BARBARA A. HAN

Curriculum vitae

Cary Institute of Ecosystem Studies, Box AB Millbrook, NY 12545
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RESEARCH INTERESTS

- Computational ecology, informatics, data mining, machine learning
- Infectious disease ecology and evolution, zoonotic spillover and emergence
- Behavioral ecology

EDUCATION

2002 – 2008 Ph.D. Zoology. Department of Zoology, Oregon State University.
Advisor: Dr. Andrew R. Blaustein (Thesis: The effects of an emerging pathogen on amphibian host behaviors and interactions)

1998 – 2002 B.S. Biology. Natural Science Division, Pepperdine University.
Advisor: Dr. Lee B. Kats

POSITIONS HELD

2014 – Disease Ecologist, Cary Institute of Ecosystem Studies. Millbrook, NY.

2014 – Adjunct Graduate Faculty, Odum School of Ecology, University of Georgia. Athens, GA.

2011 – 2014 National Institutes of Health Ruth Kirschstein Postdoctoral Research Fellow. Odum School of Ecology, University of Georgia
Advisor: Dr. John M. Drake

2008 – 2010 National Science Foundation Postdoctoral Research Fellow in Biological Informatics. Odum School of Ecology, University of Georgia
Advisor: Dr. Sonia Altizer

2004 – 2005 U.S. Fulbright Fellow. Instituto Venezolano de Investigaciones Científicas (IVIC), Caracas, Venezuela.
Sponsor: Dr. Margarita Lampo

GRANTS & AWARDS

2018-2021 *In negotiation.* **Defense Advanced Research Projects Agency** (**DARPA**), PREEMPT program. $9.6M (CIES Subcontract: TBD). PI: Plowright (MSU); Team: Han BA + 22 others.

5/2018 **NVIDIA Corporation**, Academic GPU Grant Program. Titan XP GPU donation in aid of research following competitive proposal review.
Lead PI: B. Han

2018 **Cary Science Innovation Fund**. Exploring new frontiers in disease ecology. $35K. PIs: Solomon C, Han BA, LaDeau SL, Ostfeld RS, Rosi E.

8/2017-2022 **National Science Foundation,** Ecology and Evolution of Infectious Diseases Program. *Global patterns, predictors, and their dynamical consequences in zoonotic diseases of mammals*. $2M. Lead-PI: B. Han; Co-PIs: O'Regan, S.M., Drake, J.M.

3/2016-2021 **National Science Foundation,** Ecology and Evolution of Infectious Diseases Program. *The community ecology of viromes in a changing landscape: virome assembly and transmission in white-footed mice and blacklegged ticks*. $2.4M. Lead PI: Vandegrift, K. Co-PIs: Han, B., Hudson, P.J., Kapoor, A., Ostfeld, R.M.

5/2016 **National Institute for Mathematical and Biological Synthesis** (NIMBioS), Short-term Visitor Award. *Machine learning and mathematical modeling of pace of life in disease ecology.* All expenses paid attendance*

2011 – 2014 **National Institutes for Health,** Ruth Kirschstein National Research Service Award Individual Postdoctoral Fellowship. *Machine learning to forecast zoonotic disease emergence*. Lead PI: B Han. $160,000

2008 – 2010 **National Science Foundation,** Postdoctoral Research Fellowship in Biology, Biological Informatics. *Allometric scaling of infectious disease dynamics: integrating theory and empirical data*. Lead PI: B. Han. $123,000

2008 – 2011 **National Institutes for Health,** Ruth Kirschstein National Research Service Award Individual Postdoctoral Fellowship. *Allometric scaling and infectious disease dynamics.* $126,000 (Fellowship was awarded but not accepted)

2006 – 2007 **National Fish and Wildlife Foundation,** Budweiser Conservation Scholarship. *Amphibian declines and a globally emerging infectious disease.* $10,000

2006 **NIH Graduate Research Festival**, Postdoctoral recruitment event. All-expenses paid attendance*

2006 **Korean American Scholarship Foundation**, Designated scholarship*

2004 – 2005 **U.S. Fulbright Fellowship**, U.S. Department of State. *Disease ecology of an emerging infectious amphibian pathogen*. Affiliations: Instituto Venezolano de Investigaciones Científicas (Caracas, Venezuela). $18,000

