

# DESIREE L. NARANGO, PH.D.

David H. Smith Conservation Research Fellow & Postdoctoral Researcher  
Department of Biology, University of Massachusetts Amherst, MA  
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## EDUCATION

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- 8/2018                    **PhD** Entomology and Wildlife Ecology  
University of Delaware, Newark, DE  
Advisors: Dr. Douglas Tallamy & Dr. Peter Marra  
*Dissertation: The effects of nonnative plants on food webs in residential landscapes*
- 5/2012                    **MS** Environment & Natural Resources, Specialization: Wildlife Ecology  
The Ohio State University, Columbus, OH  
Advisor: Dr. Amanda Rodewald  
*Thesis: Causes and consequences of urban-associated song variation: A study of vocal behavior in the Northern Cardinal (*Cardinalis cardinalis*)*
- 12/2006                 **BS** Environmental Biology, Specialization: Wildlife Science  
State University of New York: ESF, Syracuse, NY
- 12/2003                 **AA** General Studies—Transfer Track  
Community College of Baltimore County, Baltimore, MD

## PROFESSIONAL APPOINTMENTS

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- 7/2020-Present         **David H. Smith Conservation Research Fellow**  
Department of Biology, University of Massachusetts, Amherst  
USDA Forest Service – Northern Research Station  
*Project: “Investigating multi-trophic linkages between plants, insects and migratory birds to inform effective forest habitat management and restoration strategies”*
- 6/2018- 5/2020         **Postdoctoral Researcher**  
Advanced Science Research Center, City University of New York  
Department of Environmental Conservation, University of Massachusetts, Amherst  
*Project: Macroecological relationships of bird, bee and ground arthropod communities in six major metropolitan cities*
- 4/2013-5/2018         **Graduate Research Associate & Doctoral Fellow**  
Department of Entomology and Wildlife Ecology, University of Delaware  
Migratory Bird Center, Smithsonian Conservation Biology Institute
- 8/2008-5/2012         **Graduate Research Assistant**  
School of Natural Resources and the Environment, The Ohio State University
- 5/2005-4/2008  
& 5/2012-4/2013         **Research Assistant**  
Smithsonian Institute, The Ohio State University, University of Delaware, SUNY-ESF  
Bird, insect and plant sampling field work in the United States, The Caribbean, Central America and South America. All temporary positions.

**GRANTS AND FELLOWSHIPS** (Total funding ~ \$300,338 to date, 2 proposals in development)

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**Received**

- 2021 **University of Massachusetts ECo Summer forest research internship award**, (\$4,500), PI  
Received funding for a undergraduate to assist with forest tree surveys and conduct two independent projects: 1) collecting insects to assess nutritional differences among insect orders and 2) rear *Callosomia promethea* larvae on 17 native and nonnative *Prunus* sp to compare survival and growth.
- 2020 **David H. Smith Conservation Postdoctoral Research Fellowship**, (\$186,038)  
“*Investigating multi-trophic linkages between plants, insects and migratory birds to inform effective forest habitat management and restoration strategies*”—Using field methods, physiological assays & remotely-sensed data to assess relationships between urbanization, plant communities & songbirds on migratory stopover.
- 2018 **Disney's Worldwide Conservation Fund** (\$48,200), Co-PI  
“*Smorgasbords in the agroforestry canopy*” - Investigating the role of plant diversity in the trophic ecology of insectivorous and frugivorous birds on Peruvian shade-coffee farms
- 2017 **University of Delaware**, (\$18,000), Doctoral Fellowship
- 2017 **Smithsonian Institute**, (\$11,500), Doctoral Fellowship
- 2014 **Disney's Worldwide Conservation Fund** (\$24,500), Co-PI  
“*Shade Coffee, Insects and Birds*”—Assessing canopy tree foraging preferences of wintering migratory birds on Nicaraguan and Colombian shade-coffee farms and implementing a common garden experiment.  
\*\*I was a major contributor to project development, design, writing and implementation but could not be included on official PI list due to student status.
- 2014 **Maryland Ornithological Society** (\$1500), Student Research Grant
- 2014 **North American Bluebird Society** (\$1600), Student Research Grant

**In prep and revision**

- 2021 **In revision for NSF Macrosystems, Senior Personnel**  
“Social-environmental homogenization, vulnerability and stress along urban to rural gradients in the continental U.S.” – Within this large interdisciplinary project, my role will be to lead the analysis of community science data (e.g., iNaturalist, eBird), bird and insect sampling, and predation experiments to assess biodiversity and ecosystem services in socioeconomic communities across urban—rural gradients.
- 2021 **In preparation for NECASC, PI**  
“Translocating trees in a changing climate: cultivating adaptation or creating new problems?” – This project combines stakeholder meetings and common garden experiments to assess which tree species are being considered for planting for climate adaptation and whether southerly species and genotypes support pollinator diversity in urban and rural landscapes.

