Curriculum Vitae - Elias H. Bloom

Email: ehb@peas.phd Telephone: +1 402 676 0138
Web: peas.phd Location: Ithaca, NY, USA

Education

Ph.D.	Washington State University (WSU), Pullman, WA, Entomology, 2019
Grad. Cert.	Washington State University, Pullman, WA, Sustainable Agriculture, 2015
B.S.	University of Nebraska-Lincoln, Lincoln, NE, Entomology, Insect Science, Integrated Pest Management, Cum Laude, Superior Scholar, 2013
B.S.	University of Nebraska-Lincoln, Lincoln, NE, Horticulture, Plant Production, Cum Laude, Superior Scholar, 2013

Employment

2021-2026	Post-doctoral Research Fellow, Casteel Lab, Cornell University, Ithaca, NY
2019-2021	Post-doctoral Research Associate, Szendrei Lab, Michigan State University (MSU), East Lansing, MI

Relevant Prior Employment

2000-2019	Farmer, Blooms Organic (Crescent, IA)

Research Interests

Entomology, quantitative ecology, socio-ecological models, community science, small farms, organic agriculture, vegetable production, spatiotemporal analysis, decision support tools, policy

Refereed Publications (*undergraduate and †graduate student mentees)

19. Economos Z†, **Bloom EH**, Menalled UD, Pethybridge SJ, Ryan MR, Casteel CL (2026) Cereal rye (*Secale cereale)* and canola (*Brassica napus*) cover crops reduce dry bean (*Phaseolus vulgaris*) herbivore damage. Accepted. ***Pest Management Science***
18. **Bloom EH**, Attallah SS, Casteel CL (2025) Sustainable soil management practices may increase crop defenses through soil microbiome changes across organic farms. ***npj Sustainable Agriculture***
17. Hung K-LJ, Ternest JJ, Wood TJ, Ingwell LL, **Bloom EH**, Szendrei Z, Kaplan I, Goodell, K (2025) Plant vs. pollinator protection: Weighing pest management against floral contamination for insecticide use in Midwestern U.S. cucurbits. ***Economic Entomology***
16. **Bloom EH**, Attallah SS, Casteel CL (2024) Motivating organic farmers to adopt practices that support the pest-suppressive microbiome relies on understanding their beliefs. ***Renewable Agriculture and Food Systems*** *(Selected for curated collection)*
15. Meyer M, Brousil MR, Lee BW, Armstrong ML, **Bloom EH**, Crowder DW (2024) Identifying drivers of sewage-associated pollutants in pollinators across urban landscapes. ***Apidologie***
14. **Bloom EH,** Brousil MR, Illan JG, Reganold JP, Northfield TD, Crowder DW (2023) Long-term organic farming and floral diversity promotes stability of bee communities in agroecosystems. ***Functional Ecology***
13. Donkersley P, Withcalls, S, **Bloom EH,** Crowder DW (2023) A little does a lot: can small-scale planting for pollinators make a difference? ***Agriculture, Ecosystems and Environment***

