF). Seed Dispersal Workshop. Co-PIs: C. Aslan & H. Rogers. \$49,939
- 2013 Society for Industrial and Applied Mathematics Early Career Travel Award \$650
- 2012 MBI Workshop for Young Researchers in Mathematical Biology Travel Award \$600
- 2009 Smithsonian Tropical Research Institute (STRI) Supplementary Research Award \$4117
Ecology, Evolution, and Behavior Block Grant, UMN \$2763.21
Graduate and Professional Student Assembly Travel Grant, UMN \$165
Ecology, Evolution, and Behavior Graduate Program Travel Grant, UMN \$700
- 2008 Ecological Society of America Student Section Travel Award \$195
Ecology, Evolution, and Behavior Block Grant, UMN \$3718
Wilkie Research Fellowship Award, Bell Museum of Natural History \$1200
University of Minnesota Thesis Research Grant \$5000
- 2006 National Science Foundation (NSF) International Travel Award \$1000
Wilkie Research Fellowship Award, Bell Museum of Natural History \$1200
- 2005 Graduate and Professional Student Assembly Travel Grant, UMN \$250
Wilkie Research Fellowship Award, Bell Museum of Natural History \$900
Sigerfoos Fellowship, Ecology, Evolution, and Behavior, UMN \$3128

WORKSHOPS AND WORKING GROUPS

- Nov 2016 **Invited Participant**, [Population Models in the 21st Century](#), Mathematical Biosciences Institute
- Sept 2016 **Invited Participant**, [Integrodifference Equations in Ecology: 30 years and counting](#), Banff International Research Station for Mathematical Innovation and Discovery (BIRS)
- May 2016 **Organizer**, [Seed Dispersal Workshop](#), National Science Foundation
- April 2016 **Participant**, [Tropical Reforestation Pursuit](#), SESYNC
- Nov 2015 **Participant**, [Automated Forest Restoration Workshop](#), Forest Restoration Research Unit, Chiang Mai University

ACADEMIC ADVISING AND TRAINING

Graduate Students:

2017-present Eric Sodja (MS, USU)

Graduate Student Committees:

2016-present Gunbharpur Singh Gill (PhD, USU)

Undergraduate Students Supervised:

Summer 2014 Nathan Moos, University of Michigan Undergraduate

Fall 2013 I mentored undergraduate students in a group project on the mathematics of disease spread in the course Math 1156: *Calculus for Biological Sciences*

Spring 2009 Rebeca Acosta, Volunteer, University of Panama Undergraduate

Fall 2008 Julio Batista, Volunteer, University of Panama Undergraduate

Sophia Christoforides, Internship, University of Minnesota Undergraduate
 Summer 2008 Reina Heinz, Volunteer, University of California Santa Cruz Undergraduate
 Summer 2006 Sonja Riddle-Ford, Directed Research, Science Education Partnership for Greater Minnesota, University of Minnesota Undergraduate

Volunteers & Interns:

Summer 2008 Matt Certo, Internship, Western Washington University M.S. Student
 Christopher Moore, Internship, California State University-Fullerton M.S. Student
 Spring 2008 Amy Dickson, Volunteer, Smithsonian Tropical Research Institute, Panama
 Serica Zwack, Volunteer, Smithsonian Tropical Research Institute, Panama
 Fall 2007 Bernardo Lopez, Volunteer, Smithsonian Tropical Research Institute, Panama
 Summer 2005 Michelle Stein, Internship, University of Minnesota M.A. Student

PEDAGOGICAL RESOURCES

2017 Penner, J., P. Gess, and **N. G. Beckman**. The Three-Wattled Bellbird: Corridor, Conservation, and Costa Rica (2016-11). SESYNC Case Study Collection

TEACHING EXPERIENCE

University-level

April 2016 **Guest Lecturer**, [Socio-Environmental Synthesis & Sustainability Research](#)
 Instructors: David Hawthorne, Jampel Dell'Angelo, Matthew LaFevor
 SESYNC, University of Maryland, College Park;

- I taught a class on dispersal ecology and conservation including an overview of mathematical models to address spatial questions in dispersal ecology in this graduate-level course.

June 2015 **Resource Faculty**, *Tropical Biology: An Ecological Approach*
 Organization of Tropical Studies

- I led a group research project on the influence of light microenvironments on functional traits related to defense and herbivory of seedlings in Cabo Blanco Absolute Reserve, Costa Rica in this graduate-level course.

Fall 2014 **Instructor**, EEOB 5450: *Quantitative Population Ecology*
 Ecology, Evolution, and Organismal Behavior, Ohio State University

- This course covered modeling approaches in population ecology, including demography, competition, predation, epidemiology, and metapopulation models. Students developed independent projects related to population demography. I co-taught with Drs. Maria Miriti and Elizabeth Marschall and taught the final segment of the course covering interactions among species.