**AWARDS**

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- 2021 **Diversity, Equity and Inclusion Award**, University of Massachusetts, Amherst – Environmental Conservation Department
- 2021 **ESA Early Career Fellow**, Ecological Society of America (only postdoc to receive this award in 2021)
- 2020 (Nominee), **Pritzker Emerging Environmental Genius Award** (Nominated by Blackrock Financial)
- 2019 **City University of New York**, (\$1500) Conference Travel Award
- 2019 **American Ornithology Society** (\$300) Conference Travel Award
- 2018 **Ecological Society of America** (\$500) Joan Ehrenfeld Urban Ecology Presentation Award
- 2018 **University of Delaware** (\$500) William J. Benton Dissertation Award
- 2018 **American Ornithology Society** (\$400) Conference Travel Award (declined)

- 2018 **University of Delaware** (\$500) Professional Development Award (declined)
- 2017 **American Ornithological Society** (\$500) Presentation Award
- 2017 **American Ornithological Society** (\$470) Conference Travel Award
- 2017 **University of Delaware** (\$668) Conference Travel Award
- 2015 **Association of Field Ornithologists** (\$250) Student Presentation Award
- 2015 **Wilson Ornithology Society** (\$864) Student Travel Award
- 2015 **Ecological Society of America** Joan Ehrenfeld Urban Ecology Award Finalist
- 2014 **American Ornithologists Union** Student Membership Award
- 2012 **North American Ornithological Conference** (\$300) Conference Travel Award
- 2012 **The Ohio State University** (\$350) Conference Travel Award

**PEER-REVIEWED PUBLICATIONS** (17 in press/published, 281 citations, H-index: 9, [Google Scholar](#))

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**Accepted/Published (n=17)**

- 17. Piel, G.\*, Tallamy, D.W., **Narango, D.L.** Lepidoptera host records accurately predict tree use by foraging birds. *In press, Northeastern Naturalist*.
- 16. Lerman, S.B., **Narango, D.L.** (Dual First Author), Avolio, M.L., Bratt, A.R., Engebretson, J.M., Groffman, P.M., Hall S.J., Heffernan, J.B., Hobbie, S.E., Larson, K.L., Locke, D.H., Neill, C., Nelson, K.C., Padullés Cubino, J., and Trammell, T.L.E. Residential yard management and landscape cover affect urban bird community diversity across the continental US. *In press, Ecological Applications*.
- 15. Tallamy, D.W., **Narango, D.L.**, Mitchell, A. Do nonnative plants contribute to insect population declines? Invited submission to special issue on “Insect Declines”. *Ecological Entomology*, 46(4), 729-742.
- 14. Larson, K.L., Fleegeer, M., Wheeler, M.M., Andrade, R., Brown, J., Hall, S.J., Lerman, S.B., **Narango, D.L.** (2020) Who’s abuzz about bees? Explaining Residents’ Attitudes in Phoenix, Arizona. *Urban Ecosystems*, 24, 35-48.
- 13. **Narango, D.L.**, Shropshire, K.J., and Tallamy, D.W. (2020). Few keystone plant genera support the majority of Lepidoptera diversity. *Nature Communications*, 11, 5751.  
**\*\*Included in top 25 Nature Communications papers of 2020\*\***
- 12. Milam, J., Johnson, D.E., Andersen, J.C., Fassler, A., **Narango, D.L.**, and Elkington J.S. (2020) Defining morphological characteristics to reliably distinguish among three commonly misidentified species of *Bombus* (Hymenoptera: Apidae). *Insects*, 11(10), 669.
- 11. Cubino, P., Cavender-Bares J., Lerman, S. B., Groffman, P.M., Avolio, M.L., Trammell, T.L.E., Wheeler, M. M., Larson, K.L., **Narango, D.L.**, Neill, C., Bratt, A.R., Hall, S. J., Hobbie, S.E. (2020) Taxonomic, phylogenetic, and functional composition and homogenization of residential yard vegetation with contrasting management. *Landscape and Urban Planning*, 202: 103877.
- 10. **Narango, D.L.** (2020) Natural History in the City: Connecting people with the ecology of their plant and animal neighbors. Invited submission for special issue: “Historia naturalis: Inspiring Ecology”. *Journal of Natural History Education and Experience*, 14: 13-17.
- 9. **Narango, D.L.** Tallamy, D.W., Snyder, K.J.\* and Rice, R.A. (2019) Canopy tree preference by insectivorous birds in shade coffee: implications for migratory bird conservation. *Biotropica*, 51(3):387-398.
- 8. **Narango, D.L.**, Tallamy D.W. and Marra P.P. (2018) Nonnative plants reduce population growth of an insectivorous bird, *Proceedings of the National Academy of Sciences*, 115, 45: 11549-11554.