12. Zavalnitskaya J†, **Bloom EH**, and Szendrei Z (2022) Non-host habitat at local and landscape scales promotes overwintering success of a specialist insect pest. ***Agriculture, Ecosystems and Environment***
11. **Bloom EH**, Hauri, KC†, Constancio N†, Szendrei Z (2021) A newly invasive species promotes differences in pest populations between organic and conventional farming systems. ***Ecological Applications***
10. Allen-Perkins A, Magrach A, Dainese M, Garibaldi LA, Kleijn D, Rader JR, ... **Bloom, EH**, ... Bartomeus I (2021) CropPol: a dynamic, open and global database on crop pollination. ***Ecology***
9. **Bloom EH**, Oeller EC, Olsson RL, Brousil MR, Schaeffer RN, Basu S, Fu Z, Crowder DW (2021) Documenting pollinators, floral hosts, and plant-pollinator interactions in Pacific Northwest US agroecosystems. ***Ecology***
8. **Bloom EH,** Bauer DM, Kaminski A, Kaplan I, Szendrei Z (2021) Socioecological factors and farmer perceptions impacting pesticide use and pollinator conservation on cucurbit farms. ***Frontiers in Sustainable Food Systems***
7. **Bloom EH,** Graham KK, Haan NL, Heck A, Gut LJ, Landis DA, ... Isaacs R (2021) Responding to the US national pollinator plan: a case study in Michigan. ***Frontiers in Ecology and the Environment***
6. **Bloom EH,** Wood TJ, Hung K-LJ, Ternest JJ, Ingwell LL, Goodell K, Kaplan I, Szendrei Z (2021) Synergism between local and landscape-level pesticides reduce wild bee visitation in pollinator-dependent crops. ***Journal of Applied Ecology***
5. Stillson PT†, **Bloom EH**, Illán JG, Szendrei Z (2020) A new tool for plant pathogen management reveals novel approaches for vector control. ***Pest Management Science***
4. Milner JRD*, **Bloom EH**, Crowder DW, and Northfield TD (2020) Plant evolution mediates the negative impacts of managed bees on wild pollinators. ***Ecology and Evolution***
3. Illán JG, **Bloom EH**, Wohleb CH, Wenninger EJ, Rondon SI, Jensen AS, Snyder WE, Crowder DW (2020) Landscape structure and climate drive populations of a plant-pathogen vector across an agricultural landscape. ***Ecological Applications***
2. **Bloom EH**, Crowder DW (2019) Promoting data collection in pollinator citizen science projects. ***Citizen Science: Theory and Practice***
1. **Bloom EH**, Northfield TD, Crowder DW (2019) A novel application of the Price equation reveals that landscape diversity promotes the response of bees to regionally rare plant species. ***Ecology Letters***

Book Chapters

1. **Bloom EH** and Crowder DW (2016) Biological Control and Pollination Services on Organic Farms. In Advances in Insect Control and Resistance Management (eds Horowitz AR and Ishaaya I) Springer International Publishing AG, Cham, Gewerbestrasse, Switzerland.

Extension Publications

3. **Bloom EH**, Olsson RL, Crowder DW, Mina-Herrera S (2025) Guía de ciencia ciudadana en abejas silvestres y visitantes florales del oeste de Washington. Washington State University Press. Pullman, Washington.
2. **Bloom EH**, Olsson RL, Wine EH, Schaeffer RN, and Crowder DW (2018) An introduction to cavity-nesting bees in the Puget Sound region. Washington State University Press. Pullman, Washington.

1. **Bloom EH**, Olsson RL, and Crowder DW (2017) A field guide to western Washington wild bees and floral visitors. Washington State University Press, Pullman, Washington.

Manuscripts In Prep

2. Franzem TP, **Bloom EH**, Eichert A, Maharaj G, Sánchez-Herrera M, Grames E, Earl J (n.d.) Flooding contributes to global terrestrial and aquatic insect declines via multiple pathways. ***BioScience in 1st Review***
1. Salzberg A, Poveda K … **Bloom EH** (n.d.) Intraspecific body size variation is resilient to land-use change: a global analysis. ***Ecology Letters in Prep***

