




DOUGLAS SPONSLER

EDUCATION

- 2016 • **The Ohio State University**
Ph.D. in Entomology  Columbus, Ohio, USA
- 2010 • **Cedarville University**
B.S. in Biology  Cedarville, Ohio, USA

PROFESSIONAL EXPERIENCE

- 2020
|
present • **Postdoctoral Researcher**
Department of Animal Ecology and Tropical Biology, University of Würzburg  Würzburg, Germany
- Lead pollinator competition module of EU Project Safeguard
 - Lead study of bumble- bee-wildflower interactions in Berchtesgadener Alps
 - Mentor Ph.D. and MS students
 - Provide statistical support to students and colleagues
 - Organize department seminar program
 - Contribute to classroom- and field-based teaching
- 2018
|
2021 • **Research Associate**
The Academy of Natural Sciences of Drexel University  Philadelphia, PA, USA
- Lead study of urban plant-pollinator ecology in Philadelphia
 - Communicate research to museum visitors
- 2017
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2020 • **Postdoctoral Fellow**
Pennsylvania State University  University Park, PA, USA
- Design, conduct, and analyze USDA-NIFA-funded field studies of honey bee colony health
 - Lead an NSF-funded multi-institutional working group in the development of a framework for understanding pesticide effects on pollinators
 - Extend research to beekeeper and master gardener organizations
 - Contribute to classroom- and field-based teaching

PEER-REVIEWED PUBLICATIONS

- in-review • **Bees, trees, and weather: the contingency of food limitation during an early spring nectar pulse**
Ecology and Evolution
Sponsler DB, Hamilton M, Wiesneth M, Steffan-Dewenter I

CONTACT INFO

Department of Animal Ecology and Tropical Biology

University of Würzburg

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Am Hubland


Würzburg, Germany

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 [ResearchGate](#)

 [Google Scholar](#)

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INTERESTS

Flower-insect interactions

Bayesian statistics and causal inference

Philosophy of science

Urban ecology

Human-nature interactions

Natural history

LANGUAGES

English (native)

German (intermediate)

- in-review

● **High rates of nectar depletion in summer grasslands indicate competitive conditions for pollinators**
Oikos
 Sponsler DB, Dominik C, Biegerl C, Honchar H, Schweiger O, Steffan-Dewenter I
- in-press

● **Next-generation colony weight monitoring: a review and prospectus**
Apidologie
 McMinn-Sauder H [...] Sponsler DB
- 2024

● **Distance functions of carabids in crop fields depend on functional traits, crop type and adjacent habitat: a synthesis**
Proceedings of the Royal Society B 291:2023238320232383
 Boetzi FA, Sponsler DB, et al.
- 2023

● **Targeted treatment of injured nestmates with antimicrobial compounds in an ant society**
Nature Communications 14:8446
 Frank ET [...] Sponsler DB, et al
- 2023

● **Pollinator competition and the structure of floral resources**
Ecography 2023:e06651
 Sponsler DB, Iverson AL, Steffan-Dewenter I
- 2022

● **Grassy–herbaceous land moderates regional climate effects on honey bee colonies in the Northcentral U.S.**
Environmental Research Letters 17:064036
 Quinlan G, Sponsler DB, Gaines-Day HR, McMinn-Sauder HBG, Otto CRV, Smart AH, Colin T, Gratton C, Isaacs R, Johnson R, Milbrath MO, Grozinger CM
- 2022

● **Contrasting patterns of richness, abundance, and turnover in mountain bumble bees and their floral hosts**
Ecology 2022:e3712
 Sponsler DB, Requier F, Kallnik K, Claßen A, Maihoff AF, Sieger J, Steffan-Dewenter I
- 2022

● **Floral preferences of mountain bumble bees are constrained by functional traits but flexible through elevation and season**
Oikos 2022;3:e08902
 Sponsler DB, Requier F, Kallnik K, Claßen A, Maihoff AF, Sieger J, Steffan-Dewenter I
- 2021:

● **Beekeeping in, of, or for the city? A socioecological analysis of urban apiculture in the United States.**
People and Nature 2021;3:550-559
 Sponsler DB, Bratman EZ
- 2021:

● **Honey bees and neonicotinoid-treated corn seed: contamination, exposure, and effects**
Environmental Toxicology and Chemistry 2021;40:1212-1221
 Lin C-H, Sponsler DB, Richardson RT, Watters H, Glinski D, Henderson M, Minucci J, Lee EH, Purucker T, Johnson RM.
- 2021:

● **Application of plant metabarcoding to identify diverse honeybee pollen forage along an urban–agricultural gradient**
Molecular Ecology 2021;30:310-323
 Richardson RT, Eaton T, Lin C-H. Cherry G, Johnson RM, Sponsler DB

- 2020: ● **Characterizing the floral resources of a North American metropolis using a honey bee foraging assay**
Ecosphere 2020;e03102
Sponsler DB, Shump D, Richardson RT, Grozinger CM
- 2020: ● **A screening-level assessment of the pollinator-attractiveness of ornamental nursery stock using a honey bee foraging assay**
Scientific Reports 2020;10:831
Sponsler DB, Grozinger CM, Richardson RT, Nurse A, Brough D, Patch H, Stoner K
- 2020: ● **County-level analysis reveals a rapidly shifting landscape of bee toxic load on US farmland**
Scientific Reports 2020;10:797
Douglas MR, Sponsler DB, Lonsdorf EV, Grozinger CM
- 2020: ● **MetaCurator: A hidden Markov model-based toolkit for extracting and curating sequences from taxonomically-informative genetic markers**
Methods in Ecology and Evolution 2020;11:181-186
Richardson RT, Sponsler DB, McMinn-Sauder H, Johnson RM
- 2019: ● **Pesticides and pollinators: a socioecological synthesis.**
Science of the Total Environment 2019;662:1012-1027
Sponsler DB, Grozinger CM, Hitaj C, Rundlöf M, Botías C, Code A, Lonsdorf EV, Melathopoulos AP, Smith DJ, Suryanaryanan S, Thogmartin WE, Williams NM, Zhang M, Douglas MR
- 2019: ● **Quantitative multi-locus metabarcoding and waggle dance interpretation reveal honey bee spring foraging patterns in Midwest agroecosystems**
Molecular Ecology 2019;28:686-697
Richardson RT, Curtis HR, Matcham EG, Lin C-H, Suresh S, Sponsler DB, Hearon LE, Johnson RM
- 2017: ● **Spatial and taxonomic patterns of honey bee foraging: a choice test between urban and agricultural landscapes**
Journal of Urban Ecology 2017;3:1-7
Sponsler DB, Matcham EG, Lin C-H, Lanterman JL, Johnson RM
- 2017: ● **Mechanistic modeling of honey bee pesticide exposure: the missing keystone of honey bee toxicology**
Toxicology and Chemistry 2017;36:871-881
Sponsler DB, Johnson RM
- 2015: ● **Honey bee success predicted by landscape composition in Ohio, USA**
PeerJ 2015;3:e838.
Sponsler DB, Johnson RM
- 2015: ● **Application of ITS2 metabarcoding to determine the provenance of pollen collected by honey bees in an agroecosystem**
Applications in Plant Sciences 2015;3:1400066
Richardson RT, Lin C-H, Sponsler DB, Quijia-Pillajo JO, Goodell K, Johnson RM



POPULAR PUBLICATIONS

- 2017: ● **Poisoning a society: a superorganism perspective on honey bee toxicology**
Bee World 2017;95:30-32.
Sponsler DB, Johnson RM
- 2015: ● **Honey bee success in Ohio's landscapes**
Ohio Beekeeping 2015;4:26-27.
Sponsler DB
- 2014: ● **Honey bee losses and toxic corn seed dust.**
Ohio Beekeeping 2014;3:11-23.
Sponsler DB, Lin C-H, Johnson RM



GRANTS

- 2020: ● **Establishing the Penn State honey diagnostics lab to serve Pennsylvania beekeepers (\$47,797)**
Pennsylvania Commonwealth Specialty Crop Block Grant.
Grozinger CM, Sponsler DB
- 2018: ● **Strengthening urban apiculture, crop production, and biodiversity by understanding the habitat needs of wild and managed bees (\$163,00)**
USDA-NIFA-AFRI Postdoctoral Fellowship
Sponsler DB, Grozinger CM
- 2017: ● **Location, location, location: developing tools for selection and management of landscapes to promote healthy bee populations (\$9,777)**
North American Pollinator Protection Campaign
Jones TO, Lonsdorf E, Douglas M, Grozinger C, Patch H, Sponsler DB
- 2017: ● **Impact of urban landscapes on honey bee nutritional resources: a pilot study (\$6,037)**
Apes Valentes
Sponsler DB, Grozinger CM
- 2015: ● **An Ohio pollen database (\$2,500)**
Ohio State Beekeepers' Association
Sponsler DB, Lin C-H, Richardson RT, Wransky M, Johnson RM
- 2014: ● **Honey bee nutrition in the Midwestern landscape: assessing pollen diversity and nutrition along an urban-rural gradient in central Ohio (\$2,990)**
Ohio Agricultural Research and Development Center SEEDS Program
Sponsler DB, Johnson RM
- 2013: ● **Development of a portable hive scale (\$2,000)**
Ohio State Beekeepers' Association
Sponsler DB, Johnson RM