7. Baisden, E.C., Tallamy, D.W., **Narango, D.L.** and Boyle E. (2018) Do cultivars of native plants support insect herbivores? *HortTechnology*, 28(5):596-606.
6. Keilson W.\*, **Narango D.L.**, and Tallamy D.W. (2018) The effects of roadside habitat on insect traffic mortality. *Journal of Insect Conservation* 22(2):183-188.
5. Hansen, W.D., Scholl, J.P., Sorensen, A.E., Fisher, K.E., Klassen, J.A., Calle, L., Kandlikar, G.S., Kortessis, N., Kucera, D.C., Marias, D.E., **Narango, D.L.**, O’Keefe, K., Recart, W., Ridolfi, E., Shea, M. (2018) How do we ensure the future of our discipline is vibrant? Student reflections on career and culture of ecology. *Ecosphere* 9(2): e02099.
4. **Narango, D.L.** and Rodewald, A.D. (2018) Signal information of bird song changes in human-dominated landscapes. *Urban Ecosystems* 21(1): 41-50.
3. **Narango, D.L.**, Tallamy, D.W. and Marra, P.P. (2017) Native plants improve breeding and foraging habitat for an insectivorous bird, *Biological Conservation* 213: 42-50.
2. **Narango, D.L.**, and Rodewald, A.D. (2015). Urban-associated drivers of song variation along a rural–urban gradient. *Behavioral Ecology* 27(2): 608-616.
1. Newell, F.L., Haiman, A.N., **Narango, D.L.**, Elder, J.M., Leonhard, L.D., Philhower-Gillen, J., Johnson, A.M. and Rodewald, A.D. (2013). Occurrence of polygyny and double brooding in the Eastern Wood-Pewee. *The Wilson Journal of Ornithology* 125(2): 251-259.

#### Book Chapters (n=2)

1. Lerman, S.B, **Narango, D.L.**, Andrade, R., Warren, P.S., Grade, A., Straley, K. Wildlife in the City: Human Drivers and Human Consequences. In: Nature and Challenges of Urban Ecology
2. **Narango, D.L.** Habitat selection in human-dominated landscapes. In: Songbird Conservation and Management in the Anthropocene, *in press*.

#### In Review/Revision (n=3)

3. *In revision.* **Narango, D. L.**, Brandao, M. \*, Tallamy, D.W., Rice, R.A. Foraging niche and tree preferences of Yellow Warblers (*Setophaga petechia*) differs with sex and age in a Bird-friendly® shade-coffee farm. *Journal of Field Ornithology*.
2. *In revision for new submission.* Lerman, S.B., **Narango, D.L.**, Goddard, M., Marra, P.P. Humanity for Habitat— Residential yards as an opportunity for conservation.
1. *In revision for new submission.* **Narango, D.L.** Carlo, T.A., Tallamy, D.W. and Marra P.P. Tracking nitrogen flow from native and nonnative plants to invertebrate and avian consumers using a stable isotope tracer.

#### In Preparation (n=6)

1. *Internal review, full draft.* **Narango, D.L.** Lerman, S.B., Avolio, M.L., Bratt, A.R., Groffman, P.M., Hall S.J., Hobbie, S.E., Padullés Cubino, J., and Trammell, T.L.E. Urban land management and canopy cover affects multiple metrics of ground beetle (Coleoptera: Carabidae) diversity across six US metropolitan cities.
2. *Full draft available.* **Narango, D.L.**, Tallamy, D.W. and Marra P.P. Residential plant communities influence diet, parental effort and nestling condition of Carolina chickadees (*Poecile carolinensis*).
3. *Full draft available.* Larson, K., Lerman, S., Nelson, K., Groffman, P.M., Grove, M., **Narango, D.L.**, Wheeler, M. M. Examining the potential to expand wildlife-supporting residential yards and gardens.

4. *Draft in prep.* Grijseels, N. et al. 15+ additional coauthors. Evapotranspiration of residential lawns across the United States. Invited for: *Frontiers in Ecology and Evolution* Special Issue: "Urban Water Management, Planning, and Design: Links, Opportunities, and Challenges"
5. *Draft in prep.* **Narango, D.L.** Tallamy, D.W. Shropshire, K. Forest composition partially mitigates negative effects of urbanization on moth communities.
6. *Draft in prep.* **Narango, D.L.**, Bratt, A.R. (Dual First Author), Avolio, M.L., Groffman, P.M., Hall S.J., Heffernan, J.B., Hobbie, S.E., Larson, K.L., Locke, D.H., Neill, C., Nelson, K.C., Padullés Cubino, J., Trammell, T.L.E. and Lerman, S.B. Nature-based yards support higher potential for biodiversity-derived ecosystem services in cities across space and time.

### Popular Articles

1. **Narango, D.L.** and Lambert M. "Biodiversity Conservation Should Start in Biden's Backyard", *Scientific American*, 10 May 2021.

\* Undergraduate mentee

### INVITED PRESENTATIONS (n=17)

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- 2022 *Upcoming.* **Narango, D.L.** "TBD", Michigan State University—Kellogg Biological Station
- 2021 *Upcoming.* **Narango, D.L.** "TBD", Pennsylvania State University – Ecology and Evolution Department, **\*\*Graduate Student Choice for Fall Invited Speaker\*\***
- 2021 **Narango, D.L.** "Ecological Interactions in a Changing World", National Park Service, Avifauna Conservation Webinar
- 2020 **Narango, D.L.** "Cultivating Conservation: Multitrophic wildlife ecology in human-dominated ecosystems." Iowa State University. *Virtual.*
- 2020 **Narango, D.L.**, Brandao, M., Marra, P., Rice, R., Shropshire, K., Snyder, K., Tallamy, D. "Using tree preferences of birds to inform restoration in human-dominated landscapes". In organized session: *Advancing the integration of behavior into songbird conservation and management.* North American Ornithological Conference, *Virtual.*
- 2020 **Narango, D.L.** "Trophic interactions in a novel world: the importance of plants for wildlife conservation in human-dominated landscapes" Iowa State University. *Virtual.*
- 2020 Invited panelist for *Mild to Wild: How our backyard choices impact our environment*, Woods Hole Research Center –Kaneb Webinar Series, *Virtual.*
- 2020 **Narango, D.L.**, "Trophic interactions in a novel world: the importance of plants for wildlife conservation in human-dominated landscapes", George Mason University
- 2020 **Narango, D.L.**, "Trophic interactions in a novel world: the importance of plants for wildlife conservation in human-dominated landscapes", Illinois State University
- 2020 **Narango, D.L.**, "Trophic interactions in a novel world: the importance of plants for wildlife conservation in human-dominated landscapes", University of California, Santa Cruz
- 2019 **Narango, D.L.**, "Natural history in the city: connecting people with the ecology of their plant and animal neighbors". In organized session: *Historia naturalis: Inspiring Ecology*, Ecological Society of America meeting, Louisville, KY.

