

Hannah K. Levenson, PhD

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EDUCATION

Ph.D., North Carolina State University, 2021

Co-major in Entomology (Behavior, Ecology, Evolution & Systematics) and Biology (Ecology & Evolution)

B.S. & B.A., North Carolina State University, 2015

B.S. in Environmental Technology & Management

B.A. in Design Studies

Minor in Environmental Studies

Magna Cum Laude

EXPERIENCE

Postdoctoral Research Scholar, North Carolina State University

Specialty Crops IPPM Laboratory, June 2021 - Present

- Developing sustainable management tactics for spotted wing drosophila through improved sampling and pesticide use decision processes, and evaluating information dissemination approaches to stakeholder learning
- Investigating how pollinator and pest populations interact to affect crop yield, and evaluating how crop management decisions may impact pollination

Graduate Research Associate, North Carolina State University

NCSU Apiculture Program, July 2017 – May 2021

- Evaluated the effectiveness of planted pollinator habitat in agroecosystems as a conservation tool for pollinator populations by measuring changes in bee abundance and diversity overtime, intra- and interspecific disease occurrence, and how the presence of the habitat affected soybean yield
- Collected samples from 16 NCDA&CS and NCSU research stations across 3 years resulting in the most detailed survey of native bees in NC to date

Field Research Technician, North Carolina State University

NCSU Apiculture Program, February 2016 – July 2017

- Collected, identified, and conducted lab analyses on bee samples from 16 locations across NC to evaluate the effectiveness of planting pollinator habitat as a conservation tool in agricultural areas
- Designed and implemented an independent research project – *Disease interactions between native, wild, and honey bees in northern Perú* – with Peace Corps Volunteers, local beekeepers, and La Universidad Nacional Toribio Rodríguez de Mendoza de Amazonas

Biology Technician – Wildlife Toxicology, Smithers Viscient LLC

February 2015 – August 2015

- Assisted in the management of 300+ honey bee colonies, collected samples from crops and hives, and conducted Digital Colony Condition Assessments in North Carolina, California, and South Dakota
- Successfully handled stressful schedules, multi-tasked in a fast-paced environment, and worked efficiently in hot environments

Field Assistant, North Carolina State University

Marine Biology Laboratory, May 2014 – August 2014

- Constructed 16 artificial patch reefs, conducted fish and seagrass surveys, collected seagrass, ocean water, mangrove, and sediment samples in The

- Abacos, The Bahamas
- Teaching assistant for a week-long sea creature identification course and authored two blog posts for the extension blog, *The Abaco Scientist*

MEMBERSHIPS

North Carolina Pollinator Conservation Alliance

Founding Member

Being an Ally in Academia

Founding Member

Entomological Society of America

North Carolina Entomological Society

LEADERSHIP ROLES

NCSU Horticulture Consumer Youth Working Group Research Co-Coordinator

October 2021 - Present

- Working with extension agents and master gardeners across NC to evaluate how common garden maintenance techniques impact overwintering arthropod abundance

Being an Ally in Academia (B.A.A.) Seminar Series Executive Committee Member

April 2022 - Present

- B.A.A. is an NCSU organization open to any interested graduate student, postdoc, staff, or faculty with the goal of working to make academia a more welcoming and diverse environment
- Members of the Executive committee are developing a new annual seminar series focused on highlighting diverse researchers from across the US

Workshop Co-Organizer for Ent. Society of America's National Conference

Vancouver, Canada, November 2022

- Organizing and presenting in a workshop focused on developing standardized methods for researching bees in the United States

CEFS ASPIRE Mentor

Summer 2022

- Provide scientific training and professional development opportunities to an intern through the NCSU REU program, ASPIRE, including designing and delegating a summer research project

BeeMORE Mentor

Summer 2018, 2019, 2021, 2022

- Provide scientific training and professional development opportunities to an intern through the NCSU REU program, BeeMORE, including designing and delegating a summer research project

Symposium Co-Organizer for Ent. Society of America's National Conference

Virtual, November 2020

- Organized and presented in a symposium with 11 presenters focused on pollinators in soybeans