Grant Support

Extramural – $1.69M

2024-2025 "Promoting healthy soil microbiomes and pest resilience on farms through chemical ecology mediated decision support" Hatch (Collaborator) ($30,000)
2023-2025 "Leveraging soil microbiomes to promote climate change resilience and adoption of organic agriculture" USDA Organic Transitions Program (Co-PI) ($749,606)
2021-2023 "A novel socio-ecological approach for promoting areawide adoption of organic farming practices that enhance microbially mediated pest control" USDA Postdoctoral Fellowship (PI) ($164,999)
2017-2018 "Using ecological models and citizen science to evaluate wild bee pollination in urban areas" NSF Graduate Research Opportunities Worldwide (PI) ($5,000)
2016-2019 "Polycultures and Pollinators: Does crop diversity promote pollination by wild bees?" USDA Pre-Doctoral Fellowship (PI) ($93,232)
2014-2019 "The diversity, stability, and pollination services of native bee communities in diversified urban and rural farming systems" NSF Graduate Research Fellowship Program (PI) ($132,000)
2015-2018 "Promoting native bee health and pollination services on diversified organic produce farms" USDA Organic Transitions Program (Co-Author and Co-Participant) ($499,991)
2014-2016 "Promoting Native Bee Health and Pollination Services on Diversified Organic Produce Farms" wSARE Graduate Student Grant (Author and Lead Participant) ($24,918)

Awards and Honors – $11.9K

2019 MSU Post-doctoral Association ($500)
2017 Howard and Hermina Hallgarth Schol. ($700)
2016 H.S. Telford Entomology Schol. ($600)
2015 Senator Excellence Award
2012-2013 R.D. Uhlinger Memorial Schol. ($1,500)
E. & V. Hixon Schol ($425)
Shear/Miles Ag Schol. ($1,000)
Charles Stuart Schol. ($1,500)
2010-2011 E. & V. Hixon Schol. ($433)
R.D. Uhlinger Memorial Schol. ($2,100)
Pi Alpha Xi Stud. of Distinction Schol. ($200)
C.C. & Martha Wiggans Schol. ($1,000)
2009-2010 H. Beachell Schol. ($1,000)
Larrick Stud. Support Fund ($1,000)

Teaching Experience (F – Fall Semester; S – Spring Semester, Sum – Summer Session)
2025 (S) - Guest Instructor - Climate change and Your Future (*Ithaca, NY*)
2025 (S) - Guest Instructor - Plants, People, and Food Production (*Ithaca, NY*)
2022 (F) - Guest Instructor - (Virtual) - General Entomology (*Pullman, WA*)
2022 (S) - Guest Instructor - Principles and practices in certified organic agriculture (*Ithaca, NY*)
2020 (F) - Guest Instructor - Independent Study in Manuscript Preparation *(East Lansing, MI)*
2020 (S) - Guest Instructor - IPM for Vegetable Production/Management *(East Lansing, MI)*
2017 (Sum) - Guest Instructor - Tropical Entomology *(Cairns, QLD, AU)*
Co-Instructor - Small World Journeys *(Daintree Research Observatory, QLD, AU)*
2013 (F) Entom 150 - Co-Instructor - Insects, Science, and World Cultures *(Pullman, WA)*
2009-2013 (S) Hort 221 - Teaching Assistant - Plant Propagation *(Lincoln, NE)*
2008-2012 (F) Hort 1310 - Teaching Assistant - Introduction to Hort Sciences *(Omaha, NE)*

Extension Experience
Citizen Science
2017 Polycultures and Pollinators Project (western Washington State)
2016-2017 Pollinator Post Project (Seattle, WA)
2015-2017 WildBeeSense Biodiversity Project (Seattle, WA)
2014 Native Bees: Introduction and Field Study (Seattle, WA)

Farmer trainings
2018 Beacon Food Forest (Seattle, WA)
2016 Oxbow Farm and Conservation Center (Carnation, WA)
Washington State University (Mount Vernon, WA)
The Evergreen State University Organic Farm (Olympia, WA)
2015 Viva Farm (Mount Vernon, WA)
Camp Korey (Carnation, WA)
Wobbly Cart Organic Farm (Rochester, WA)

Student Training
Graduate students
2024 Zoe Economos (M.S., Cornell University)
2023 Natalia Butler (Ph.D., Cornell University)
2021 Jennifer Zavalnitskaya (M.S., Michigan State University)
2020 Natalie Constancio (M.S., Michigan State University)
Kayleigh Hauri (Ph.D., Michigan State University)
2019 Patrick Stillson (M.S., Michigan State University)