- 2019 **Narango, D.L.** et al. “Patterns of local- and landscape-scale management effects urban bird communities across six major metropolitan areas: Do yards matter?”. In organized session: *Linking landowner practice and preference to ecological process*. Ecological Society of America meeting, Louisville, KY.
- 2019 **Narango, D.L.**, “Creating habitat for birds in urban settings”. In organized session: *Species Selection in the Urban Landscape—Professional Perspectives*. University of Massachusetts Community Tree Conference, Amherst, MA.
- 2018 **Narango, D.L.**, “The chickadee’s guide to gardening” In organized session: *Faculty Research Lightning Talks*. University of Massachusetts, Amherst, Department of Ecological Conservation, Amherst, MA.
- 2018 Invited panelist for *Conservation Challenges-Nonnative species*, Smithsonian Conservation Biology Institute – 6<sup>th</sup> annual Conservation Immersion Seminar, Front Royal, VA.
- 2016 **Narango, D.L.**, Tallamy, D., Marra, P.P. “Are exotic plants related to dietary shifts in nestlings of an insectivorous bird?”. In organized session: *Comparing Traditional and Next-generation Methods for Understanding Bird Diets*. North American Ornithological Conference, Washington D.C.
- 2015 Invited panelist for *Bird-invertebrate interactions in a changing world: a synthesis of understanding the importance of our most diverse wildlife group to ornithology*, The Wildlife Society’s 22nd Annual Conference, Winnipeg, Manitoba.

#### CONTRIBUTED PRESENTATIONS AND POSTERS (n=21)

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- 2020 **Narango, D.L.** “The birds, the bees, the flowers and the trees, Multitrophic bird conservation in human-dominated ecosystems”. In organized session: Early-professionals lightning talk symposium. North American Ornithological Conference, *Virtual*.
- 2019 **Narango, D.L.**, Lerman, S.B., Neill, C., Hall, S. J., Hobbie, S.B., Trammell, T.L.E., Groffman, P. “Macroecological patterns of local and landscape management on urban breeding bird communities; Do yards matter?” American Ornithological Society meeting, Anchorage, Alaska. Presentation.
- 2019 Lerman S.B., Marra P.P., Reitsma, R., Evans, B.S., **Narango, D.L.**, Clipp, H. “Shared Stewardship for Bird Conservation: Linking Backyard Habitats, Citizen Science and Yard Management”, In organized session: *Translational Ecology*. AOS meeting Anchorage Alaska. Presentation.
- 2019 Groffman, P.M, **Narango, D.L.**, et al. [+ additional 24 coauthors], “Alternative Futures for the American Residential Macrosystem”, NSF Macrosystems meeting, Boulder, CO. Poster.
- 2019 Wang, A.\*, **Narango, D.L.**, Neil, C., Lerman, S.B. “Effects of Urban Land Use Management on Hymenopteran Communities”. North Eastern Natural History Conference, Springfield, MA. Poster.
- 2019 **Narango, D.L.**, Lerman, S.B., Neill, C., Hall, S. J., Hobbie, S.B., Trammell, T.L.E., Groffman, P. “Patterns of local- and landscape-scale management on urban bird communities across six major metropolitan areas: Do yards matter? Massachusetts Audubon Staff Natural History Conference, Westborough, MA. Presentation.
- 2018 **Narango, D.L.**, Carlo, T.A., Tallamy, D.W. and Marra P.P. “A <sup>15</sup>N isotope tracer experimentally demonstrates that nonnative plants limit energy flow to higher order consumers”. Ecological Society of America Meeting, New Orleans, LA. Presentation.