May 2014 **Resident Director**, [EEOB 4420H: Tropical Ecology in Panama](#)
 Ecology, Evolution, and Organismal Behavior, The Ohio State University

- I co-designed a study-abroad undergraduate course, in which students gained first-hand knowledge of tropical biology and conservation. Students explored the

diversity of forest types in Panama, interacted with scientists at internationally renowned research stations, and gained experience conducting independent field research. Students communicated their learning experiences to the public through the maintenance of a student blog and brief video summaries of their projects.

- Spring 2012 **Guest Instructor**, BIOS 454/854: *Ecological Interactions*, Instructor: S.E. Russo
School of Biological Sciences, UNL
- I taught a weeklong section on the influence of herbivory on plant communities, with a focus on population regulation, species coexistence, and evolution of plant defenses in this undergraduate- and graduate-level course.
- Fall 2011 **Instructor**, BIOS 497/897: *The Ecological Role of Secondary Compounds in Plant Communities*, School of Biological Sciences, UNL
- I designed a 2-credit seminar for advanced undergraduate and graduate students. To provide a historical context, the course reviewed seminal papers on coevolution between plants and herbivores, the controversy regarding the adaptive value of secondary metabolites in plants, hypotheses of their allocation in plants, and support for alternative hypotheses. The course included a discussion of the more recent controversy of the function of secondary compounds in ripe fruit and how this differs from their function in vegetative plant parts.
- Fall 2010 **Guest Instructor**, BIOS 109: *Introductory Botany*, Instructor: S.E. Russo
School of Biological Sciences, UNL
- I taught a class on plant population dynamics with an overview of population growth models in this undergraduate course.
- Spring 2007 **Guest Instructor**, Science 111: *Introductory Science*, Instructor: R. Butkowski
Biology Department, Augsburg College
- Science 111 is an undergraduate course for primary and secondary educators
 - I designed the ecology section of this course.
- Summer 2006 **Guest Instructor**, *Introduction to Field Biology*
Smithsonian Tropical Research Institute/ University of Panama
- This is a field course for Panamanian undergraduate students to gain experience conducting biological research.
 - I co-taught a two-day session, leading students through the development of a hypothesis-driven question, as well as collecting and analyzing data.
- Spring 2006 **Teaching Assistant**, BIOL 1001: *Introductory Biology I: Evolutionary & Ecological Perspectives*, Biology Program, University of Minnesota
- I taught two laboratory sections of approximately twenty students each in which students were introduced to fundamental principles of ecology and evolution.
 - My responsibilities included grading quizzes, homework, and written assignments as well as strengthening students' problem solving, critical thinking, and writing skills.

K-12

- Summer 2011 **Instructor**, *Ecology*
Northeast Upward Bound (NEUB), Lincoln, Nebraska

- I co-organized and co-taught a three-hour lab session introducing ecological concepts to high school students in the NEUB program.
- NEUB's mission is to retain students of families with low income or no post-secondary education in secondary education and increase enrollment in post-secondary education (<http://www.unl.edu/trioprog/neub>).

- Summer 2002 **Instructor, Ornithology**
Nature Camp, Vesuvius, VA; Directed by Dr. Paul Cabe
- I designed and taught four two-week field courses in ornithology for middle and high school students. In my courses, I encouraged students to enjoy nature and practice conservation techniques, such as recycling and composting.
- 2000-2002 **Instructor, Ornithology & Ecology**
Boxerwood Gardens, Lexington, VA
- Boxerwood Gardens is an arboretum, nature center and non-profit educational organization.
 - During the fall and spring, I led outdoor ornithology and ecology classes of visiting elementary and middle school students.

PEDAGOGICAL DEVELOPMENT

- 2016 *Instructor Training Workshop*, Software Carpentry Foundation
- 2016 *Teaching Socio-Environmental Synthesis with Case Studies*, SESYNC
- 2006 - 2007 *Preparing Future Faculty Sequence*, University of Minnesota
Practicum for Future Faculty (2007)
- Explored faculty roles in academia
- Teaching in Higher Education (2006)*
- Learned a variety of teaching and learning strategies
 - Designed a course syllabus, several assignments, and active learning activities
- 2007 *Teaching with Writing in the Biological Sciences Seminar*
University of Minnesota
- Learned how to effectively teach writing in the sciences to diverse students

PROFESSIONAL DEVELOPMENT

- 2015 - *Socio-Environmental Immersion Program*, SESYNC, University of Maryland
- 2017
- 2016-2017 Environmental History, Environmental Policy, Behavioral Economics, Network Science and Ecology
 - 2015-2016 Ecology, Anthropology, Economics, Sociology, Change in Socio-Environmental Systems
- 2017 *Phylogenetic and Functional Trait Analyses for Ecology in R*, SESYNC, University of Maryland, taught by Dr. Nathan Swenson
- 2015 *Bayesian Modeling for Ecological & Social Scientists*, SESYNC, University of Maryland
Computational Summer Institute, SESYNC, University of Maryland

