

Sarah E. Bowden, Ph.D.
sebowdenphd@gmail.com

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| Current Position | <i>SME Geography & Website Developer</i> Eagle Medical Services, LLC | September 2017 - Present |
| | Data scientist (contractor) Office of Innovation, Development, Evaluation, and Analytics (IDEA) Division of Global Migration and Quarantine Centers for Disease Control and Prevention | |
| Education & Training | <i>Postdoctoral researcher</i> Cary Institute of Ecosystem Studies, Millbrook, NY Advisor: Dr. Barbara A. Han | June 2016 - August 2017 |
| | <i>Ph.D., Ecology</i> University of Georgia, Athens, GA Advisor: Dr. John M. Drake <i>Trans-boundary ecosystem effects on vector community diversity: Implications for disease dilution and amplification in multi-species host-pathogen systems</i> | 2016 |
| | <i>B.S., Ecology</i> University of Georgia, Athens, GA | 2009 |
| Peer-reviewed Publications | Han BA, Schmidt JP, Alexander L, Bowden SE , Hayman DTS, Drake JM, 2016. Undiscovered bat hosts of filoviruses. <i>PLoS Negl Trop Dis</i> 10(7): e0004815 | |
| | Han B, Schmidt JP, Bowden SE , Drake JM, 2015. Rodent reservoirs of future zoonotic diseases. <i>Proc Nat Acad Sci</i> 112(22): 7039-7044. | |
| | Bowden SE and Drake JM, 2013. Ecology of multi-host pathogens of animals. <i>Nature Education Knowledge</i> 4(8): 5. | |
| | Maher SP, Kramer AM, Pulliam JT, Zokan MA, Bowden SE , Barton HD, Magori K, Drake JM, 2012. Spread of white-nose syndrome on a network regulated by geography and climate. <i>Nat Comm.</i> | |
| | Magori K, Bajwa WI, Bowden SE , Drake JM, 2011. Decelerating spread of West Nile Virus by percolation in a heterogeneous urban landscape. <i>PLoS Comp Biol</i> 7(7): e1002104. | |
| | Bowden SE , Magori K, Drake JM, 2011. Regional Differences in the Association Between Land Cover and Human West Nile Virus Disease Incidence in the United States. <i>Am J Trop Med Hyg</i> 84: 234-238. | |
| Teaching Experience | <i>Instructor; Workshop developer</i> Cary Institute of Ecosystem Studies Research Experience for Undergraduates (REU) <i>Introduction to R; Tidy data and data manipulation; Data visualization; Data analysis and basic statistical tests</i> | June - July 2017 |
| | <i>Postdoctoral Coordinator and Instructor</i> | January 2017 |

Cary Institute of Ecosystem Studies
Fundamentals of Ecosystem Ecology (FEE) short course

Adjunct faculty August 2016-December 2016
State University of New York (SUNY), New Paltz
BIO 211: General (Cellular) Biology I Laboratory

Instructor; Workshop developer June - July 2016
Cary Institute of Ecosystem Studies Research Experience for Undergraduates (REU)
*Introduction to R; Data visualization; Basic statistical tests; Dynamic documents
and reproducible research*

Guest lecturer February 2016
ECOL 3480: Urban Ecology (University of Georgia)
The urban ecology of infectious diseases

Instructor of record August 2015 - May 2016
ECOL 1000L: Ecological Basis of Environmental Issues (University of Georgia)

Guest lecturer April 2015
ECOL 4150/6150: Disease Ecology (University of Georgia)
Climate change and emerging infectious diseases

Graduate laboratory assistant January - May 2015
ECOL 3500L: Ecology (University of Georgia)

Instructor of record August - December 2014
ECOL 1000L: Ecological Basis of Environmental Issues (University of Georgia)

Presentations

**denotes poster presentation*

Infectious Disease Modelers Community of Practice November 2018
Centers for Disease Control and Prevention, Atlanta, GA
*Statistical prediction of human West Nile virus disease occurrence based on land cover
change*

Population Biology, Ecology, and Evolution Graduate Program October 2018
Emory University, Atlanta, GA
Applications of machine learning in disease ecology (invited seminar)

University of Notre Dame Department of Biology, South Bend, IN November 2017
Applications of machine learning in disease ecology (invited seminar)

Ecological Society of America Annual Meeting, Portland, OR August 2017
*Statistical prediction of human West Nile virus incidence based on changes in land
cover composition*

The Hotchkiss School, Lakeville, CT July 2017
Ecology of West Nile virus in the United States (invited lecture)

Bard College Biology Department, Annandale-on-Hudson, NY April 2017
Ecology of West Nile virus in the United States (invited seminar)

Bedford Audubon Society, Katonah, NY April 2017

Ecology of West Nile virus in the United States (invited lecture)