\***Won Ehrenfeld award from the Ecological Society of America**

- 2018 Piel, G. \*, **Narango, D.L.**, Tallamy, D.W. “Using Artificial Caterpillars to Measure Bird Foraging Patterns”. University of Delaware – Undergraduate research symposium, Newark, DE. Poster.
- 2017 **Narango, D.L.**, Tallamy, D.W., Marra, P.P. “Nonnative plants reduce reproductive success for an insectivorous bird”. American Ornithological Society National Meeting, East Lansing, MI. Presentation.  
**\*Won best student presentation from the American Ornithological Society**
- 2017 **Narango, D.L.**, Tallamy, D.W., Marra, P.P. “Nonnative plants reduce reproductive success for an insectivorous bird”. Smithsonian Emerging Scientists Symposium, Washington, D.C. Presentation.
- 2017 **Narango, D.L.**, Marra, P.P., and Tallamy, D.W., “Nonnative plants reduce reproductive success for an insectivorous bird”. University of Delaware – CANR research symposium, Newark, DE. Poster.
- 2015 **Narango, D.L.**, Marra, P.P., Tallamy, D.W., “Tritrophic effects of nonnative vegetation on insect prey and bird behavior in residential landscapes”, Ecological Society of America Meeting, Baltimore, MD. Presentation.
- 2015 **Narango, D.L.**, Marra, P.P., Tallamy, D.W., “Behavioral Responses of Carolina Chickadees to Nonnative Vegetation”, Joint meeting of American Field Ornithology, Wilson Ornithology Society & Society of Canadian Ornithologists, Wolfville, NS, Canada. Presentation.  
**\*Won best student presentation from the Association of Field Ornithologists**
- 2015 **Narango, D.L.**, Marra, P.P., Tallamy, D.W., “Nonnative Plants Affect Lepidoptera Prey Items for an Insectivorous Bird”, Entomology Society of America - Eastern, Rehoboth Beach, DE. Presentation.
- 2012 **Narango, D.L.**, Rodewald A.D., “Variation in Song Information for Urban Birds”. North American Ornithological Conference, Vancouver, BC, Canada. Presentation.
- 2012 **Narango, D.L.**, and Rodewald A.D., “Communication Breakdown – Are there Consequences to Song Variation for Urban Adapting Birds?” Ohio Natural History Conference, Columbus, OH. Poster.
- 2012 **Narango, D.L.**, and Rodewald A.D., “How are avian communication systems affected by urbanization?” Ohio Fish and Wildlife Management Association, Columbus, OH. Poster.
- 2011 **Narango, D.L.**, and Rodewald A.D., “How are avian communication systems affected by urbanization?” Ohio Biodiversity Conservation Partnership meeting, Columbus, OH. Poster.
- 2011 **Narango, D.L.**, and Rodewald A.D., “Songs in the City: How are avian communication systems affected by urbanization?” Joint meeting of American Field Ornithology, Cooper Ornithological Society & Wilson Ornithological Society, Kearny, NE. Poster.
- 2008 **Narango, D.L.**, and Sargent, S. “Presque Isle Bird Banding – Evaluating Stopover Site Quality on the Lake Erie Shore”. Regional Science Consortium, Erie, PA. Presentation.
- 2008 Sargent, S., **Narango, D.L.**, and Balogh, A. Effect of invasive plants on stopover habitat quality for songbirds. American Ornithologists Union meeting, Philadelphia, PA. Poster.

*\*Undergraduate mentee*

**STUDENT MENTORSHIP** (5 high school, 21 undergraduates, 27 postgraduates, 6 graduate students)

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2021-present	Beth Rogers – University of Massachusetts, Amherst, Graduate Student Research
2021	Trained 2 undergraduates and 1 graduate student in bird banding techniques
2019-present	Alphonsus Ho – University of Massachusetts, Amherst, <b>undergraduate independent research in progress</b>
2020-2021	Anna Kohlberg – University of Massachusetts, Amherst, undergraduate
2019-2020	Matthew Sirotkin—University of Massachusetts, Amherst, undergraduate
2018-2020	Melory Brandao—University of Massachusetts, <b>undergraduate independent research &amp; manuscript in revision</b>
2018-2020	Garrison Piel—University of Delaware, <b>undergraduate independent research and publication</b>
2019	Leah Wallner – University of Massachusetts Amherst, undergraduate
2018-2019	Alexus Wang—University of Massachusetts Amherst, undergraduate
2018-2019	Brett Barnard—University of Massachusetts Amherst, undergraduate
2018-2019	Sydney Jacobs—University of Massachusetts Amherst, undergraduate
2017-2018	Sameeha Zele—University of Delaware, undergraduate
	Katie Bird—University of Delaware, undergraduate
2017-2018	Emily Baisden –University of Delaware, graduate student
2015-2017	William Keilsohn—University of Delaware, <b>honor’s thesis and publication</b>
2013-2018	Mentored and trained 5 high school students, 5 undergraduates, 15 postgraduates and 1 graduate student in ecological research techniques for <i>Neighborhood Nestwatch</i>
2013-2015	Kerry Snyder—University of Delaware, <b>honor’s thesis and publication</b>
2013-2014	Kerry Snyder—University of Delaware, <b>Independent REU project</b>
2009-2012	Mentored and trained 3 undergraduates, 12 postgraduates and four graduate students in ecological research techniques for the Columbus Urban Riparian Project

**TEACHING EXPERIENCE**

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**Instructor of Record**

2015 Urban Wildlife Ecology, University of Delaware (1-credit Graduate Student Readings Course).

**Teaching Assistant**

2015 Ecology of Migratory Birds, Smithsonian Conservation Biology Institute (2 week course for professionals).

2012 Introduction to Environmental Science, The Ohio State University.

**Workshop Instructor/Assistant**

2019 Get Spatial! Using R as GIS and Spatial Analyses Workshop, AOS meeting, Anchorage, Alaska

2016 Advanced Programming & Graphing in R, North American Ornithological Conference, Washington, DC

Twitter for Scientists, North American Ornithological Conference, Washington, DC

2015 Avian Field Techniques, The Wildlife Society Professional Development, Newark, DE  
The Graduate School Process, The Wildlife Society Professional Development, Newark, DE