- Spatially-varying Stochastic Differential Equations with Applications to the Biological Sciences*, Mathematical Biosciences Institute, The Ohio State University
- 2014 *Software Carpentry Workshop*
Postdoc Course on Statistical Learning, Mathematical Biosciences Institute, The Ohio State University
Workshop for Young Researchers in Mathematical Biology. Mathematical Biosciences Institute, Ohio State University (poster presentation)
- 2013 *Workshop 3: Sustainable Management of Living Natural Resources*. Mathematical Biosciences Institute, Ohio State University.
Workshop 2: Rapid Evolution and Sustainability. Mathematical Biosciences Institute, The Ohio State University.
Workshop 1: Sustainability and Complex Systems. Mathematical Biosciences Institute, The Ohio State University.
The Keyfitz Centennial Symposium on Mathematical Demography. Mathematical Biosciences Institute, The Ohio State University.
Workshop for Young Researchers in Mathematical Biology. Mathematical Biosciences Institute, The Ohio State University. (poster presentation)
- 2012 *Workshop for Young Researchers in Mathematical Biology*. Mathematical Biosciences Institute, The Ohio State University (poster presentation)
Transitioning to Faculty Life: A Conference for Postdocs Underrepresented in STEM Committee on Institutional Cooperation at The Ohio State University
- 2010 - *Workshops provided by ADVANCE-Nebraska and the Postdoctoral Advisory Council*
2012 University of Nebraska-Lincoln
- 'Making a Successful Transition to an Academic Career' led by Dr. Kamau Siwatu
 - 'Teamwork and Leadership Skills for Postdocs' led by Dr. Sharon Milgram
 - 'Interrupting Bias in the Faculty Search Process' led by Dr. Joyce Yen
- 2009 *Likelihood Methods in Ecology*
- Taught by Dr. Charles Canham, Cary Institute of Ecosystem Studies, and Dr. Maria Uriarte, Columbia University
- 2005 *Tropical Biology: An Ecological Approach*, Organization of Tropical Studies
- A 6-week field course in Costa Rica with a focus on hypothesis-driven questions
 - I was involved in five faculty-led projects and two independent research projects. Each project consisted of developing a hypothesis, designing an experiment, and presenting results and conclusions through an oral presentation and a written research article.
- 2004 *A Workshop on Seed Ecology: Dormancy and Germination*, University of Minnesota
- Drs. Carol and Jerry Baskin, University of Kentucky

ORGANIZED SYMPOSIA AND ORAL SESSIONS

- 2017 **Beckman, Noelle G.**, A. Warwick, & F. R. Adler. October 2017. The Long Journey Home: Ecology and Evolution in the City. SACNAS National Conference in Salt Lake City, Utah.
- Beckman, Noelle G.**, R. Snell, B. Loiselle, E. Fricke, & G. Schupp. August 2017. OOS: Consequences of individual variation in dispersal for recruitment, populations, and communities. Ecological Society of America Meeting in Portland, Oregon.
- Schugart, R. and **Noelle G. Beckman**. July 2017. Minisymposium: Confronting Biological Models with Data: Dealing with Complexity and Sparsity I. Society for Mathematical Biology in Salt Lake City, Utah.
- Beckman, Noelle G.** and R. Schugart. July 2017. Minisymposium: Confronting Biological Models with Data: Dealing with Complexity and Sparsity II. Society for Mathematical Biology in Salt Lake City, Utah.
- 2016 Zambrano, J., **N. G. Beckman**, C. Garzon, and C. Fortunel. June 2016. Symposium: Is habitat fragmentation driving tropical forests towards functional homogenization? Annual Meeting of the Association of Tropical Biology and Conservation in Montpellier, France

INVITED CONFERENCE PRESENTATIONS

- 2017 **Beckman, Noelle G.**, J. M. Bullock, M. A. Lewis, and M. G. Neubert. August 2017. Variation in dispersal, demography, and functional traits related to population spread. Ecological Society of America Annual Meeting in Portland, Oregon.
- Beckman, Noelle G.**, R. Salguero-Gómez, T. Cornulier, and J. Bullock. Assessing species' risk under climate change. July 2017. Society for Mathematical Biology in Salt Lake City, Utah.
- 2013 **Beckman, N. G.** and F. R. Adler. November 2013. Dispersal disruption alters plant spatial patterns and decreases plant survivorship. Field of Dreams Conference. The National Alliance for Doctoral Studies in the Mathematical Sciences. Mesa, Arizona.
- Beckman, N. G.** and F. R. Adler. August 2013. Theory: impact of dispersal disruption on plant spatial patterns and implications for plant diversity. Ecological Society of America meeting in Minneapolis, Minnesota.
- Beckman, N. G.** and F. R. Adler. May 2013. The interacting effects of clumped seed deposition and insect seed predators on the spatial patterns of seedlings. The Society for Industrial and Applied Mathematics Conference on Dynamical Systems and its Application in Snowbird, Utah.