2003, 2004 **National Science Foundation,** Pre-doctoral Fellowship, Honorable mentions

2003, 2004 **Oregon State University**, Zoology Research Fund Awards*

2003 **Society of Integrative and Comparative Biology**, Grant in Aid of Research*

**denotes <$5,000 USD*

PUBLICATIONS

Peer-reviewed articles:

33. **Han BA** and Ostfeld RS. Invited review: Topic modeling of major research themes in disease ecology of mammals. *Accepted*, ***Journal of Mammalogy.***

32. Dallas T, Budischak S, Carlson C, Ezenwa V, **Han BA**, Huang S, Aguirre AA, Stephens PR. Using helminth parasites to test macroecological hypotheses. *Accepted*, ***Global Ecology and Biogeography***.

31. Strona G, Carstens CJ, Beck PSA, **Han BA**. 2018. The intrinsic vulnerability of networks to epidemics. ***Ecological Modelling***, 383: 91–97.

30. Yang L and **Han BA.** Data-driven predictions and novel hypotheses about zoonotic tick vectors from the genus *Ixodes*. ***BMC Ecology*** 18:7 doi: 10.1186/s12898-018-0163-2

29. Evans MV, Dallas TA, **Han BA**, Murdock CC and Drake JM. 2017. Data-driven identification of potential Zika virus vectors. ***elife*** 6: 077966.

28. Schmidt JP, Park AW, Kramer A, **Han BA**, Alexander L, Drake JM. 2017. Spatiotemporal fluctuations and triggers of Ebolavirus spillover. ***Emerging Infectious Diseases***, 23:415.

27. LaDeau SL, **Han BA**, Rosi-Marshall EJ, Weathers KC. 2017. The next decade of big data in ecosystem science. ***Ecosystems***, 20: 274–283.

26. **Han BA** and Drake JM. 2016. Future directions in analytics for infectious disease intelligence. ***EMBO Reports***, 17:785.

    [Selected Press: The Medical News, Health Medicinet, Scientific Computing, Infection Control Today, Science Daily, EurekAlert! by AAAS]

25. **Han BA**, Kramer A, Drake JM. 2016. Invited review: Global patterns of zoonotic disease in mammals. ***Trends in Parasitology***, 32: 565-577

    [Selected Press: BBC World Report, The Washington Post, The Scientist, The Science Explorer, Conservation magazine, SINC, El País, TakePart, Cell Press Podcast, WAMC Northeast public radio, Popular Science, Health Medicine Network, Tech Times, MSN Noticias, FiercePharma, EurekAlert! by AAAS, Le Scienze]

24. **Han BA**, Yang L. Predicting novel tick vectors of zoonotic disease. 2016. ***Proceedings of the 33rd International Conference on Machine Learning*** (ICML) Workshop on #Data4Good: Machine Learning in Social Good Applications, New York, NY, USA. arXiv:1606.06323v1 [q-bio.PE]

23. Ilin R, **Han BA.** Formal Concept Analysis of Rodent Carriers of Zoonotic Disease. 2016. ***Proceedings of the 33rd International Conference on Machine Learning*** (ICML) Workshop on #Data4Good: Machine Learning in Social Good Applications, New York, NY, USA. arXiv:1608.07241 [stat.ML]

22. **Han BA**, Schmidt JP, Hayman D, Alexander L, Bowden SE, Drake JM. 2016. Undiscovered bat hosts of filoviruses. ***PLoS Neglected Tropical Diseases***, 7:e0004815

    [Selected Press: Digital Trends, Scientific Computing, ScienceDaily, Infection Control Today, Foreign Affairs New Zealand]

21. Stephens PR, Altizer S, Smith KF, Aguirre A, Brown JH, Budischak S, Byers JE, Critchlow R, Davies JT, Drake JM, Ezenwa V, Farrell M, Gittleman JL, **Han BA**, Huang S, Hutchinson RA, Johnson PTJ, Nunn CL, Onstad D, Park AW, Poulin R, Vazquez-Prokopec GM,

Papparlardo P, Schmidt JP. 2016. The macroecology of infectious diseases: a new perspective on global-scale drivers of pathogen distributions and impacts. ***Ecology Letters***. DOI: 10.1111/ele.12644

20. Pigott DM, Millear A, Earl L, **Han BA**, Shearer F, Weiss DJ, Brady OJ, Kraemer MUG, Moyes CL, Bhatt SJ, Gething PW, Golding N, Hay SI. 2016. Updates to the zoonotic niche map of Ebola virus disease in Africa. ***eLife***, 5:e16412.

