

## NOELLE G. BECKMAN | CURRICULUM VITAE

National Socio-Environmental Synthesis Center • 1 Park Place • Suite 300 • Annapolis, MD 21401  
 nbeckman@sesync.org • [www.noellebeckman.com](http://www.noellebeckman.com)

## 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

## 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

## 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*

## AWARDS

- 2015 - 2017 NSF National Socio-Environmental Synthesis Center Postdoctoral Fellowship
- 2012 - 2015 NSF Mathematical Biosciences Institute 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

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PUBLICATIONS (PEER-REVIEWED)

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- 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.  
 ➤ **Data** deposited in the Dryad Repository: <http://dx.doi.org/10.5061/dryad.b2c80>
- 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

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#### PUBLICATIONS IN PREPARATION OR REVIEW

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**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*.

Tiansawat, P., **N. G. Beckman**, and J.W. Dalling. *In review*. Pre-dispersal seed predators and fungi affect capsule development, seed germination and dormancy of *Luehea seemannii* differentially across two Neotropical forests in Panama.

Dybzinski, R., **N. G. Beckman**, and D. Tilman. *To be submitted*. Predictions of coexistence or exclusion from short-term plant-soil feedback experiments tested against long-term observations from a controlled competition experiment.

Krishnadas, M., **N. G. Beckman**, J. C. Penagos, Y. Zhu, S. Queenborough, L. S. Comita. *In prep*. The roles of space, environment, phylogeny, and land-use history in explaining functional composition and turnover in a temperate forest.

Jenny Zambrano, **N. G. Beckman**, Carol Garzon, Lauren Yeager, and Claire Fortunel. *In prep*. Is habitat fragmentation driving tropical forests towards functional homogenization?

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#### OTHER PUBLICATIONS

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- 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 Mantid, *Tenodera sinensis*. Honors thesis. Washington and Lee University

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

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- 2015 National Science Foundation (with C. Aslan & H. Rogers). Seed Dispersal Workshop \$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 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 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

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#### PENDING GRANTS

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- 2017 *National Socio-Environmental Synthesis Center*. Cross-Disciplinary Statistical Applications in the Anthropocene. Organizer: Chris Trisos; Co-Organizers: **Noelle G. Beckman**, Joe Maher
- 2017-2020 *National Science Foundation Research Coordination Network*. CoDisperse: An International Cooperative for Seed Dispersal Ecology under Global Change. Requesting \$499, 962. PI: **Noelle G. Beckman**; Co-PIs: Clare Aslan, Haldre Rogers.

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#### WORKSHOPS AND WORKING GROUPS

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- Nov 2016 **Invited Participant**, [Population Models in the 21<sup>st</sup> 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

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#### TEACHING EXPERIENCE

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##### University-level

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- 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.

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**K-12**


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- 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.

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**MENTORING**


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- 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
- Summer 2014 Nathan Moos, University of Utah 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 Matt Certo, Internship, Western Washington University M.S. Student  
 Reina Heinz, Volunteer, University of California Santa Cruz Undergraduate  
 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 2006 Sonja Riddle-Ford, Directed Research, Science Education Partnership for Greater Minnesota, University of Minnesota Undergraduate
- Summer 2005 Michelle Stein, Internship, University of Minnesota M.A. Student

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#### PEDAGOGICAL DEVELOPMENT

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- 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

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#### PROFESSIONAL DEVELOPMENT

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- 2015 - 2017 *Socio-Environmental Immersion Program*, SESYNC, University of Maryland
- 2016-2017 Environmental History, Policy, Ecological Networks
  - 2015-2016 Ecology, Anthropology, Economics, Sociology, Change in Socio-Environmental Systems
- 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*

- Led 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

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#### Relevant Graduate Coursework

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**Ecology, Evolution, & Behavior:** Plant-Animal/Microbe Interactions, Ecological Theory and Concepts, Modeling Nature and the Nature of Modeling, Plant Physiological Ecology, Spatial Ecology

**Plant Pathology:** Causal Organisms of Plant Disease

**Statistics:** Applied Regression Analysis, Applied Multivariate Methods, Designing Experiments, Theory of Statistics I & II, Seminar in Model Exploration and Selection, Seminar in Bayesian Statistics for Ecologists

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#### INVITED CONFERENCE PRESENTATIONS

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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.

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#### ORGANIZED SYMPOSIA

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2016 Jenny Zambrano, **Noelle G. Beckman**, Carol Garzon, and Claire Fortunel. June 2016. Is habitat fragmentation driving tropical forests towards functional homogenization? Annual Meeting of the Association of Tropical Biology and Conservation in Montpellier, France

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#### CONTRIBUTED CONFERENCE PRESENTATIONS

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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 Überlandia, 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. **N. 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)

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#### SEMINARS

- 2016 **Beckman, N. G.** Nov 2016. Assessing species' risk of extinction under climate change, Workshop 4: Population Models in the 21<sup>st</sup> 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 Seascapes to Ecosystems. Department of Biology, Washington and Lee University. *(Invited)*
- Beckman, N. G.** October 2015. Scaling from Seascapes to Ecosystems. Environmental Sciences Seminar, Chiang Mai University. *(Invited)*
- Beckman, N. G.** March 2015. Scaling from Seascapes to Ecosystems. Department of Biology and Ecology Center, Utah State University. *(Invited)*
- Beckman, N. G.** March 2015. Scaling from Seascapes to Ecosystems. School of Life Sciences, Arizona State University. *(Invited)*
- Beckman, N. G.** February 2015. Scaling from Seascapes 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 Seascapes to Ecosystems. Department of Environmental and Plant Biology, Ohio University. *(Invited)*
- 2014 **Beckman, N. G.** December 2014. Scaling from Seascapes 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.

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#### 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 **Graduate Research Associate**, Dialogue Earth, Institute on the Environment

- 2010 **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.

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## SERVICE & OUTREACH

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### Public Service

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- 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**, 14<sup>th</sup> Annual Regional Science Bowl, MN Academy of Science
- 2006     **Moderator/ Judge**, 13<sup>th</sup> 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 (6<sup>th</sup>-8<sup>th</sup> grade), Vesuvius, VA
- 2002     **Guest speaker**, Conducting Ecological Research: Pollen feeding and fitness in a Praying

Mantis, Nature Camp (6<sup>th</sup>-8<sup>th</sup> grade), Vesuvius, VA

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### University Service

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

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### Professional Service

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

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### Editorial Service

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**Ad hoc Reviewer** for the following journals:

July 2015 – present: *Australian Journal of Botany* (1), *Ecology* (2), *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)

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### MEDIA

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2015	<a href="#">Seeds of Change: Climate change could disrupt plants' dispersal of seeds</a> by Lisa Palmer. Interview with Yale Climate Connections.
2014	<i>Nature</i> article on tree carbon accumulation <a href="#">recommended by Faculty of 1000</a>

2007 *Biotropica* article on hunting highlighted as [Editor's Choice in Science 316: 955](#)

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#### PROFESSIONAL SOCIETIES

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American Association for the Advancement of Science, American Women in Science, Association for Tropical Biology and Conservation, Ecological Research as Education Network, Ecological Society of America, National Postdoctoral Association, Sigma Xi

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#### OTHER EXPERIENCE

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##### **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

2001 WLUR Radio Announcer

1999 WLUR Radio Announcer

Fall 1999 Cello Recital, Washington and Lee University

Winter 2001 Cellist in production of *The Elephant Man*, 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