CONTRIBUTED CONFERENCE PRESENTATIONS

- 2016 **Beckman, Noelle G.** and J. Bullock. August 2016. Seed dispersal helps explain variation in life history strategies. SACNAS conference in Long Beach, CA (oral presentation)
- Beckman, Noelle G.** and J. Bullock. August 2016. Seed dispersal helps explain variation in life history strategies. Ecological Society of America Meeting in Ft. Lauderdale, FL (oral presentation)
- Beckman, Noelle G.**, Carol X. Garzon-Lopez, Helene Muller-Landau, Patrick Jansen, S. Joseph Wright. June 2016. Spatial patterns of seed predation by a specialized invertebrate. Annual

- Meeting of the Association for Tropical Biology and Conservation in Montpellier, France (oral presentation)
- 2015 Dybzinski, R. **Beckman, N. G.** and D. Tilman. December 2015. Predictions of coexistence from short-term plant-soil feedback experiments fail to predict long-term observations from a controlled competition experiment. Annual Meeting British Ecological Society in Edinburgh, Scotland. (poster presentation)
- 2014 **Beckman, N. G.** and F. R. Adler. December 2015. Dispersal disruption alters plant spatial patterns and decreases plant survivorship. Annual Meeting British Ecological Society and Société Française d'Ecologie in Lille, France. (oral presentation)
- Beckman, N. G.** and F. R. Adler. August 2014. Dispersal disruption alters plant spatial patterns and decreases plant survivorship: Analytical approximations to individual-based models. Ecological Society of America Meeting in Sacramento, CA. (oral presentation)
- 2012 Tiansawat, P., **N. G. Beckman**, and J. W. Dalling. 2012. The effect of pre-dispersal seed predation and fungal infection on seed production and seed survival of *Luehea seemannii* in Panama. Ecological Society of America Meeting in Portland, OR. (poster presented by PT)
- 2010 **Beckman, N. G.** August 2010. Chemical defenses in tropical fruits: Quantifying variation in toxicity across fruit development and within fruit of vertebrate- and wind-dispersed canopy plants. Ecological Society of America Meeting in Pittsburgh, PA. (oral presentation)
- 2009 **Beckman, N. G.** and H. C. Muller-Landau. August 2009. Linking interspecific variation in vertebrate seed predation, insect seed predation, and pathogen attack to fruit traits in tropical woody plants. Ecological Society of America Meeting in Albuquerque, New Mexico. (oral presentation)
- Beckman, N. G.** and H. C. Muller-Landau. July 2009. Linking interspecific variation in vertebrate seed predation, insect seed predation, and pathogen attack to fruit traits in tropical woody plants. Association for Tropical Biology and Conservation Annual Meeting in Marburg, Germany. (oral presentation)
- 2008 **Beckman, N. G.** and H. C. Muller-Landau. August 2008. Effects of vertebrate seed dispersers, insect seed predators, and pathogens in seed survival at the pre-dispersal stage of several tropical woody plants. Ecological Society of America Meeting in Milwaukee, WI. (oral presentation)
- 2007 **Beckman, N. G.**, H. C. Muller-Landau, and C. Neuhauser. August 2007. How do different empirically derived patterns of natural enemy attack and seed dispersal affect patterns of seedling recruitment? Ecological Society of America Meeting in San Jose, CA. (oral presentation)
- 2005 **Beckman, N. G.** and H. C. Muller-Landau. July 2005. Implications of hunting for tropical plant community composition: Differential effects on seed removal. Association for Tropical Biology and Conservation Annual Meeting in Uberlandia, Brazil. (oral presentation)
- 2004 **Beckman, N. G.**, G. S. Milam, N. P. Gorham and D. M. Marsh. August 2004. Forest roads are partial barriers to dispersal of terrestrial salamanders. Ecological Society of America meeting in Portland, OR. (poster presentation)

- 2003 **Beckman, N. G.** and D. M. Marsh. June 2003. Detectability of *Plethodon cinereus* in disturbed and undisturbed habitats. Joint American Society of Ichthyologists and Herpetologists meeting in Manaus, Amazonia, Brazil. (poster presentation)
- 2002 Marsh, D. **Beckman**, and B. Clarke. August 2002. Effects of forest roads on terrestrial salamanders in the Southern Appalachians. Ecological Society of America Meeting. (poster presented by DM)
- 2000 **Beckman, N. G.** and L. E. Hurd. December 2000. Fitness benefits of pollen-feeding in the Chinese Praying Mantid. Entomological Society of America Meeting in Montreal, Canada. (poster presentation)