2012: ● **Honey bee success in urban and rural landscapes (\$2,478)**
Ohio State Beekeepers' Association
Sponsler DB, Johnson RM



FELLOWSHIPS AND AWARDS

2018: ● **Environmental Toxicology and Chemistry Best Paper**
Society for Environmental Toxicology and Chemistry

2016: ● **Ray Travel Award**
The Ohio State University

2016: ● **Foundation Scholarship**
The Foundation for the Preservation of Honey Bees

2014: ● **President's Prize runner up (10-min paper)**
Entomological Society of America

2014: ● **James E. Tew Extension Award**
The Ohio State University

2012: ● **President's Prize (10-min paper)**
Entomological Society of America

2014: ● **Director's Fellowship**
The Ohio Agricultural Research and Development Center



MENTORING

2023
|
present ● **MS mentor**
Co-mentor of Michael Wiesneth

📍 University of Würzburg, Würzburg, Germany

2023
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present ● **MS mentor**
Co-mentor of Murray Hamilton.

📍 University of Würzburg, Würzburg, Germany

2022
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present ● **MS mentor**
Co-mentor of Jessica Strehl.

📍 University of Würzburg, Würzburg, Germany

2022
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present ● **Ph.D. mentor**
External committee member for Austin Martin.

📍 Temple University, Philadelphia, PA

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| 2021 present | ● Ph.D. mentor Co-advisor of Giulia Mainardi. | 📍 University of Würzburg, Würzburg, Germany |
| 2017 2018 | ● Undergraduate mentor Supervised undergraduate research Dalton Brough. | 📍 Penn State University, University Park, PA |
| 2014 2015 | ● Science Olympiad coach (NSF GK-12) | 📍 Orrville Middle School, Orrville, OH |

COURSE INSTRUCTION

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|------|---|--|
| 2016 | ● Pesticides and their Use Developed and taught course | 📍 Ohio Agricultural Technical Institute, Wooster, OH |
| 2016 | ● General Entomology Lab instructor | 📍 Ohio Agricultural Technical Institute, Wooster, OH |
| 2014 | ● Philosophy of Science Visiting instructor | 📍 Central Christian High School, Kidron, OH |
| 2012 | ● Energy Transfer and Development Graduate Teaching Assistant | 📍 The Ohio State University, Columbus, OH |

GUEST LECTURES












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| 2023 | ● Interdepartmental Ring Lecture (Ecology and Time) | 📍 University of Würzburg, Würzburg, Germany |
| 2020 2023 | ● Honey Bee Ecology | 📍 University of Würzburg, Würzburg, Germany |
| 2021 | ● Animal Pollinators | 📍 University of Würzburg, Würzburg, Germany |
| 2020 2023 | ● R Club (GAMs, Writing in RMarkdown, Causal Inference) | 📍 University of Würzburg, Würzburg, Germany |
| 2019 | ● Pollination Ecology | 📍 California State University Fresno, Fresno, CA |
| 2019 | ● Urban Ecology | 📍 PA Master Naturalist Program, Philadelphia, PA |
| 2019 | ● Introduction to Ecology | 📍 PA Master Naturalist Program, Philadelphia, PA |
| 2019 | ● Plant-Animal Interactions | 📍 Drexel University, Philadelphia, PA |
| 2018 | ● Advances in Ecology | 📍 Pennsylvania State University, State College, PA |
| 2018 | ● Pollinators in Designed Greenspace | 📍 Pennsylvania State University, State College, PA |

- 2018 ● **Urban Pollinator Ecology** 📍 Dickinson College, Carlisle, PA.
- 2017 ● **Honey Bees and Humans** 📍 Pennsylvania State University, State College, PA
- 2013 ● **Beekeeping** 📍 The Ohio State University, Columbus, OH
- 2015