International Congress of Entomology XXV, Orlando, FL September 2016
Community ecology of mosquito vectors: linking larval competition, climate change, and vector-borne disease (invited talk)

Ecological Society of America Annual Meeting, Ft. Lauderdale, FL August 2016
Larval competition modifies the thermal niche of vector mosquitoes

Dissertation defense, Odum School of Ecology, Athens, GA June 2016
Trans-boundary ecosystem effects on vector community diversity: implications for disease dilution and amplification in multi-species host-pathogen systems

Graduate Student Symposium, Odum School of Ecology, Athens, GA January 2016
Larval competition modifies the thermal niche of vector mosquitoes

Cary Institute of Ecosystem Studies, Millbrook, NY October 2015
Vector ecology at multiple scales (invited seminar)

Stanford University Department of Biology, Palo Alto, CA September 2015
Vector ecology at multiple scales (invited seminar)

Graduate Student Symposium, Odum School of Ecology, Athens, GA January 2015
Effects of density dependence and competition on development of larval mosquitoes

Ecological Society of America Annual Meeting, Sacramento, CA August 2014
Effects of density dependence and competition on development of larval mosquitoes

Graduate Student Symposium, Odum School of Ecology, Athens, GA January 2012
Modeling disease dilution and amplification in a multi-host, multi-vector system

Ecological Society of America Annual Meeting, Austin, TX August 2011
Statistical prediction of West Nile Virus transmission intensity in New York City

*Ecological Society of America Annual Meeting, Pittsburgh, PA August 2010
Regional Differences in the Association Between Land Cover and Human West Nile Virus Disease Incidence in the United States

*Graduate Student Symposium, Odum School of Ecology, Athens, GA January 2010
Regional Differences in the Association Between Land Cover and Human West Nile Virus Incidence in the United States

*CURO Symposium, University of Georgia, Athens, GA March 2009
West Nile Virus in New York City: Using Birds as an Indicator of Spatio-temporal Distribution

Technical Skills

Programming: R, R Markdown, L^AT_EX, Git/Github

Software: ESRI ArcGIS, Tableau

Computational: Supervised machine learning algorithms

Mathematical: Deterministic and stochastic ODE models, deterministic DDE models

Statistical: Generalized linear mixed-models (GLMM), non-linear models (NLM)

Laboratory: DNA/RNA extraction, PCR, gel electrophoresis, rearing of larval and adult mosquitoes

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| Other Training | Tutorial: Uncertainty Quantification for Biological Models National Institute for Mathematical and Biological Synthesis (NIMBioS), Knoxville, TN | June 2017 |
| | MBI-CAMBAM-NIMBioS Summer Graduate Program The Ohio State University, Columbus, OH <i>Stochastics Applied to Biological Systems</i> | June 2012 |
| | University of Florida IFAS-FMEL, Vero Beach, FL <i>Certified Mosquito Identification Specialist</i> | March 2011 |
| Funding & Awards | 2nd Place Doctoral Research Presentation Graduate Student Symposium, Odum School of Ecology, Athens, GA | January 2016 |
| | Odum School of Ecology Small Grant (\$400) | November 2014 |
| | Odum School of Ecology Small Grant (\$415) | November 2012 |
| | Honorable Mention, NSF Graduate Research Fellowship Program | 2012 |
| | Odum School of Ecology Small Grant (\$1,200) | November 2010 |
| | Josh Laerm Memorial Outstanding Ecology Undergraduate Award | 2010 |
| | 1st Place Undergraduate Poster Presentation Graduate Student Symposium, Odum School of Ecology, Athens, GA | January 2010 |
| Professional Affiliations & Service | <i>Working group leader</i> , VectorBiTE Research Coordination Network <i>Participant</i> , Computational Ecology and Epidemiology Study Group Odum School of Ecology, University of Georgia | 2016 - Present 2009-2016 |
| | <i>Member</i> , Ecological Society of America | 2010 - Present |
| | <i>Member</i> , Ecological Society of America Disease Ecology Section | 2014 - Present |
| | <i>Mentor</i> , Cary Institute of Ecosystem Studies REU Program | Summer 2017 |
| | <i>Participant</i> , Letters to a Pre-scientist | 2016-2017 |
| | <i>Mentor</i> , Ecological Society of America SEEDS program | 2016 |
| | <i>Poster judge</i> , Georgia Junior Science & Humanities Symposium | 2016 |
| | <i>Research paper scorer</i> , Georgia Junior Science & Humanities Symposium | 2016, 2017 |
| | Reviewer, <i>Journal of Vector Ecology</i> | 2011, 2014 |
| | Reviewer, <i>Emerging Infectious Diseases</i> | 2012 |
| | Reviewer, <i>Ecosphere</i> | 2011, 2017 |
| | Reviewer, <i>Journal of Animal Ecology</i> | 2016 |
| | Reviewer, <i>Ecology Letters</i> | 2017 |