US National Native Bee Monitoring Research Coordination Network Member

October 2020 – Present

- Participating in quarterly meeting with researchers from across the US to develop a standardized method for conducting research on native bees
- Acted as a breakout group leader during the December 2021 meeting

North Carolina Pollinator Conservation Alliance Committee Member

January 2018 - Present

- Participating in Outreach and Research Subcommittee meetings to coordinate and plan future events and activities for the larger group

NCSU Entomology Graduate Student Association Co-Seminar Chair

April 2019 – May 2020

NCSU Native Bee ID Workshop Co-Creator

September 2018 & May 2019

- Day-long, hands-on ID workshop using pinned specimens, ID workbooks, and field activities with 36 people in attendance to date

NCSU Department of Entomology & Plant Pathology Social Committee Member

August 2018 – April 2019

NCSU Entomology Graduate Student Association Co-Social Chair

March 2018 – April 2019

AWARDS

NCSU DEPP Excellence in Entomology Award, June 2021

NCES 3-Minute Thesis Competition – 1st Place, October 2020

N.C. State Beekeepers Association's J.T. Ambrose Student Award, July 2020

NCSU CALS Research Foundation Competition – 2nd Place, March 2020

NCES Outstanding Ph.D. Student, October 2019

NSF GRFP – Honorable Mention, October 2019

NCSU Ent. Graduate Student Symposium – 10-Minute Pres. 1st Place, March 2019

NCES Outstanding Masters Student, October 2018

RESEARCH GRANTS, TRAVEL GRANTS & FELLOWSHIPS

NC Blueberry Council (\$11,278)*, February 2023

USDA SCRI Grant: Co-PI for the NCSU subaward (\$420,000), January 2022

NCSU Impact Scholar (\$1,000), January 2022

NCSU STEM Externship Fellow (\$1,500), May 2021

NCSU GSA Travel Award (\$1,500), April 2020

Southern SARE Graduate Student Grant (\$16,000), August 2019

NCSU CEFS Graduate Fellow (\$10,000), July 2019

International Pollinator Conference Travel Award (\$500), March 2019

Garden Club of America's Centennial Pollinator Fellowship (\$4,000), March 2019

Syngenta Bee Research Grant (\$25,000)*, December 2018

NCES Travel Award (\$250), October 2018

NCSU Graduate Student Association Travel Award (\$500), April 2018

NCSU Biology Research Award (\$1,500), March 2018

*could not be listed as a PI but significantly contributed to the writing and conducting of research

PEER-REVIEWED PUBLICATIONS

Levenson, H.K. & Tarpy, D.R. (IN PRESS) Planted pollinator habitat in agroecosystems: how does the pollinator community respond? *Frontiers in Ecology and Evolution*.

Levenson, H.K. & Tarpy, D.R. (2022) Effects of planted pollinator habitat on pathogen prevalence and interspecific detection between bee species. *Scientific Reports*.

Levenson, H.K., Sharp, A.E., & Tarpy, D.R. (2022) Evaluating the impact of increased pollinator habitat on bee visitation and yield metrics in soybean crops. *Agriculture*,

Ecosystems & Environment.

Levenson, H.K. (2021) Temporal and spatial dynamics of pollinator communities across North Carolina in response to conservation efforts in agroecosystems. *NCSU Dissertation Repository*.

BOOKS &
WEBSITES

Youngsteadt, E., **Levenson, H.**, & Adams, N. Hymenoptera of North Carolina. *North Carolina Biodiversity Project*. <https://auth1.dpr.ncparks.gov/hymenoptera/index.php>

Levenson, H. & Youngsteadt, E. (2019) The Bees of North Carolina: An Identification Guide. *NCSU Extension*.