SEMINARS

- 2017 **Beckman, N. G.** Nov 2017. Extinction Risk of Plant Species under Global Change. Biology Department Seminar, University of Connecticut (*Invited*)
- Beckman, N. G.** Feb 2017. Seed Dispersal under Global Change. National Socio-Environmental Synthesis Center (SESYNC)
- 2016 **Beckman, N. G.** Nov 2016. Assessing species' risk of extinction under climate change. Workshop 4: Population Models in the 21st Century. Mathematical Biosciences Institute (*Invited*)
- Beckman, N. G.** Nov 2016. Seed Dispersal Ecology Under Global Change. Biology Department Seminar, University of Central Florida (*Invited*)
- Beckman, N. G.** Oct 2016. Seed Dispersal Ecology Under Global Change. Behavior, Ecology, Evolution, and Systematics Seminar, University of Maryland (*Invited*)
- Beckman, N. G.** March 2016. Understanding the effects of seed dispersal strategies on life history of plants. Casual Seminar, National Institute for Mathematical and Biological Synthesis. (*Invited*)
- 2015 **Beckman, N. G.** December 2015. The consequences of disrupting seed dispersal for plant spatial patterns and survivorship. Applied Mathematics Colloquium, University of Maryland, Baltimore County. (*Invited*)
- Beckman, N. G.** November 2015. Scaling from Seedscapes to Ecosystems. Department of Biology, Washington and Lee University. (*Invited*)
- Beckman, N. G.** October 2015. Scaling from Seedscapes to Ecosystems. Environmental Sciences Seminar, Chiang Mai University. (*Invited*)
- Beckman, N. G.** March 2015. Scaling from Seedscapes to Ecosystems. Department of Biology and Ecology Center, Utah State University. (*Invited*)
- Beckman, N. G.** March 2015. Scaling from Seedscapes to Ecosystems. School of Life Sciences, Arizona State University. (*Invited*)
- Beckman, N. G.** February 2015. Scaling from Seedscapes to Ecosystems. Postdoctoral Seminar, Mathematical Biosciences Institute.
- Beckman, N. G.** February 2015. Dispersal Ecology Under Global Change, SESYNC. (*Invited*)

- Beckman, N. G.** February 2015. The Influence of Vertebrates, Insects, and Pathogens on Plant Survival. Department of Biological Sciences, SUNY College at Old Westbury. *(Invited)*
- Beckman, N. G.** January 2015. Scaling from Seedscapes to Ecosystems. Department of Environmental and Plant Biology, Ohio University. *(Invited)*
- 2014 **Beckman, N. G.** December 2014. Scaling from Seedscapes to Ecosystems: The Influence of Vertebrates, Insects, and Pathogens on Plant Recruitment. Biology Department, Bates College. *(Invited)*
- Beckman, N. G.** November 2014. Movement: The Disruption of Seed Dispersal. STEAM Exchange, STEAM Factory, The Ohio State University.
- Beckman, N. G.** March 2014. Dispersal disruption alters plant spatial patterns and decreases plant survivorship. Postdoctoral Seminar, Mathematical Biosciences Institute.
- Beckman, N. G.** January 2014. Dispersal disruption alters plant spatial patterns and decreases plant survivorship. Mathematical Biology Seminar, The University of Utah. *(Invited)*
- 2013 **Beckman, N. G.** October 2013. Theoretical implications of seed dispersal and natural enemies for forest spatial patterns and diversity. Undergraduate Seminar in Mathematical Biology Research, The Ohio State University.
- Beckman, N. G.** April 2013. The influence of vertebrates, insects, and pathogens on patterns of early plant recruitment in a Neotropical forest. Plant Ecology Seminar, The Ohio State University. *(Invited)*
- Beckman, N. G.** March 2013. The influence of vertebrates, insects, and pathogens on patterns of early plant recruitment in a Neotropical forest. Postdoctoral Seminar, Mathematical Biosciences Institute.
- 2011 **Beckman, N. G.** April 2011. Effects of vertebrates, insects, and pathogens on patterns of early plant recruitment in tropical forests. Forest Ecology Seminar, National University of Singapore. *(Invited)*
- 2010 **Beckman, N. G.**, C. Neuhauser, and H. C. Muller-Landau. November 2010. The effect of insect seed predators, soil-borne pathogens, and clumped seed dispersal on seedling recruitment patterns in a simulated community. Mathematical Biology Seminar, UNL. *(Invited)*
- Beckman, N. G.** September 2010. Effects of vertebrates, insects, and pathogens on patterns of early plant recruitment in tropical forests. Ecology, Evolution, and Behavior Seminar, School of Biological Sciences, UNL.
- Beckman, N. G.** July 2010. Effects of vertebrates, insects, and pathogens on patterns of early plant recruitment in tropical forests. Defense seminar. Department of Ecology, Evolution, and Behavior, UMN.
- Beckman, N. G.** March 2010. Part I: Linking interspecific variation in vertebrate seed predation, insect seed predation, and pathogen attack to fruit traits in tropical woody plants; Part II: Are tropical fruits toxic? Quantifying variation in fruit toxicity of eleven tropical canopy plants. Center for Tropical Forest Science at STRI.
- 2009 **Beckman, N. G.** and H. C. Muller-Landau. November 2009. Linking interspecific variation in vertebrate seed predation, insect seed predation, and pathogen attack to fruit traits in

tropical woody plants. Friday Noon Seminar, Department of Ecology Evolution, and Behavior, UMN.