19. LaDeau S and **Han BA**. 2016. The emergence of disease ecology. ***Japanese Journal of Zoo and Wildlife Management***, 21:53.

18. **Han BA**, Schmidt JP, Bowden SE, Drake JM. 2015. Rodent reservoirs of future zoonotic diseases. ***Proceedings of the National Academy of Science***, 112:7039-7044. DOI: 10.1073/pnas.1501598112

    [Selected Press: Science, Nature, The Economist, IEEE Spectrum, The Scientist, Fusion, Healio, Homeland Security News Wire, Popular Science, Infection Control Today, Laboratory Equipment, News Medical, OnlineAthens, Poughkeepsie Journal, RT, Ars Technica, National Geographic, PHYS]

17. **Han BA**, Park AW, Jolles AE, Altizer S. 2015. Infectious diseases transmission and behavioral allometry in wild mammals. ***Journal of Animal Ecology***, 84:637-646. DOI: 10.1111/1365-2656.12336

16. **Han BA**, Kerby JL, Searle CL, Storfer A, Blaustein AR. 2015. Host species composition influences infection severity among amphibians in the absence of spillover transmission. 2015. ***Ecology and Evolution***, 5:1432-1439. DOI: 10.1002/ece3.1385

15. Kats LB, Bucciarelli G, Schlais DE, Blaustein AR, **Han BA.** 2012. Ultraviolet radiation influences perch selection by a neotropical poison-dart frog. ***PLoS ONE***, 7:e51364. doi:10.1371/journal.pone.0051364

14. **Han BA**, Searle CL, Blaustein AR. 2011. The effects of an infectious fungal pathogen, *Batrachochytrium dendrobatidis*, on amphibian predator-prey interactions. ***PLoS ONE***, 6(2): e16675. doi:10.1371/journal.pone.0016675

13. Altizer S, Bartel R, **Han BA.** 2011. Animal migrations and infectious disease risk. ***Science***, 331:296-302.

    [Selected Press: Faculty of 1000, LiveScience, ScienceDaily, Scientific American, TIME Magazine, US News & World Report]

12. Blaustein, A.R., **Han, B.A.**, Relyea, R., Johnson, P.T.J., Buck, J., Gervasi, S. and Kats, L.B. 2011. The complexity of amphibian population declines: understanding the role of cofactors in driving amphibian losses. ***Annals of the New York Academy of Sciences***, The Year in Ecology and Conservation Biology (Eds. Ostfeld, R.S. and Schlesinger, W.H.), 1223:108-119. doi: 10.1111/j.1749-6632.2010.05909.x

11. Bancroft, B.A., **Han, B.A.**, Searle, C.L., Biga, L.M., Olson, D.H., Kats, L.B., Lawler, J.J., and Blaustein, A.R. 2011. Species-level correlates of susceptibility to the pathogenic amphibian fungus *Batrachochytrium dendrobatidis* in the United States. ***Biodiversity and Conservation***, 20:1911-1920. doi: 10.1007/s10531-011-0066-4

10. Romansic, J.R., Johnson, P.T.J., Searle, C.L., Johnson, J.E., Tunstall, T., **Han, B.A.**, Rohr, J.R., and Blaustein, A.R. 2011. Individual and combined effects of multiple pathogens on Pacific treefrogs. ***Oecologia***, DOI: 10.1007/s00442-011-1932-1

9. Searle, C.L., Belden, L.K., Bancroft, B.A., **Han, B.A.**, Biga, L.F., and Blaustein, A.R. 2010. Experimental examination of the effects of ultraviolet-B radiation in combination with other stressors in frog larvae. ***Oecologia***, 162:237-245.

8. **Han, B.A.**, Bradley, P.W., and Blaustein, A.R. 2008. Ancient behaviors of larval amphibians in response to an emerging fungal pathogen, *Batrachochytrium dendrobatidis*. ***Behavioral Ecology and Sociobiology***, 63:241-250.