**Guest Lectures**

2021 Ornithology, Kansas State University

2020-2021 Student Mentor, “Importance of native plants for bird conservation”, Ornithology Class, University of Massachusetts, Amherst



2020	Urban Ecology, (“Multitrophic Ecology in Urban Ecosystems”), Concordia University Avian Ecology, (“Urban Ecology and Bird Conservation”), University of Florida
2018	Intro to Biology (“Birds, Bugs and Urban Ecosystems”), Mount Holyoke College Intro to STEM (“Avian Ecology and Urban Ecosystems”), Springfield Technical Community College
2013—2017	Agricultural & Urban Insects (“Stem & Twig Damagers”), University of Delaware Advanced Ecology (“Parasite Ecology and Evolution”), University of Delaware Habitat Management (“Urban Ecology”), University of Delaware Behavioral Ecology (“Territoriality”), University of Delaware Insect Ecology (“Life history Traits”, “Plant-Insect Interactions”), University of Delaware

## ORGANIZATION MEMBERSHIPS

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2014—present	American Ornithology Society
2015—present	Ecology Society of America
2012—present	Wilson Ornithological Society
2015-2017	Entomology Society of America

## INVITED PEER REVIEWER

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*Associate Editor:* Ornithological Applications (2020—present)

*Editorial Board:* Urban Naturalist (2018—present)

*Reviewer:* Behavioral Ecology, Canadian Field-Naturalist, Ecography, Ecological Applications, Ecosphere, Journal of Biometeorology, Journal of Animal Ecology, Journal of Field Ornithology, Journal of Raptor Research, Landscape and Urban Planning, Proceedings of the National Academy of Sciences, Proceedings of the Royal Society B, Urban Ecosystems, Wilson Journal of Ornithology

## PROFESSIONAL SERVICE

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2020	<b>Social Communications Policy Ad Hoc Committee</b> , American Ornithology Society
2020	<b>Student Presentation judge</b> , North American Ornithology Conference
2020--present	<b>Story-telling Scientific Communication Event Committee</b> , North American Ornithology Conference
2020	<b>Pre-proposal Webinar organizer and moderator</b> , Smith Fellowship
2020-present	<b>Diversity, Equity and Inclusion Committee</b> , UMass Environmental Conservation Department
2020	<b>Student speaker judge</b> , University of Massachusetts, Amherst
2019-present	<b>Elected Council Member</b> , Wilson Ornithological Society
2019-present	<b>Early Professional Committee</b> , Wilson Ornithological Society
2019-present	<b>Communications Committee</b> , Wilson Ornithological Society
2019	<b>Organized oral session organizer</b> – Ecological Society of America
2019	<b>Grant proposal reviewer</b> –Wilson Ornithological Society
2019	<b>Student Speaker Judge</b> , University of Massachusetts, Amherst
2019	<b>Website reviewer</b> , American Ornithological Society
2017-2018	<b>Co-organizer</b> , CANR Diversity in science seminar series

2015	<b>Student Poster Judge</b> , AFO/WOS/SCO Ornithology Meeting
2014-2016	<b>Coordinator</b> , ENWC Seminar Series
2010-2012	<b>Committee member</b> , Gradroots Graduate Student Organization
2011-2012	<b>Committee member</b> , Gradroots Seminar Committee
2010-2011	<b>Committee member</b> , Gradroots Minigrants Committee

## SELECTED MEDIA COVERAGE

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### Residential Yard Biodiversity

2020	“Taking the sting out of bee conservation”, <i>The Wildlife Society</i> ( <a href="#">link</a> )
2020	“Cultivating Change”, <i>The National Wildlife Federation</i> ( <a href="#">link</a> )

### Native Plants and Breeding Birds

2020	“The pleasure and value of our street trees”, <i>Greenfield Recorder</i> , Pat Leuchtman ( <a href="#">link</a> )
2020	“What’s the value of natural landscaping?”, <i>Shorelines Newsletter</i> (Association to Preserve Cape Cod) ( <a href="#">link</a> )
2020	“A native plant guru’s radical vision for the American yard”, <i>The Washington Post</i> , ( <a href="#">link</a> )
2019	“Birds, Bugs, and Native Plants”, <i>Planning Magazine</i> -The American Planning Association, ( <a href="#">link</a> )
2019	“Want to Encourage Native Bees and Wildlife? Plant Local”, <i>DCist</i> , ( <a href="#">link</a> )
2019	“Is your yard a ‘food desert’ of non-native plants?”, <i>The Examiner</i> , ( <a href="#">link</a> )
2018	“Want to See More Wildlife in Your Yard? Researchers Have A Suggestion: Plant Native”, <i>WAMU-NPR</i> , ( <a href="#">link</a> )
2018	“These plants bring all the birds to your yard”, <i>Popular Science</i> , ( <a href="#">link</a> )
2018	“Yards With Non-Native Plants Create ‘Food Deserts’ for Bugs and Birds”, <i>National Audubon Society</i> , ( <a href="#">link</a> )
2018	“A Yard Full of Native Plants Is a Yard Full of Well-Fed Birds”, <i>Cornell Lab of Ornithology – Living Bird Magazine</i> , ( <a href="#">link</a> )
2018	“Exotic trees may be pretty, but they are bad news for birds”, <i>Sierra Magazine</i> , ( <a href="#">link</a> )
2018	“Ecologists Have this Simple Request to Homeowners—Plant Native”, <i>Smithsonian Magazine</i> , ( <a href="#">link</a> )
2018	“Gardens with too many nonnative plants threaten populations of insect-eating birds, study finds”, <i>Mongabay</i> , ( <a href="#">link</a> )
2017	“New Research Further Proves Native Plants Offer More Bugs for Birds”, <i>National Audubon Society</i> , ( <a href="#">link</a> )
2017	“Turns out birds like to eat local too”, <i>Allegheny Front, Michigan NPR/Pittsburgh NPR</i> , ( <a href="#">link</a> )
2015	“Chickadees show why birds need native trees” <i>National Wildlife Federation</i> , ( <a href="#">link</a> )