2007 **Beckman, N. G.**, H. C. Muller-Landau, and C. Neuhauser. December 2007. The influence of seed dispersal and natural enemies on seedling recruitment patterns: A theoretical perspective. Friday Noon Seminar, Department of Ecology Evolution, and Behavior, UMN.

Beckman, N. G. and H. C. Muller-Landau. March 2007. Differential effects of hunting on pre-dispersal seed predation and primary and secondary seed removal of two Neotropical tree species. Augsburg College. (*Invited*)

Beckman, N. G. June 2007. How do mammals, insects, and pathogens affect patterns of early plant recruitment? Pre-thesis seminar, Department of Ecology, Evolution, and Behavior, UMN.

2005 **Beckman, N. G.** and H. C. Muller-Landau. August 2005. Implications of hunting for tropical plant community composition: Differential effects on seed removal. Bambi: Barro Colorado Research Symposium, Panama.

PROFESSIONAL EXPERIENCE

March 2016 **Short-Term Visitor**, National Institute for Mathematical and Biological Synthesis

- Collaborating on a project with NIMBioS postdoctoral fellow [Caroline Farrior](#).

2010-2012 **Postdoctoral Fellow**, Population Biology Program of Excellence
School of Biological Sciences, University of Nebraska-Lincoln
Advisor: Dr. Sabrina Russo
Project description: Understanding Litter Decomposition: The relative importance of Leaf Functional Traits, Edaphic Factors, and Precipitation

- I designed and set-up a leaf litter decomposition experiment to investigate the influence of leaf functional traits of trees on leaf litter decomposition through interactions with microbial decomposers and the soil environment in a hyper-diverse rain forest in Lambir Hills National Park, Malaysia, Borneo.

Summer 2010 **Graduate Research Associate**, Dialogue Earth, Institute on the Environment
Supervisor: Dr. Kent Cavender-Bares
Project description: Quantifying environment-related assertions made in the social media that will help direct the development of new content aimed to increase communication and understanding of climate change

- Using generalized linear mixed models and information criteria for model selection, I analyzed how local weather influences the frequency of dialogue on climate change in the social media using available data
- I helped develop criteria for characterizing assertions made in on-line news media

2003 - 2004 **Lab manager**, University of Washington, Seattle, WA
Supervisors: Dr. Josh Tewksbury and Dr. Doug Levey
Project description: Evolution and function of secondary metabolites that mediate many plant-animal interactions, specifically studying capsaicin, a secondary metabolite renown for its pungency, in chilies (*Capsicum chacoense*, *C. annuum*).

- In lab: I set-up and organized Dr. Tewksbury's new lab, prepared for field seasons, and ran experiments in the greenhouse and growth chambers

- In field (Patagonia, AZ): I helped construct a research hut, used mist-nets to catch curve-billed thrashers (*Toxostoma curvirostre*), measured gut retention time of thrashers in a controlled environment, and manipulated capsaicin concentrations in non-pungent *C. chacoense*.

- 2001 - 2004 Washington and Lee University, Mountain Lake Biological Station, VA
Advisor: Dr. David Marsh
- **Head technician** (Summer 2003, 2004): I supervised two undergraduates on Dr. Marsh's research projects focused on homing behavior of red-backed salamanders (*Plethodon cinereus*) across clearings, roads and streams as well as dispersal into forest patches.
 - **Field assistant** (Summer 2002)
 - **Christian A. Johnson Scholar** (Summer 2001): I designed an experiment testing differences in detectability of *P. cinereus* at road edges and forest interior.
- March 2003 **Intern**, Baños, Ecuador
Advisor: Lou Jost
- I collected orchids in the genus *Teagueia* thought to be climatically isolated in Ecuador.
 - I found one rare *Teagueia* species and one species new to this area of the Llanganates mountain range.
- Fall 2002 **Research Assistant**, Wallaby Creek, NSW, Australia
Supervisor: Dr. Gerald Borgia, University of Maryland
Project description: Sexual selection in satin bowerbirds (*Ptilonorhynchus violaceus*).
- I banded birds, recorded morphological and physiological measurements, and observed mating behavior of satin bowerbirds
 - I searched for bowers and assembled and set up microphones, infrared sensors, and video cameras at each bower.
- Summer 2000 **Christian A. Johnson Scholar**, Washington and Lee University, Lexington, VA
Advisor: Dr. Lawrence E. Hurd
- I designed several laboratory experiments testing the significance of pollen feeding for the fitness of a food-limited generalist predator, the praying mantid *Tenodera sinensis*.
- Summer 1998,1999 **Field Assistant**, United States Forest Service, Asheville, NC
Supervisor: Dr. David Danley
- I was involved in a project to restore roadsides along the Blue Ridge Parkway with native plants. I collected seeds from native grasses and flowers that were later planted along the Parkway in place of introduced species.