7. Lampo, M., Sánchez, D., Nicolás, A., Márquez, M., Nava-González, F., Garcia, C.Z., Rinaldi, M., Rodríguez-Contreras, A., León, Fabiola, **Han, B.A.**, Chacón-Ortiz, A. 2008. *Batrachochytrium dendrobatidis* in Venezuela. ***Herpetological Review***, 39:449-454.

6. Sánchez, D.A., Chacón-Ortiz, A., León, R., **Han, B.A.**, and Lampo, M. 2008. Widespread occurrence of an emerging pathogen in amphibian communities of the Venezuelan Andes. ***Biological Conservation***, 141:2898-2905.

5. **Han, B.A.**, Kats, L.B., Pommerening, R.C., Ferrer, R.P., Murry-Ewers, M. and Blaustein A.R. 2007. Behavioral avoidance of ultraviolet-B radiation by two species of neotropical poisondart frogs. Biotropica, 39:433-435.

[Selected Press: Conservation Magazine, Grist, Mongabay]

4. Lampo, M., Barrio-Amoros, C.L., and **Han, B.A.** 2006. *Batrachochytrium dendrobatidis* infection in the recently rediscovered *Atelopus mucubajiensis* (Anura, Bufonidae) in the Venezuelan Andes. ***EcoHealth***, 3:299-302.

3. Johnson, P.T.J., Preu, E. R., Sutherland, D. R., Romansic, J., **Han, B.A.**, and Blaustein, A.R. 2006. Adding infection to injury: Synergistic effects of predation and parasitism on salamander limb malformations. ***Ecology***, 87:2227–2235.

2. Blaustein, A. R., Romansic, J. M., Scheessele, E. A., **Han, B.A.**, Pessier, A.P., and Longcore, J.E. 2005. Interspecific variation in susceptibility of frog tadpoles to the pathogenic fungus *Batrachochytrium dendrobatidis*. ***Conservation Biology***, 19:1460-1468.

1. Blaustein, A.R., **Han, B.**, Fasy, B., Romansic, J., Scheessele, E.A., Anthony, R.G., Marco, A., Chivers, D.P., Belden, L.K., Kiesecker, J.M., Garcia, T.S., Lizana, M. and Kats, L.B. 2004. Variable breeding phenology affects the exposure of amphibian embryos to ultraviolet radiation and Optical characteristics of natural waters protect amphibians from UV-B in the U.S. Pacific Northwest: Comment. ***Ecology***, 85:1747-1754.

Other publications:

Necamp, T., Sattigeri, P., Wei, D., Ray, E., Drissi, Y., Poddar, A., Mahajan, D., Bowden, S., **Han, B.A.**, Mojsilović, A., & Varshney, K.R. Sept 2017. Cognitive disease hunter: developing automated pathogen feature extraction from scientific literature. ***Data Science for Social Good Conference*** (Chicago, IL). LINK

Han, B.A. 2016. The Algorithm That's Hunting Ebola. Invited feature article, ***IEEE Spectrum Magazine***. *In press and online: http://spectrum.ieee.org/biomedical/diagnostics/the-algorithm-thats-hunting-ebola*

Han, B.A. and Altizer, S. 2013. *Invited chapter*, Conservation and Infectious Disease *in* **The Encyclopedia of Biodiversity** (2nd edition). Levin, S. (Ed.) Academic Press.

Han, B.A., Rushmore, J., Fritzsche, A., Satterfield, D., and Winternitz, J. 2012. Preempting pandemics. ***Science***, 337:647-648. (*Book Review: The Viral Storm by Nathan Wolfe).*

SELECTED GENERAL PRESS

2018. Podcasts:

- Big Biology, Episode 5: Please Don't Kill the Bats!

2017. NPR Goats and Soda interview, aired on All Things Considered. Spillover beasts: which animals pose the biggest viral risk?