Ext.
Pub.s

Levenson, H. & Walgenbach, J. (2022) What the 2022 Spotted Lanternfly Detection Means for NC Grape Growers. *NC Cooperative Extension Fact Sheet*. https://grapes.ces.ncsu.edu/wp-content/uploads/2022/09/NCSU-SLF-Ext-Doc_Final.pdf?fwd=no

SCIENTIFIC PRESENTATIONS

Levenson, H.K., Burrack, H.J., Isaacs, R., Walton, V.M., Van Timmeren, S. (2023) Improvements in spotted-wing drosophila monitoring and management in berry crops. (INVITED). Entomological Society of America Southeastern Branch Meeting, Little Rock, AK.

Levenson, H.K., Burrack, H.J., Isaacs, R., Walton, V.M., Fanning, P., Van Timmeren, S. (2023) Improvements in spotted-wing drosophila monitoring and management in berry crops. SCRI Annual Stakeholder Meeting, Virtual.

Levenson, H.K. (2023) Release of a novel parasitoid for SWD control. (INVITED). NC Blackberry and Raspberry Grower Association Meeting, Rose Hill, NC.

Levenson, H.K. (2023) Applied pollination ecology in a diverse agroecosystem: from row crops to specialty crops. (INVITED). MSU Entomology Seminar, East Lansing, MI.

Levenson, H.K. and Burrack, H.J. (2023) Improvements in SWD Monitoring and Management. (INVITED). NARBA, Tampa, FL.

Levenson, H.K. and Burrack, H.J. (2022) Enabling IPPM Strategies in Caneberries. Entomological Society of America Annual Meeting, Vancouver, CA.

Levenson, H.K. (2022) Pollinator communities across North Carolina: from the individual to the agroecosystem. (INVITED). Entomological Society of America Southeastern Branch Meeting, San Juan, PR.

Levenson, H.K. (2022) Improvement in SWD monitoring and management. (INVITED). Southeast Regional Fruit and Vegetable Conference, Savannah, GA.

Levenson, H.K. & Burrack, H.J. (2022) North Carolina Update 2021. WERA1021: Spotted Wing Drosophila Biology, Ecology, and Management Annual Meeting, Virtual.

Levenson, H.K., Sharp, A.E. & Tarpy, D.R. (2020) Evaluating the impacts of augmented pollinator habitat on surrounding cropping systems. Entomological Society of American Annual Meeting, Virtual.

Levenson, H.K. & Tarpy, D.R. (2019) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. (NOMINATED PRESENTER). NCSU Graduate Research Symposium, Raleigh, NC.

Levenson, H.K. & Tarpy, D.R. (2019) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. NCSU Entomology Student Research

Symposium, Raleigh, NC.

Levenson, H.K. & Tarpy, D.R. (2020) Native bee communities across North Carolina: from the individual to the agroecosystem. (INVITED). Entomological Society of American Annual Meeting, Virtual.

Levenson, H.K. (2020) Pollinator communities across North Carolina: what their populations look like and how we can support them. (INVITED – KEYNOTE SPEAKER). Montgomery Community College Pollinator Conference, Troy, NC.

Levenson, H.K. & Tarpy, D.R. (2020) Evaluating the impact of augmented pollinator habitat on surrounding cropping systems. Southern Appalachian Honey Bee Research Consortium Annual Meeting, Boone, NC.

Levenson, H.K. & Tarpy, D.R. (2019) Evaluating the connectedness of pollinator networks between augmented pollinator habitat and adjacent cropping systems. Entomological Society of American Annual Meeting, St. Louis, MO.

Levenson, H.K. & Tarpy, D.R. (2019) Native bee communities across North Carolina: from the individual to the agroecosystem. (AWARD PRESENTATION). North Carolina Entomological Society, Raleigh, NC.

Levenson, H.K. & Tarpy, D.R. (2019) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. (SELECTED PRESENTER). International Pollinator Conference, Davis, CA.

Levenson, H.K. & Tarpy, D.R. (2019) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. (INVITED). Entomological Society of American Eastern Branch Meeting, Blacksburg, VA.

Levenson, H.K. & Tarpy, D.R. (2019) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. Southern Appalachian Honey Bee Research Consortium Annual Meeting, Charlotte, NC.