MENTORING, SERVICE, & OUTREACH

Mentoring

- July 2017 Graduate Student Mentor (1 student) at the Society for Mathematical Biology conference in Salt Lake City, UT
- April 2017 [Make for the Planet](#), Earth Optimism Summit, Washington, D.C.

- Mentor to 18 teams participating in a competition/hackathon to create hardware and/or software solutions to specific conservation challenges organized by Conservation X Labs
- Oct. 2016 [The National Diversity in STEM Conference](#) organized by the [Society of Advancement of Chicanos/Hispanics and Native Americans in Science \(SACNAS\)](#) in Long Beach, CA:
- Undergraduate Student Mentor (3 students)
 - “Conversations with a Scientist” Mentor in Ecology
 - Mentor Judge for undergraduate and graduate presentations
- July 2016 [SEEDS](#) (Strategies for Ecology Education, Diversity and Sustainability: Diverse People for a Diverse Science) Undergraduate Student Mentor (1 student) at Ecological Society of America meeting in Fort Lauderdale, FL
- June 2016 Graduate Student Mentor (2 students) at the Annual Meeting of the Association of Tropical Biology and Conservation in Montpellier, France

Public Service

- April 2017 **Speaker**, The Journey of a Seed in a Changing World, Café Scientifique, Annapolis, MD
- Oct. 2016 **SESYNC Representative**, The National Diversity in STEM Conference
- Organized by [SACNAS – Advancing Chicanos/Hispanics & Native Americans in Science](#)
- 2012-present **Editor**, [Verde Elemental](#)
- Verde Elemental is a digital publication dedicated to promoting and disseminating knowledge in ecology and conservation in Latin America.
 - I report on relevant events and research in Latin America.
 - In collaboration with SESYNC, I began a new education initiative and am co-coordinating translating relevant [case studies in SESYNC’s collection](#) to Spanish.
- 2012-2015 **Core Member**, [STEAM Factory](#), The Ohio State University
- STEAM Factory promotes interdisciplinary collaboration and research dissemination to the public
 - I presented my research at 400 West Rich Street’s Market, a gathering of farmers, artists, and entrepreneurs that share their products with the local community.
- Nov. 2013 **MBI Representative**, Seventh Annual Mathematical Field of Dreams Conference
- Organized by the [National Alliance for Doctoral Studies in the Mathematical Sciences](#)
 - I discussed opportunities in mathematical biology with underrepresented minority students in the mathematical sciences.
- July 2007 **Scientist on the Spot**, MN Science Museum’s online community ‘Science Buzz’
- I discussed the fate of tropical rain forests and the implications of hunting for forest communities by answering online questions from the community.
- 2007 **Guest Speaker** for 2 Honors Biology classrooms, A.C. Reynolds High School, Asheville, NC
- I discussed the consequences of hunting for plant communities and my experiences leading up to and in graduate school.
- 2007 **Moderator/ Judge**, 14th Annual Regional Science Bowl, MN Academy of Science
- 2006 **Moderator/ Judge**, 13th Annual Regional Science Bowl, MN Academy of Science

2006 **Grand Awards Judge**, Annual Minnesota Academy of Science State Fair
 2005 **Judge**, Science Fair at the School for Environmental Studies, MN
 2004 **Guest speaker**, Flora & Fauna of Wallaby Creek, Australia, Nature Camp (6th-8th grade), Vesuvius, VA
 2002 **Guest speaker**, Conducting Ecological Research: Pollen feeding and fitness in a Praying Mantis, Nature Camp (6th-8th grade), Vesuvius, VA
Animal Department Volunteer, Nature Center, Asheville, NC

University Service

2016-2017 **Organizer**, SESYNC Postdoctoral Professional Development Lunches
 2016 **Review Panel**, Postdoctoral Socio-Environmental Immersion Program Proposals
 2013-2014 **Organizing Committee**, Workshop for Young Researchers in Mathematical Biology, Mathematical Biosciences Institute
 2013 **Colloquium Committee**, Mathematical Biosciences Institute
Poster Judge, The Ohio State University Natural and Mathematical Sciences Undergraduate Research Forum
 2010-2012 **Postdoc Advisory Council (PAC) Member**, Office of Postdoctoral Studies, UNL
PAC Postdoctoral Travel Grant Committee, Office of Postdoctoral Studies, UNL
PAC Postdoctoral Minimum Wage Committee, Office of Postdoctoral Studies, UNL
 2012 **Strategic Hiring Task Force Committee**, School of Biological Sciences, UNL.
Poster Judge, University of Nebraska-Lincoln Undergraduate Research Conference
 Spring 2012 **Organizer**, Theoretical Ecology Journal Club, UNL
 Fall 2010 **Organizer**, EcoChat Seminar, School of Biological Sciences, UNL
 2007-2008 **Student Academic Grievance Committee**, Ecology, Evolution, and Behavior, UMN
 2005-2007 **Graduate Student Peer Mentor**, Ecology, Evolution, and Behavior, UMN
 2006-2007 **Teaching Assistant Liaison**, Ecology, Evolution, and Behavior, UMN
 2005-2006 **Friday Noon Seminar Committee**, Ecology, Evolution, and Behavior, UMN
 2004-2005 **Audio-Visual Committee**, Ecology, Evolution, and Behavior, UMN