Undergraduate students
2024-2026 Brian Chang (B.S., Cornell University)
2018 Lucille Egglestein (B.S., Washington State University)
2017 James Milner (Honors, James Cook University)
Abigale Cate (B.S., Washington State University)
2016 Konner Flemming (B.S., Washington State University)

Awards and Honors to Mentees
2025 Cornell Hatch Grant Supplement (Chang) [$1,000]
2025 Cornell CIHMID Undergraduate Research Experience (Chang) [$6,000]

2022 Cornell Hatch Grant Supplement (Economos) [$1,000]
2018 WSU Student Showcase Novice Award (Egglestein)
2017 WSU Student Showcase Early Career Award (Cate)
2015-2017 WSU Undergraduate Research and Extension Internship Program (Flemming, Cate, Egglestein) [$10,000]

Presentations

2026 "My 3-year plan of work: improving the lives and business of producers in Orange County" Cornell Cooperative Extension (Middletown, NY)

2025 "Uniting landscape ecology and sociology to enhance pest suppression and pollination in specialty crops" New Mexico State University (Las Cruces, NM)
"Leveraging entomology, lived experiences, and scientific teaching to advance student-centered learning" New Mexico State University (Las Cruces, NM)
"Linking entomologists, microbial ecologists, and farmer pest management decisions through social science and econometric analysis" Entomology Society of America Program Symposium (Portland, OR)
"FoodDe: a hard fork for food system decentralization" Agroecology Working Group Cornell University (Ithaca, NY)
"Towards predictive indicators of biodiversity in agroecosystems: the quest for causality within context dependent complex multidimensional socio-ecological systems" INRAE (Colmar, France)
"Developing a climate-smart program to complement the long-term goals of the Oregon IPM Center" Oregon State University (Corvalis, Oregon)
"The Bee's Knees: How 140M Years of Evolution Drive Ecosystems Services in Agriculture" University of Maine (Presque Isle, ME)
"Promoting the sustainability of agroecosystems through ecological and social principles" University of Massachusetts (Amherst, MA)

2024 "Promoting diversity, equity, inclusion, and wellness at the intersection of teaching and research" University of California (Berkeley, CA)
"Promoting sustainable working landscapes through social and ecological theory" University of California (Berkeley, CA)
"Microbiome mediated climate change resilience in organic farming systems" Entomology Society of America (Phoenix, AZ)
"Synergisms between local and landscape-level pesticides reduce wild bee-plant interactions in agroecosystems" Eco Spatial Summit (State College, PA)
"A novel socio-ecological approach for promoting areawide adoption of organic farming practices that enhance microbially mediated pest control" Eco Spatial Summit – Flash Talk (State College, PA)
"Promoting agroecology and sustainable pest management using social and ecological theory" University of California (Riverside, CA)

2023 "The causes of soil microbiome mediated insect pest suppression in organic agroecosystems" Entomology Society of America (National Harbor, MD)
"A novel socio-ecological approach for promoting areawide adoption of organic farming practices that enhance microbially mediated pest control" Plant Pathology and Plant-Microbe Biology Department Seminar (Ithaca, NY)

2022 "Promoting microbiome mediated pest suppression at the landscape scale in organic farming systems" Plant Insect Group (PIG) (Ithaca, NY)

2020 "Responding to the US national pollinator plan: a case study in Michigan" Entomology Society of America (Online) and Entomology Department Seminar (East Lansing, MI)
"Synergisms between local and landscape-level pesticides reduce wild bee-plant interactions in agroecosystems" Great Lakes Expo (Grand Rapids, MI)