### Shade Coffee Research Project

2019	“Shade Grown doesn’t necessarily mean bird friendly, researchers find”, <i>Daily Coffee News</i> , ( <a href="#">link</a> )
2018	“Made in the Shade: Bird-Friendly Coffee”, <i>National Zoo News</i> ( <a href="#">link</a> )

### Bird Song in Urban Forests

2016	“It’s not just noise that makes city birds sing a different tune”, <i>Conservation Magazine</i> , ( <a href="#">link</a> )
2016	“City Cardinals, Country Cardinals”, <i>Bird Watcher’s Digest</i> ( <a href="#">link</a> )

### Insect Conservation

2020	“Those pretty roadsides may be bad for bugs” SciShow YouTube Video ( <a href="#">link</a> )
2020	“How Non-Native Plants Are Contributing to a Global Insect Decline”, Yale 360 ( <a href="#">link</a> )

**INVITED OUTREACH TALKS** (4 keynote lectures, 26 public talks)

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2022	<i>Upcoming</i> , <b>Seminar</b> , Garden Club of Springfield
2021	<i>Upcoming</i> , <b>Seminar</b> , Smith College, Conway School of Landscape Design
2021	<b>Virtual seminar</b> , TN Urban Forestry Council
2021	<b>Virtual seminar</b> , Native Plant Trust
2021	<b>Virtual talk</b> , Grow Native Massachusetts, "Evenings with Experts"
2021	<b>Virtual seminar</b> , Brookline Bird Club
2021	<b>Virtual seminar</b> , The Connecticut Audubon Society
2021	<b>Virtual keynote</b> , The Botanic Garden of Smith College, Bulb Show
2020	<b>Virtual seminar</b> , Northfield Mountain Recreation and Environmental Center
2020	<b>Virtual keynote</b> , Berkshire Botanical Gardens, "Rooted in Place"
2020	<b>Virtual seminar</b> , Audubon Louisiana
2020	<b>Talk</b> , Plainfield Gardening Club, <i>Canceled due to COVID-19</i>
2020	<b>Workshop</b> , Massachusetts Master Gardeners Program, <i>Canceled due to COVID-19</i>
2020	<b>Talk</b> , Fauquier and Loudon chapter of the Garden Clubs for America
2020	<b>Talk</b> , Greening Greenfield
2019	<b>Keynote and Panel Discussion</b> , Association for Zoological Horticulture Annual Meeting
2019	<b>Talk</b> , Greening Greenfield
2019	<b>Keynote and Panel Discussion</b> , New Jersey Native Plant Society Annual meeting
2019	<b>Talk</b> , University of Massachusetts Urban Tree Conference
2019	<b>Talk</b> , Ecological Landscaping Alliance
2019	<b>Webinar</b> , Ecological Landscaping Alliance
2019	<b>Webinar</b> , Grand Valley Audubon Society, Colorado
2018	<b>Talk</b> , Friends of Dyke Marsh, Alexandria, VA
2018	<b>Talk</b> , Virginia Native Plant Society, Richmond, VA
2018	<b>Talk</b> , City of Bowie and the Bowie Green Team, Bowie, MD.
2017	<b>Talk</b> , Maryland Ornithological Society, Greenbelt, MD
2015	<b>Talk</b> , Northern Virginia Bird Club, Arlington, VA
2015	<b>Talk</b> , Prince George's Audubon Society, Greenbelt, MD
2014	<b>Talk</b> , Fair Hill Nature Center, Prime Hook National Wildlife Refuge Lecture, Elkton, MD
2014	<b>Talk</b> , Delmarva Ornithological Society, Hockessin, DE.
2013	<b>Talk and Bird Banding Demo</b> , Berkeley Springs Fall Birding Festival, Berkeley Springs, WV.