2017. Podcasts:

- The Front Row, Episode 3. Future of Epidemics
- Pulse of the Planet: Predicting disease (3 part series)
    - Part 1. Which animal, which country
    - Part 2. Making the leap
    - Part 3. Tracking probabilities

2016. WAMC/Northeast Public Radio, Earthwise:

- June. Forecasting future infectious disease outbreaks
- June. Big Data + Technology = Improved Global Health
- July. Mapping emerging infectious diseases
- August. Ebola and bats

2016. January. Nature | News. Hunt for Ebola's wild hideout takes off as epidemic wanes.

2014. October. WAMC/Northeast Public Radio, Earthwise: Algorithms and Ecology: A New Partnership.

2011. November. The New Scientist. Nature's unruly patterns unlocked with AI.

COLLABORATIVE WORKING GROUPS

2018 Allometry of immunity. Hamilton College.

2018 Predicting pathogen spillover. DARPA-funded working group led by R. Plowright at Univ. Montana, February 2018.

2016 – Pandemic Prediction and Forecasting Science and Technology (PPFST) Working Group, Subcommittee On Biological Defense Research And Development, Committee On Homeland And National Security, National Science And Technology Council.

2016 – IBM Research AI, Data Science Group, Science for Social Good Group. Thomas J. Watson Research Center, Yorktown Heights, NY.

2013 – National Science Foundation, Research Coordination Network. Macroecology of Infectious Disease. Principal Investigators: Patrick Stephens, Alonso Aguirre, Sonia Altizer, Robert Poulin, Katherine Smith.

INVITED PRESENTATIONS

2019 *Invited speaker. University of Michigan. Title TBD. April 2019.*

2019 *Invited speaker. James Madison University. Title TBD. January 2019.*

2018 *Invited speaker. University of New Mexico. Title TBD. November 2018.*

2018 *Invited speaker. University of Maine. Title TBD. October 2018. Orono, ME.*

2018 *Invited lecturer. Ecological Forecasting summer course. Machine learning. July 2018. Boston, MA.*

2018 *Invited speaker. IGNITE session, Frontiers and Limits in Disease Macroecology. 103rd annual meeting of the Ecological Society of America. Title: Topic modeling to identify major themes and future research needs in disease ecology. August 2018.*

2018 *Invited lecturer. Ecological Forecasting summer course. Machine learning. July 2018. Boston University, Boston, MA.*

2018 *Invited speaker. Scaling of Defense Workshop. Infectious disease transmission and behavioral allometry in wild mammals. July 2018. Hamilton College, Clinton, NY.*

2018 Public lecture, Friday night at the Cary Institute of Ecosystem Studies. Predicting the future of infectious diseases. March 2018. Millbrook, NY

2018 Invited speaker. Columbia University. Predicting zoonotic risk from species-level data using machine learning. January 2018. New York, NY.

2017 Invited speaker. Organized oral session at the 102nd annual meeting of the Ecological Society of America. Han BA. Title: Data-driven approaches to building predictive capacity for zoonotic diseases. Organized oral session title: Ecological Forecasting: Advances and Opportunities. Portland, OR. August 2017.

2017 Invited speaker. Defense Threat Reduction Agency. Title: Predictive analytics for infectious disease intelligence. Fort Belvoir, VA. July 2017.

2017 Invited speaker by graduate students of Fordham University. *Machine learning for prediction of zoonotic hosts and vectors.* Brooklyn, NY. May 2017

2017 Invited speaker, WHO-Imperial College Joint Roundtable Discussion on Epidemic and Pandemic Modelling. London, UK. March 2017.

2017 Invited speaker, Animal Disease Data Digitization workshop (AHEAD 2017). *Health prediction and the data frontier*. University of Exeter, Exeter, Devon, UK. March 2017

2017 Invited speaker, ASM Biothreats: Research, Response and Policy meeting. *Machine learning for forecasting and prediction of zoonotic diseases.* Washington, DC. February 2017

2017 Invited speaker, Center for Infectious Disease Dynamics, Penn State University. *Combining machine learning and life history to predict zoonotic disease.* State College, PA. February 2017

2016 Invited speaker, Rutgers University. *Applications of machine learning for macroecology of zoonotic disease.* New Brunswick, NJ.

2016 Invited speaker, Pandemic Prediction and Forecasting Science and Technology Working Group, Office of Science Technology and Policy, White House. Title: *Machine learning for forecasting and prediction of zoonotic diseases*. Washington, DC.

2016 Keynote speaker, Huyck Preserve Research Symposium. Title: *Applications of machine learning for zoonotic disease*. Rensselaerville, NY.