2019 "Do pesticides disrupt pollination by wild and managed bees" Entomology Society of America (St. Louis, MO)
"Synergisms between local and landscape-level pesticides reduce wild bee-plant interactions in agroecosystems" Plant Arthropod Reading Group (East Lansing, MI)
"Examining tradeoffs between pest control and pollinator management" National Socio-Environmental Synthesis Center (Annapolis, MD)
"Assessing the diversity and function of managed and wild bee communities on diversified organic farms" Michigan State University (East Lansing, MI)

2018 "An introduction to cavity-nesting bees" Koppel Community Garden (Pullman, WA)
"Build pollinator habitat in 1 year or less: Augmenting pollinator habitat in the Puget Sound Region of Washington State, USA" Pollinator Week (Seattle, WA)
"Introduced pollinators mediate breakdown in wild plant pollination" Centre for Tropical Environmental and Sustainability Science (Cairns, QLD, AU)

2017 "The value of ecosystem services on organic and conventional farms" Entomology Society of America (Denver, CO)

2016 "Pollinators in Organic Farms and Urban Areas" WSU Urban IPM and Pesticide Safety Education (Puyallup, WA)
"Pollinators in Organic Farms and Urban Areas" WSU Urban IPM and Pesticide Safety Education (Tacoma, WA)
"Can Pollinator Monitoring Inform Wild Bee Conservation" Seattle Parks and Recreation (Seattle, WA)
"Advances in Organic Farming" International Congress of Entomology (Orlando, FL)
"Wild Bees in the Wild West" Scarabs - University of Washington (UW) Insect Society (Seattle, WA)
"Challenging Assumptions with Bee Monitoring in the Puget Sound Region" Kiwanis Club of America (Olympia, WA)
"Promoting Pollinators on Organic Farms" Bees, Birds & Butterflies - Pollinator Study Group (Olympia, WA)

2015 "Bee Monitoring and Restoration in the Puget Sound Region" Seattle Parks and Recreation (Seattle, WA)
"Diverse nest substrate may be essential for bee conservation" Entomology Society of America (Minneapolis, MN)
"Current Research in Alternative Pollination Systems" Tuesdays at 21 Acres (Woodinville, WA)

2014 "An Inquiry into Landscapes and Community Ecology" P-Patch Urban Garden Association (Seattle, WA)
"Science, Insects, Bees and Technology" AT&T Hackathon (Seattle, WA)
"Diversity, Stability and Pollination Services" SVT Grower Group (Carnation, WA)
"Native Bees in Urban Landscapes" City Fruit Education Series (Seattle, WA)
"The Community Ecology of Bees in Urban and Rural Farms" WSU Entomology Department (Pullman, WA)

"The Community Ecology of Bees in Urban and Rural Farms" Entomology Society of America (Portland, OR)
"Native Bees and the Diversity Stability Hypothesis" P-Patch Urban Garden Association (Seattle, WA)

2013 "What's Bugging You? – Insects and Smart Gardening" Omaha Public Library (Omaha, NE)

Webinars

2025 "Leveraging Soil Microbiomes for Resilient Organic Farms" eXtension/eOrganic, Oregon State University (Corvallis, OR), Views on YouTube: 277
2024 "How Organic Farming Practices Affect the Soil Microbiome" eXtension/eOrganic, Oregon State University (Corvallis, OR), Views on YouTube: 607
2017 "Providing Habitat for Wild Bees on Organic Farms" eXtension/eOrganic, Oregon State University (Corvallis, OR), Views on YouTube: 907
2016 "Wild Bee Monitoring, Identification, and Outreach" eXtension/eOrganic, Oregon State University (Corvallis, OR), Views on YouTube: 681
2015 "Promoting Native Bee Pollinators" eXtension/eOrganic, Oregon State University (Corvallis, OR), Views on YouTube: 1,075