**COMMUNITY SERVICE AND OUTREACH ACTIVITIES**

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2021	Commentary on future bird conservation for Connecticut's 'State of the Birds' publication
2021	University of Massachusetts 2022 Horticultural Extension Calendar, contributed information and pictures for a written piece about keystone plants for conservation
2021	"Biden's 30 x 30 Conservation Plan", Conservation Unfiltered podcast, Jason Crighton
2021	"Birds & Native Plants" – Bird Note podcast, Washington Public Radio
2020	"Growing Greener" podcast, Thomas Christopher
2020	Shutesbury elementary school 'Meet a Scientist' program
2018-2019	Girls Inc! Bird banding activity for STEM inspire session
2017	Guest host, invited to host online twitter chat about research (@Sciparty)
2017	Monarch butterfly tagging activity with multiple school groups
2016	Various bird monitoring activities with Northern Virginia schools

- 2013—2017 Outreach activities with community scientists involved with *Neighborhood Nestwatch*
- 2013—2017 Social media activities for the Smithsonian Migratory Bird Center
- 2013—2017 International Migratory Bird Day, National Zoo
- 2014—2015 Ecological activities for Tatnall School, taught 6th graders about insect and bird ecology
- 2013—2014 Bird house building activity and bird banding demonstrations, Waples Mill Elementary School
- 2013—2014 Bird house building activity, Booz Allen Family Event at the National Zoo
- 2011 Bird banding Demonstration for Denison University Ornithology Class
- 2008 Bird banding Demonstration for Three Rivers Birding Club, Erie, PA
- 2006 Contributed Articles, The Spruce Moose, Adirondack Ecological Center

## CONSULTING SERVICE

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- 2021 Consultant on bird foraging, bird-insect interactions and community science for the Brood X Cicada project, Dr. Zoe Getman-Pickering and Dr. Daniel Gruner
- 2021 Consultant for infographic piece on creating overwinter habitat for Lepidoptera in yards ([link](#))
- 2020 Consultant about young adult book on bird conservation, Rebecca Hirsch
- 2020 Consultant for proposal to fund activities promoting natural landscaping in residential yards, Tom Chase, Nature Conservancy
- 2019 Consultant for best native plants for urban gardens, “Climate Change Coverage for D.C.” Candace Montague, DCist ([link](#))
- 2019 Washington D.C., Urban Street Tree Master Plan, Landscape Architecture Bureau, LLC
- 2018 Research design for studies of insects and nonnative plants, Dr. David Coyle, Forest Health and Invasive Species Extension Program
- 2018 Research design for studies of restoration ecology and birds in urban areas, Dr. Adam Fudickar, Indiana University, Bloomington
- 2018 Research design for studies of landscaping plants, Dr. Ilya R. Fischhoff, Cary Institute of Ecosystems Studies
- 2017 Best practices for working on privately-owned land, Dr. Karen Dyson, University of Washington

## PROFESSIONAL DEVELOPMENT

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- 2021 **Future Faculty Workshop**, Northeastern University
- 2021 **Introduction to Shiny Applications**, SESYNC, Denis Valle
- 2019 **Introduction to the NEON data network**, Batelle, Boulder Colorado
- 2018 **Managing Ecological Data for Effective Use and Re-Use: A Workshop for Early Career Scientists**, Ecological Society of America, Amber Budden
- 2018 **Introduction to Community Data Analysis Using the vegan Package in R**, Ecological Society of America, Naupaka Zimmerman
- 2018 **Hormone assays for corticosterone extraction from avian feathers**, Chris Tonra, OSU
- 2017 **Instructor Training—Programming and Coding in R**, Software Carpentry
- 2017 **Introduction to Python, Git and Bash shell**, Software Carpentry Workshop, Univ Delaware
- 2016 **Network Analysis in R**, North American Ornithological Conference, Daizaburo Shizuka
- 2016 **Survival Estimation Using Markov Transition Matrices**, Matt Etterson, Univ Delaware
- 2016 **Metabarcoding avian fecal material for dietary information**, Andreanna Welch, Smithsonian
- 2015 **AWIS Mentoring**, Wilson Ornithological Society, Cindy Simpson
- 2014 **Bayesian Population Analysis**, University of Montana, Marc Kery and Michael Schuab

## SKILLS

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<b>Programming:</b>	R, Rstudio, Winbugs/JAGS, git/Github, cluster computing
<b>Field:</b>	Bird banding (Subpermit holder, 15 years' experience), population demography (nest searching, resighting, etc.), radio-telemetry, point count/distance sampling, behavioral observation, collecting biological samples, identification of birds, insects, plants, etc. bioacoustics recording, small/large mammal trapping, adult and larval insect sampling and taxonomy, i-Tree vegetation sampling
<b>Modeling:</b>	generalized linear models, hierarchical models, survival analysis, occupancy/n-mixture models, Bayesian modeling, community ordination, AIC model selection, network analysis, community occupancy models, network analysis
<b>Laboratory:</b>	stable isotopes, DNA-extraction, hormone extraction
<b>Geospatial Data:</b>	primarily in R using packages 'sp', 'raster' etc. map making, data extraction, home range analysis

## REFERENCES

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1. **Dr. Susannah Lerman (Smith Fellows Mentor 2020—present, Postdoc Supervisor, 2018—2020)**  
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2. **Dr. Peter Groffman (Postdoc Supervisor, 2018—2020)**  
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3. **Dr. Douglas Tallamy (PhD Advisor, 2013—2018)**  
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4. **Dr. Peter Marra (PhD Co-Advisor, 2013—2018)**  
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**Additional references available upon request.**