INVITED PRESENTATIONS

- 2023: ● **Gardens as pollinator habitat: limitations, potential, and context**
New Directions in the American Landscape (NDAL) annual symposium (14 Mar 2023) 📍 Philadelphia, PA (virtual)
Sponsler DB
- 2022: ● **Flowers are food, pollinators are florivores, and what we're doing here is trophic ecology.**
Protecting Pollinators in Urban Landscapes Conference (11 Oct 2022) 📍 Athens, GA (virtual)
Sponsler DB
- 2022: ● **Flowers, insects, and people: stewarding an ancient mutualism through greenspace design**
New Directions in the American Landscape (NDAL) annual symposium (27 Jan 2022) 📍 Philadelphia, PA (virtual)
Sponsler DB
- 2022: ● **Pollinator competition and the structure of floral resources**
Lund University (28 Oct 2021) 📍 Lund, Sweden (virtual)
Sponsler DB
- 2021: ● **Mountain bumble bees and wildflowers exhibit nonlinear patterns of abundance and β -diversity, punctuated by the tree line ecotone**
Naturalis Biodiversity Center (19 Apr 2021) 📍 Leiden, Netherlands (virtual)
Sponsler DB
- 2020: ● **Landscape-scale flow/dearth monitoring: a robust method for messy data**
4th International Conference on Bee and Hive Monitoring (8 Oct 2020) 📍 Missoula, Montana (virtual)
Sponsler DB
- 2019: ● **Landscape anthecology: a paradigm, a toolkit, and an application**
American Entomological Society (4 Dec 2019) 📍 Philadelphia, PA
Sponsler DB
- 2019: ● **Floral resource topography of a North American metropolis revealed by honey bee foraging assay**
The Academy of Natural Sciences of Drexel University (15 Nov 2019) 📍 Philadelphia, PA
Sponsler DB
- 2019: ● **Floral resource topography of a North American metropolis revealed by honey bee foraging assay**
International Conference for Pollinator Biology (20 Jul 2019) 📍 Davis, CA
Sponsler DB, Shump D, Richardson RT, Grozinger CM.

- 2018: ● **Honey bee foraging in the City of Neighborhoods: Two years of colony weight monitoring reveal spatial and temporal patterns of floral availability**
Entomological Society of America (14 Nov 2018)  Vancouver, Canada
Sponsler DB, Shump D, Grozinger CM
- 2018: ● **Plants, pollinators, and people in the City of Neighborhoods**
Drexel University (27 Sep 2018)  Philadelphia, PA
Sponsler DB
- 2018: ● **Honey bee foraging patterns and colony weight dynamics reveal ecological heterogeneity of urban landscape**
Entomological Society of America, Eastern Branch (19 Mar 2018)  Annapolis, MD
Sponsler DB, Shump D, Grozinger CM
- 2018: ● **Flying needles in a landscape-scale haystack: the challenge of observing foraging bees**
International Society for Optics and Photonics (SPIE), Penn State student chapter (1 Feb 2018)  University Park, PA
Sponsler DB
- 2018: ● **Bees, flowers, and people in “The City of Neighborhoods”**
Franklin and Marshall University (26 Jan 2018)  Lancaster, PA
Sponsler DB
- 2017: ● **Bees and the urban food scene**
Entomological Society of America (8 Nov 2017)  Devner, CO
Sponsler DB, Shump D, Patch HM, Grozinger CM
- 2017: ● **Honey bee landscape ecology**
Bucks County Community College, first annual science seminar (19 May 2017)  Newtown, PA
Sponsler DB
- 2017: ● **Integrating landscape and behavior to predict honey bee pesticide exposure**
Eastern Branch of the Entomological Society of America (20 Mar 2017)  Newport, RI
Sponsler DB
- 2016: ● **Integrating landscape and behavior to predict honey bee pesticide exposure**
Workshop on pollinator ecosystem services, Penn State University (20 Dec 2016)  State College, PA
Sponsler DB
- 2016: ● **Honey bee landscape ecology: foraging, toxic exposure, and apicultural outcomes**
Miami University of Ohio (4 Dec 2016)  Miami, OH
Sponsler DB
- 2016: ● **Urban vs. rural beekeeping: the proof is in**
TriCounty Beekeepers' Association Annual Spring Workshop (5 Mar 2016)  Wooster, OH
Sponsler DB, Matcham EG, Lin C-H, Johnson RM