Professional Service

2016 **Judge** for Lotka-Volterra Student Awards, Theoretical Ecology Section, Ecological Society of America
President, Ecological Society of America
 2010, 2014 **Ad hoc Reviewer** for the *National Science Foundation*
 2009-2015 **Associate Faculty Member** of *Faculty of 1000* in Theoretical Ecology
 2006-present **Member** of the ESA Author Help Directory

Editorial Service

[Ad hoc Reviewer](#) for the following journals:

July 2015 – present: *Australian Journal of Botany* (1), *Ecology* (2), *Ecology Letters* (1), *Israel Journal of Ecology & Evolution* (1), *Global Ecology & Biogeography* (1), *Perspectives in Plant Ecology, Evolution, and Systematics* (1), *Plant Ecology* (2), *Theoretical Ecology* (1)

Before July 2015: *Austral Ecology* (1), *Biotropica* (7), *Ecological Modelling* (4), *Ecology* (1), *European Journal of Forest Research* (1), *Journal of Ecology* (2), *Journal of Theoretical Biology* (1), *Journal of Tropical Ecology* (2), *Oecologia* (6), *Oikos* (1), *PLOS ONE* (1), *Theoretical Population Biology* (1)

MEDIA

- 2015 [Seeds of Change: Climate change could disrupt plants' dispersal of seeds](#) by Lisa Palmer. Interview with Yale Climate Connections.
- 2014 *Nature* article on tree carbon accumulation [recommended by Faculty of 1000](#)
- 2007 *Biotropica* article on hunting highlighted as [Editor's Choice in Science 316: 955](#)
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PROFESSIONAL SOCIETIES

American Association for the Advancement of Science, Association for Tropical Biology and Conservation, British Ecological Society, Ecological Society of America, Society of Mathematical Biology, Society for Advancement of Chicanos/Hispanics and Native Americans in Science

OTHER EXPERIENCE

Long-form Improvisational Comedy

- 2016 Level 3: Character, Washington Improv Theater, Washington D.C.
Level 2: Foundations of Scenework, Washington Improv Theater, Washington D.C.
- 2014-2015 Player in the Revelators, Harold House Team at First Beat Theatre
- 2013-2015 Player in Game, Set, Match; Performances at Strongwater
- 2014 Harold Workshop with Tara Defrancisco (iO, Second City, ComedySportz)
Intro to Long-Form Improvisation, Make a Scene Improv, Columbus, Ohio
- 2012-2013 Player in See You Thursday; Performances at Wild Goose Creative
- 2013 Performed with See You Thursday at Chicago Improv Festival
Improv Workshop at the Annoyance Theatre, Chicago, IL
- 2012 Improv Workshop with Mega Grano (iO, Second City, Annoyance Theatre)
Level 2 Improv: Callbacks and Connections, Backline Improv Theatre, Omaha, NE
Level 1 Improv: Intro to Improv, Backline Improv Theatre, Omaha, NE
- 2007 Level 1 Everyday Improv, Brave New Workshop, Minneapolis, MN

Music

- 2012 - 2015 Cellist, Metropolitan Chamber Orchestra, Columbus, Ohio
- 2010 - 2012 Cellist, Lincoln Civic Orchestra, Lincoln, Nebraska
- 2009 - 2010 Cellist, University of Panama Orchestra, Panama City, Panama
- 1998 - 2002 Cellist and Violinist, University-Shenandoah Symphony Orchestra, Washington and Lee University
- Winter 2002 Cello Recital, Washington and Lee University
- Winter 2001 Cellist in production of *The Elephant Man*, Washington and Lee University
- 2001 WLUR Radio Announcer
- Winter 2000 Cello Recital, Washington and Lee University
- 1999 WLUR Radio Announcer
- Fall 1999 Cello Recital, Washington and Lee University
- 1994 - 1998 Cellist, Asheville Youth Orchestra
- 1994 - 1998 Cellist, Jubilee Summer Orchestra, Asheville, NC

Soccer

- 1998 - 1999 Women's Varsity Soccer, Washington and Lee University
- 1994 - 1998 Women's Varsity Soccer, A. C. Reynolds High School

1998 Women's Varsity Soccer Captain, A. C. Reynolds High School
1996-1998 Soccer Referee