Levenson, H.K. & Tarpy, D.R. (2019) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. NCSU Entomology Student Research Symposium, Raleigh, NC.

Levenson, H.K. & Tarpy, D.R. (2018) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. Entomological Society of American Annual Meeting, Vancouver, CA.

Levenson, H.K. & Tarpy, D.R. (2018) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. Ecological Society of America Annual Meeting, New Orleans, LA.

Levenson, H.K. & Tarpy, D.R. (2018) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. (INVITED). Entomological Society of American Southeastern Branch Meeting, Orlando, FL.

Levenson, H.K., Goethe, J.K. & Tarpy, D.R. (2018) Disease interactions between native bees, wild bees, and honey bees in northern Peru. Southern Appalachian Honey Bee Research Consortium Annual Meeting, Wake Forest, NC.

Levenson, H.K. & Tarpy, D.R. (2017) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. Southern Appalachian Honey Bee Research Consortium Annual Meeting, Greensboro, NC.

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- Levenson, H.K.** (2020) The Who, What, and How of Native Bees. NC Vegetation Management Association's Annual Meeting, Virtual.
- Levenson, H.K.** (2020) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. NC Pollination Conservation Alliance Annual Meeting, Virtual.
- Levenson, H.K.** & Tarpy, D.R. (2019) Native bee communities across North Carolina: from the individual to the agroecosystem. NCDA Superintendent Annual Meeting, Raleigh, NC.
- Levenson, H.K.** & Tarpy, D.R. (2019) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. CEFS Board Meeting, Raleigh, NC.
- Levenson, H.K.** (2018) Native pollinators and pollinator interactions. (INVITED – FEATURED SPEAKER) National Honey Bee Veterinary Consortium, Raleigh, NC.
- Levenson, H.K.** & Tarpy, D.R. (2017) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. NCDA Superintendent Annual Meeting, Raleigh, NC.
- Levenson, H.K.** & Tarpy, D.R. (2016) Pollinator habitat study. NCDA Superintendent Annual Meeting, Raleigh, NC.
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- Levenson, H.K.** (2022) Enabling IPPM Strategies in Caneberries. (INVITED). Moore County Beekeepers Association Meeting, Vass, NC
- Levenson, H.K.** (2022) How Researchers are Supporting Native Bees at the Local, State, and National Levels. (INVITED). Oakwood Garden Club, Raleigh, NC.
- Levenson, H.K.** (2022) Bee Field Collection and Identification. NCPCA Pollinator Field Day, Kinston, NC.
- Levenson, H.K.** (2022) The Who, What, and How of Native Bees. (INVITED). Raleigh Parks and Rec: Environmental Lecture Series, Virtual.
- Levenson, H.K.** & Youngsteadt, E. (2022) Native Bees: Documenting Occurrences and Planning Conservation. (INVITED). Future of Conservation Forum, Chapel Hill, NC.
- Levenson, H.K.** (2022) The Who, What, and How of Native Bees. (INVITED). Forsyth County Master Gardener Club Meeting, Virtual.
- Levenson, H.K.** (2022) The Who, What, and How of Native Bees. (INVITED). NCDA Earth Day Presentation Series, Raleigh, NC.
- Levenson, H.K.** (2021) Identification of Native Bees. NCSU Apiculture Program's BEES Academy, Monroe, NC.
- Youngsteadt, E. & **Levenson, H.K.** (2021) Native Bee Diversity and Identification. NCPCA Pollinator Field Day, Virtual.
- Levenson, H.K.** (2021) The Who, What, and How of Native Bees. (INVITED). NCSU Staff Senate Pollinator Week, Virtual.
- Levenson, H.K.** (2021) The Who, What, and How of Native Bees. (INVITED). North Raleigh Rotary Club Meeting, Virtual.
- Levenson, H.K.** (2020) Identification of Native Bees. NCSU Apiculture Program's BEES Academy, New Bern, NC.