OUTREACH PROGRAMMING

- 2020 ● **Museum Exhibitor**
Hosted an exhibit of bees diversity for Martin Luther King, Jr Day event.
📍 The Academy of Natural Sciences of Drexel University, Philadelphia, PA
- 2019 ● **Workshop Instructor**
Led live honey bee dance decoding activity for museum visitors during the annual BugFest event.
📍 The Academy of Natural Sciences of Drexel University,, Philadelphia, PA
- 2019 ● **Workshop Instructor**
Five-day USDA-PDSTEP workshop (APPL-RED) training middle and high school teachers to develop project-based lessons on plant-pollinator interactions
📍 Penn State University, University Park, PA
- 2019 ● **Workshop Instructor**
Workshop for urban gardeners and farmers to build nests for stem-nesting wild bees.
📍 Philadelphia Beekeepers Guild, Philadelphia, PA
- 2019 ● **Workshop Instructor**
Workshop for urban gardeners and farmers to build nests for stem-nesting wild bees.
📍 Awbury Arboretum, Philadelphia, PA
- 2019 ● **Workshop Instructor**
Workshop for urban gardeners and farmers to build nests for stem-nesting wild bees.
📍 Penn State Center, Philadelphia, PA
- 2017 ● **Workshop Instructor**
Five-dayUSDA-PDSTEP workshop (APPL-RED) training middle and high school teachers to develop project-based lessons on plant-pollinator interactions
📍 Penn State University, University Park, PA
- 2015 |
2016 ● **Workshop Instructor**
Led field trips to the OSU Department of Entomology for preschool, elementary, and middle school students from Wooster Summer Camp and the Montessori School of Wooster.
📍 Ohio State University, Wooster, OH
- 2015 ● **Workshop Instructor**
Co-led stream macroinvertebrate workshop for children at the Family Farm Field Day agricultural fair
📍 Holmes County, OH
- 2014 ● **Workshop Instructor**
Taught microscopy techniques for monitoring Nosema infection in honey bees 📍 Ohio State University, Wooster, OH
- 2013 ● **Workshop Instructor**
Curated, displayed, and discussed bee specimens at the Power of Pollinators short course.
📍 Ohio State University, Wooster, OH



SELECTED OUTREACH PRESENTATIONS

- 2019: ● **The world's best forager vs. the world's most complicated landscape: Three years of studying honey bee foraging in Philadelphia**
Barnstable Beekeepers Association (16 Sep 2019) 📍 Barnstable, MA (virtual)
Sponsler DB

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| 2019: | ● Bees, brews, and brotherly love: the avant garde ecology of Philadelphia Science on Tap, National Mechanics Pub (12 May 2019) Sponsler DB | 📍 Philadelphia, PA |
| 2019: | ● Bees and urban flora: exploring the trophic ecology of ornamentals, remnants, and “weeds” in the city Philadelphia Botanical Club (28 Feb 2019) Sponsler DB | 📍 Philadelphia, PA |
| 2019: | ● The evolving science and policy of pesticides and pollinators Pennsylvania Agronomy Education Conference (17 Jan 2019) Sponsler DB | 📍 Boalsburg, PA |
| 2019: | ● Integrated tools for honey bee landscape ecology American Honey Producers Association (11 Jan 2019) Sponsler DB | 📍 Tempe, AZ |
| 2018: | ● What is the place of bees and beekeepers in the ecology of the city? Philadelphia Honey Festival (9 Sep 2018) Sponsler DB | 📍 Tempe, AZ |
| 2018: | ● Bees, flowers, and people in “The City of Neighborhoods” Philadelphia Beekeepers' Guild (19 Apr 2018) Sponsler DB | 📍 Philadelphia, PA |
| 2017: | ● Bees and the Philly food scene Philadelphia Beekeepers' Guild (18 May 2017) Sponsler DB | 📍 Philadelphia, PA |
| 2017: | ● Honey bee landscape ecology Mountain State Beekeepers' Association (1 May 2017) Sponsler DB | 📍 Kearneysville, WV |
| 2017: | ● Honey bees and pesticides Champlaine Valley Beekeepers' Association (29 Apr 2017) Sponsler DB | 📍 Beekmantown, NY |
| 2016: | ● Honey bee foraging in Ohio's landscapes TriCounty Beekeepers' Association (31 Aug 2016) Sponsler DB | 📍 Wooster, OH |
| 2016: | ● Honey bee landscape ecology American Beekeeping Federation (7 Jan 2016) Sponsler DB | 📍 Jacksonville, FL |
| 2014: | ● Predatory flies Secret Lives of Good Garden Bugs Workshop (15 May 2014) Sponsler DB | 📍 Cleveland, OH |