2016 Invited speaker, Data4Good organized session for the 33rd International Conference on Machine Learning. **Han, B.A.** and Yang, L. Title: *Predicting novel tick vectors of zoonotic disease*. Manhattan, NY.

2016 Invited speaker. University of South Florida, Department of Integrative Biology. Tampa, FL. Title: *Quantifying unrealized risk of zoonotic disease*. April 2016.

2016 Invited speaker. TTI/Vanguard Conference, From Big Data to Big Understanding. Austin, TX. Title: *The algorithm that's hunting Ebola*. February 2016.

2016 Invited speaker. Gordon Research Conference: Predator-Prey Interactions. Title: *Does predation reduce human infectious disease? Predicting disease reservoirs and zoonotic risk from terrestrial carnivores.* Ventura, CA. January 2016

2015 Invited speaker. Organized oral session at the 100th annual meeting of the Ecological Society of America. Baltimore, MD. Han, B.A., Schmidt, J.P.,

Hayman, D. and Drake, J.M. Title: *Machine learning to predict new bat reservoirs of filoviruses: Africa and beyond*. Session title: Macroecology of infectious disease. August 2015.

2015 Invited speaker. NIH RAPIDD-GHSA Workshop: Policy implications of detecting hemorrhagic fever viruses in wildlife and domestic animals. Sponsored by NIH Fogarty International Research and Policy for Infectious Disease Dynamics (RAPIDD) and the Global Health Security Agenda (GHSA). Title: *Targeting surveillance for the discovery of novel filovirus reservoirs in the wild*. Takoma Park, MD. June 2014.

2015 Invited speaker. Ecology and Evolution of Infectious Diseases Annual Meeting. Athens, GA. May 2015. Title: *Unidentified carriers of filoviruses in the wild.*

2015 Invited speaker. RAPIDD Workshop, Viral Hemorrhagic Fevers. Title: *Predicting candidate bat reservoirs of filoviruses*. Fort Collins, CO. May 2015.

2014 Invited speaker. Bard College, Division of Science, Mathematics, and Computing. *Predicting future reservoirs of zoonotic disease*. October 2014.

2014 Invited panelist. "In the News: Ebola". Bard College, Center for Civic Engagement. September 2014.

2013 Invited speaker. Cary Institute of Ecosystem Studies, Scientific Seminar series. Millbrook, NY. Title: *Host traits and infectious disease risk: learning and prediction*.

2011 Organizer, Oral Session for the 96th annual meeting of the Ecological Society of America in Austin, TX. *Ecological Applications of Machine Learning*. Co-organized with Dr. John Drake (UGA).

2011 Invited speaker. Symposium for the 96th annual meeting of the Ecological Society of America in Austin, TX. Symposium title: Towards trait-based disease ecology: integrating theory and data across kingdoms (Organizers: James P. Cronin, Felicia Keesing, Colleen Webb). Han, B.A., Park, A.W., Altizer, S. *Body size scaling of host behavioral traits to predict infectious disease dynamics among mammals.*

2011 Invited seminar. Natural Science Seminar Series, Pepperdine University. Malibu, CA. *Wildlife disease – risks and rewards of life on the move.*

2009, 2010 Invited panelist. U.S. Fulbright fellowships at the University of Georgia, hosted by the Department of Anthropology and the University Honors Program. Athens, GA.

2009 Invited seminar. Odum School of Ecology, University of Georgia. Athens, Georgia. *Diversity effects and correlates of host susceptibility to an infectious fungal pathogen of amphibians.*

2009 Invited seminar. Environmental Futures Centre, Griffith University. Brisbane, Australia. *The influence of wildlife diseases on host interactions: from amphibians to apes.*

2008 Invited seminar. Biology Undergraduate Seminar series. Pacific University, Portland, OR. *Amphibian population declines: cause and consequence of infectious pathogens.*

2007 Invited seminar. Washington State University, School of Biological Sciences. Pullman, WA. *Behavior and community effects of an emerging pathogen on amphibian hosts.*

2005 Invited speaker. Han, B.A. *Ecology of an emerging infectious disease of amphibians.* U.S. Fulbright Student Enhancement Meeting for the Andean region, South America. Cartagena, Colombia.