- Levenson, H.K.** (2020) Bee Field Collection and Identification. NCPCA Pollinator Field Day, Virtual.
- Levenson, H.K.** (2020) The non-honey bees: native bees active this time of year. NCSU Apiculture Program: Hive Chat, Virtual.
- Levenson, H.K.** (2020) Pollinator communities across North Carolina: from the individual to the agroecosystem. (INVITED). Haywood County Beekeepers Association Meeting, Virtual.
- Levenson, H.K.** (2020) The bees in your backyard. (INVITED). Springdale Garden Club Meeting, Raleigh, NC.
- Levenson, H.K.** (2019) Identification of Native Bees. NCSU Apiculture Program's BEES Academy, Bolivia, NC.
- Levenson, H.K.** (2019) Identification of Native Bees. NCSU Apiculture Program's BEES Academy, Pittsboro, NC.
- Levenson, H.K.,** Favre, M. & Youngsteadt, E. (2019) BEE ID Mini Workshop. NCPCA Pollinator Field Day, Raleigh, NC.
- Levenson, H.K.** (2019) Bee Field Collection and Identification. NCPCA Pollinator Field Day, Raleigh, NC.
- Levenson, H.K.** (2019) Bees as Social Insects. (INVITED). Midnight Bee Supply – Bee School, Vass, NC.
- Youngsteadt, E & **Levenson, H.K.** (2019) Native Bee ID. (INVITED). Master Gardner College, Raleigh, NC.
- Levenson, H.K.** (2018) Bee Field Collection and Identification. NCPCA Pollinator Field Day, Salisbury, NC.
- Levenson, H.K.** (2018) Temporal and spatial dynamics of pollinator communities across NC agroecosystems. (INVITED). Wake County Beekeepers Association Meeting, Raleigh, NC.
- Levenson, H.K.** (2017) Pollinator Habitat Study. (INVITED). Orange County Beekeepers Association Meeting, Hillsborough, NC.
- Levenson, H.K.** & Blanchard, V. (2016) Pollinator Habitat Study. (INVITED). Person County Beekeepers Association Meeting, Roxboro, NC.

- Levenson, H.K.** (2023) Balancing Pollinator Health and IPM. (INVITED GUEST LECTURE). ENT 762, NCSU.
- Levenson, H.K.** (2023) Management of Arthropods in Small-fruit Production Systems. (INVITED GUEST LECTURE). ENT 762, NCSU.
- Levenson, H.** & Youngsteadt, E. (2022) Native Bees. BeeMORE Bee Biology 'Crash Course', Raleigh, NC.
- Levenson, H.K.** (2022) The Who, What, and How of Native Bees. (INVITED). North Carolina Botanical Garden's Garden Guide Training, Chapel Hill, NC.
- Levenson, H.** & Youngsteadt, E. (2021) Native Bees. BeeMORE Bee Biology 'Crash Course', Raleigh, NC.
- Levenson, H.K.** (2020) Native bees: diversity, biology, and identification tricks. (INVITED). NCSU Extension Agent Training Video.

Pinilla, S., Giacomini, J., **Levenson, H.** & Youngsteadt, E. (2019) Native Bees. BeeMORE Bee Biology 'Crash Course', Raleigh, NC.

Levenson, H.K. (Spring 2019) Teaching Assistant. ENT 201: Insects and People, NCSU.

Levenson, H.K. (2018) Native bees and pollinator interactions. (INVITED GUEST LECTURE). ENT 203: Field Section, NCSU. Pinilla-Gallego, S., Giacomini, S. & **Levenson, H.** (2018) Native Bees. BeeMORE Bee Biology 'Crash Course', Raleigh, NC.

Levenson, H.K. (Fall 2017) Teaching Assistant. ENT 203: An Introduction to the Honey bee and Beekeeping, NCSU.

Levenson, H., Giacomini, J., Connon, S. & Fowler, A. (2017) Native Bees. BeeMORE Bee Biology 'Crash Course', Raleigh, NC.