- 2014: ● **So, how are the bees? Complexity, confusion, and consensus in the world of honey bee health**
Cucumber Growers' Meeting, Ohio Agricultural Research and Development Center (25 Mar 2014) 📍 Fremont, OH
Sponsler DB
- 2013: ● **Honey bee geography: why thinking outside the box might be the key to helping honey bees**
OARDC Staff Advisory Council (22 Oct 2013) 📍 Fremont, OH
Sponsler DB
- 2013: ● **Honey bee health, colony collapse disorder, and why it matters**
Congressional Assistants' tour of OARDC (16 Aug 2013) 📍 Wooster, OH
Sponsler DB
- 2013: ● **An introduction to bee diversity and natural history**
Master Gardener Pollinator Training Workshop (22 Jun 2013) 📍 Wooster, OH
Sponsler DB



PROFESSIONAL TRAINING

- 2022: ● **Data management**
5-day short course on research data management 📍 German Ecological Society (GfÖ), virtual meeting
- 2018: ● **Open Source Geospatial Data Analysis**
3-day short course on geospatial data analysis with R and Python
📍 Socioecological Synthesis Center (SESYNC), Annapolis, MD
- 2016: ● **REACH suicide prevention training**
Workshop on suicide prevention, designed especially for professors working with undergraduate students
📍 The Ohio State University, Columbus, OH
- 2016: ● **Introduction to individual-based/agent-based modelling**
Two-day workshop taught by Volker Grimm, Nika Galic, and Michael Crawford 📍 Towson, MD
- 2016: ● **Diversity and implicit bias awareness training**
Three-day workshop on mitigating implicit bias, promoting diversity, and aiding distressed individuals
📍 The Ohio State University, Columbus, OH
- 2011: ● **Native bee identification, ecology, research, and monitoring**
Five-day course workshop taught by Sam Droege, Alana Taylor, and Rob Jean
📍 National Conservation Training Center, Shepherdstown, WV



SERVICE

- 2022
|
present ● **Equal Opportunity Committee Member**
Project Safeguard, European Union Research Consortium
- 2020
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present ● **Seminar coordinator**
Department of Animal Ecology and Tropical Biology of the University of Würzburg
- 2019
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present ● **Executive committee member**
Philadelphia Botanical Club
- 2019 ● **Diversity and inclusion panel member**
Penn State University, Department of Entomology

- 2018 • **Student competition judge**
Entomological Society of America and the Society for Environmental Toxicology and Chemistry
- 2017 • **Activity leader, Great Insect Fair**
Penn State University, Department of Entomology
- 2014 | 2015 • **Faculty hiring committee member**
The Ohio State University, Department of Entomology
- 2014 | 2015 • **Summer Research Opportunities Program (SROP) panel member**
The Ohio State University, Department of Entomology
- 2013 | 2015 • **Treasurer, Entomology Graduate Student Association**
The Ohio State University, Department of Entomology
- 2011 • **Volunteer curatorial assistant**
The Academy of Natural Science, Philadelphia, PA.
- 2009 • **President, ProTerraForma.**
Student conservation club, Cedarville University



SKILLS

- **R statistical software**
- **Directed acyclic graphs and causal inference**
- **Bayesian data analysis**
- **Multivariate statistics**
- **Geographic Information Systems (GIS)**
- **Graphic design and image processing (Inkscape, GIMP)**
- **Beekeeping**
- **DNA metabarcoding**
- **Microscopy**



GRANT REVIEWING

- 2022 • **European Partnership Biodiversa+**

- 2021 ● **Estonian Research Council**
- 2019 ● **USDA National Institute of Food and Agriculture (USDA-NIFA)**
- 2014 ● **SEEDS, an intramural funding program of the Ohio State University College of Food, Agriculture, and Environmental Science.**



MANUSCRIPT REVIEWING

- **Apidologie**
- **Agricultural and Forest Entomology**
- **Behavioral Ecology and Sociobiology**
- **Biology**
- **Ecology and Evolution**
- **Ecosphere**
- **Ecological Applications**
- **Frontiers in Ecology and Evolution**
- **Insects**
- **Insect Conservation and Diversity**
- **Journal of Applied Ecology**
- **Journal of Ecology**
- **Journal of Economic Entomology**
- **Molecular Ecology**
- **New Phytologist**
- **Oecologia**

- **Oikos**
- **PeerJ**
- **Proceedings of the Royal Society B**
- **Scientific Reports**
- **Urban Ecosystems**
- **Urban Forestry and Urban Greening**