SERVICE

Community and Education

2016 – 2017 Chair, Disease Ecology Section, Ecological Society of America.

2016 – 2017 Scientific Advisory Committee, Huyck Preserve and Biological Research Station. Rensselaerville, NY.

2015, 2016 Judge. Dutchess Day School Science Fair. Millbrook, NY.

2015 – *ongoing* Lecture for Fundamentals of Ecosystem Ecology course, Cary Institute of Ecosystem Studies. *Intro to R, Big Data, and Best Data Practices* (2015); *Big Data in Ecology* (2016). *Disease ecology* (2018).

2015, 2016 Judge. Hudson Data Jam. Cary Institute of Ecosystem Studies.

Journal reviewer:

Nature
Science
Proceedings of the Royal Society B
Trends in Ecology and Evolution
Ecology Letters
American Naturalist
Journal of Animal Ecology
Ecology
Ecosystems
Nature Communications
Conservation Biology
Royal Society Open Science
Behavioral Ecology and Sociobiology
PLoS ONE
Ecosphere
Global Ecology and Biogeography
Ecography
Journal of Experimental Biology
Ethology, Ecology and Evolution
Herpetological Review
Journal of Herpetology
Diseases of Aquatic Organisms
Canadian J. Fisheries Aquatic Sciences
EcoHealth

Grant proposal reviewer: NSF EPSCoR Grant Program, 2017 (Panelist)
NSF CAREER Grant Program, 2011 (Ad hoc)

Mentorship:

2018 –	Keshav Ramji. Poughkeepsie, NY. Student research intern. Deep learning of Google search terms for early warning indicators of Lyme disease in the United States. Co-mentored with Dr. Ilya Fischoff.
2016 – 2017	Dr. Sarah E. Bowden, Postdoctoral associate. Current position: Data scientist at the Centers of Disease Control. Atlanta, GA.
2017	Timothy NeCamp, Building a cognitive disease hunter. IBM Summer Internship for Social Good. Current position: PhD candidate in Statistics at the University of Michigan.
2016	Dr. Subhabrata Majumdar, Predicting wildlife reservoirs of Zika virus. IBM Summer Internship for Social Good. Current position: postdoctoral researcher at Informatics Institute, University of Florida. Gainesville, FL.
2014 - 2016	Laura Yang, Spackenkill High School. Poughkeepsie, NY. Research intern. Zoonotic tick vectors and machine learning. Current position: undergraduate, School of Civil and Environmental Engineering, Georgia Tech. Atlanta, GA.
2015	Michelle Victoria (St. Edwards University) and Catherine Kageman (University of Illinois). NSF Research Experience for Undergraduates (REU) Summer Research Program at the Cary Institute of Ecosystem Studies, Translational Ecology.
2013	Hilary Andrews (Georgetown University), NSF Research Experience for Undergraduates (REU) Summer Research Program at the University of Georgia, Population Biology of Infectious Diseases.
2012 – 2013	Elizabeth Dennard (University of Georgia), undergraduate research assistant; Eco-informatics to understand traits of zoonotic infectious parasites of wild mammals.
2009 – 2011	Adam Haviland (University of Georgia), undergraduate honors research assistant, eco-informatics; currently a medical resident at MSBI Internal Medicine, Icahn School of Medicine. New York, NY.
2008	Jennifer Hubbard (Oregon State University), undergraduate research assistant, infectious disease ecology and animal behavior; subsequently employed as an eco-toxicologist at WIL Research Laboratories. Ashland, OH.
2007 – 2008	Paul Bradley (Oregon State University), Howard Hughes Medical Institute Undergraduate Research Fellow; co-authored a peer-reviewed publication (above); Currently adjunct assistant professor at Univ. San Diego, CA.

2007 – 2008 Laura Linn (Oregon State University), amphibian ecology; subsequently hired as a research technician in cheetah biology with Cheetah Conservation Fund, Namibia.

2002 – 2009 Other mentored students. At Oregon State University: Cheri Lum, Jessica Takishita, Rebecca LeMaster; involved in experimental design, data collection, and the collection and husbandry of amphibians for laboratory experiments. At the University of Georgia: Randall Singer; involved in updating a relational database on parasites of wild ungulate species.