PROFESSIONAL SERVICE

Peer Review – **Frontiers** (INVITED), 2023

Peer Review – **Frontiers** (INVITED), 2022

Peer Review – **Journal of Economic Entomology** (INVITED), 2022

Peer Review – **Frontiers** (INVITED), 2021

Peer Review – **Journal of Economic Entomology** (INVITED), 2021

Peer Review – **Scientific Reports** (INVITED), 2021

Peer Review – **Insects** (INVITED), 2020

Co-Peer Review – **Insects**, 2020

Co-Peer Review – **Sustainability**, 2020

Peer Review – **Ecology Letters** (INVITED), 2020

Peer Review – **Apidology** (INVITED), 2019

UNDERGRADUATES & ASSISTANTS SUPERVISED

Kayla Beckwith (NC State University, NC) – Undergraduate, May 2022 – Present

Nia Brown (UNC Pembroke, NC) – Undergraduate, May 2022 – Present

Jarin Ardin (NC State University NC) – Undergraduate, May 2022 – Oct 2022

Zoë York – Summer Research Assistant, May 2022 – Aug 2022

Isiah Castro (Uni. of Colorado Boulder, CO) – Undergraduate, May 2021 – Aug 2021

April Sharp (NC State University, NC) – Undergraduate, May 2019 – March 2021

Rachel Laminack (NC State University, NC) – Undergraduate, Sep 2019 – Dec 2020

Kaya Hamilton (Xavier University, LA) – Undergraduate, May 2019 – Aug 2019

Chesney Banasik (NC State University, NC) – Undergraduate, Oct 2018 – May 2019

Zachary Everson (NC State University, NC) – Undergraduate, May 2018 – May 2019

Olivia Loyack (NC State University, NC) – Undergraduate, Oct 2017 – May 2019

Nicole Hanselman (Elmira College, NY) – Undergraduate, June 2018 – Aug 2018

Claire Collins (NC State University, NC) – Undergraduate, May 2017 – Aug 2018

Nathan Lasala (UNC Asheville, NC) – Undergraduate, June 2017 – July 2017

Victoria Blanchard (University of Exeter, UK) – Undergraduate, July 2016 – Dec 2016

POPULAR PRESS

The News and Observer. (2022) "Carpenter bees can be a spring buzzkill. Here's how to get rid of them (or coexist)"

The Daily TarHeel. (2020) "Here's the buzz: Conservation efforts are in full sting despite COVID-19 setback"

NCSU Extension: Homegrown. (2020) "Bee, Wasp, or Fly? Identifying N.C. Bees"
NC State University News. (2020) "The Buzz About Native Bees"
NCSU Extension: Homegrown. (2019) "Growing a Pollinator Garden"
Oregon State University: PolliNation Podcast. 2019. "Regional bee communities (and the plants they like)"

TRAINING

Adult Mental Health First Aid Certification, *December 2022*
Agricultural Leadership Institution (SELECTED ATTENDEE), 2022
NCSU STEM EXTERNSHIP (SELECTED PARTICIPANT), 2021
Inclusive STEM Teaching Project, 2021
ComSciCon (SELECTED ATTENDEE), 2018

OUTREACH PRESENTATIONS

Levenson, H.K. (2021) Native bees. (INVITED). Marion Elementary School, Virtual.
Levenson, H.K. (2021) Native bees. (INVITED). Buckhorn Creek Elementary School, Virtual.
Levenson, H.K. & McDermott, E. (2021) Pollinator Workshop. (INVITED). JC Raulston Arboretum Summer Camp, Raleigh, NC.
Levenson, H.K. (2021) Honey bee Basics. (INVITED). Triangle Rock Club Wildlife Adventure Kids Camp, Raleigh, NC. [presented 5 different times in 2017]

OUTREACH EVENTS

Bugfest, North Carolina Museum of Natural Sciences
2015, 2016, 2017, 2018, 2019
Brain Awareness Night, North Carolina Museum of Natural Sciences
2016, 2017
Pollinator Festival
2019
Pollinator Garden, Gregg Museum
2017
Native Bees, Festival for the Eno
2017