Posters

2025 "Effect of Soil Microbiome on Plant Resistance to Biotic Stressors" Cornell Institute of Host-Microbe Interactions and Disease (Ithaca, NY) Second author
2025 "The Soil Microbiome and How it Works on Your Farm" Cover Crop Breeding Field Day (Freeville, NY) Second author
2024 "Cover-crop conditioned microbiomes show promise as tools to manage cash crop stress responses" American Society of Plant Biology (Honolulu, HI) Second author
2014 "The Native Bees of Urban and Rural Diversified Farming Systems" BioAg Symposium (Pullman, WA) Award: Honorable Mention

Exhibitions

2016 "The Bug Blast!" University of Washington (Seattle, WA)
2015 "The Insect Expo" Washington State University (Pullman, WA)
2014 "Bug Extravaganza" Palouse Clearwater Environmental Institute (Moscow, ID)

Features and Contributions to Popular Press

2026 Management practices can enhance soil microbiome functions in plant defense, ACES News
2025 Organic Farmers Withstand Climate Change with Living Soils and Regional Seed Breeding, *Organic Farming Research Foundation*
2024 Organic farmers beliefs about soil microbiome affect their practices, *ACES News*
2020 Swede midge management, *Vegetable Grower News*
2019 Bee efficiency boosted by diversified farming, *CAHNRS News*
2018 Protect the Pollinators, *PCC Sound Consumer*
2017 Time to BioBlitz, *Voices of Biodiversity*
Where do bumble bees live? *Ask Dr. Universe*
2016 Native bees of the Pacific Northwest, *Palouse science spotlight*
Citizen scientists collect data on urban wild bees, *WSU Insider*
After mass die-offs and gloomy reports, new hope for bees in Seattle, *Crosscut*

2015 Promoting native bee pollinators in organic farming systems, *Country Folks*

Professional Service

2025 Panelist for Approaches to Designing your Academic Job Talk (Ithaca, NY)
2024 Panelist for Demystifying Postdocing Entomology Seminar (Ithaca, NY)
2021-Present Judge for student 10-minute research competition *Entomology Society of America (Saint Louis, MO; National Harbor, MD; Phoenix, AZ; Portland, OR)*
2022 Seminar Co-Organizer for Plant Insect Interaction Group (Ithaca, NY)
2020-Present Associate Editor for *Environmental Entomology*
2019-Present Reviewer for *Oikos*, *Renewable Agriculture and Food Systems, Journal of Applied Ecology, Scientific Reports, Journal of Ecology, PLoS One, Environmental Research Communications, Global Ecology and Conservation, Elementa; Economic Entomology*
2017 Director for *Wiley Graduate Student Research Exposition* (Pullman, WA)

University and Community Service

2015-2017 College Representative on Graduate Student Senate, WSU (Pullman, WA)
WSU Parking and Transportation Task Force (Pullman, WA)
WSU Transportation Advisory Group (TAG) (Pullman, WA)
2014-2015 Prestigious Fellowship Program Workshop Mentor (Pullman, WA)
2014 Entomology Graduate Student Association Faculty Liaison (Pullman, WA)
2010, 2011 Pi Alpha Xi Chapter President (Lincoln, NE)
2009, 2012 Pi Alpha Xi Chapter Vice President (Lincoln, NE)

Memberships in Professional Associations

2014-Present Entomological Society of America
2008-Present Pi Alpha Xi

Trainings and workshops

Teaching

2021 Pathways to Scientific Teaching, 1 semester, MSU (East Lansing, MI)
2013 Preparation for College Teaching, 1 semester, WSU (Pullman, WA)

Leadership

2025 Beyond Supervision: Effective Mentorship in Undergraduate Research Leadership Program (Ithaca, NY)
2022 Cornell Postdoctoral Leadership Program (Ithaca, NY)

Diversity Equity and Inclusion

2024 (Dis)Ability: Teaching Accurately and Accommodating Students. 1 session, Project Biodiversify Affiliates (Ithaca, NY)
2022 Inclusive Teaching of LGBTQIA+ Students. 1 session, Project Biodiversify Affiliates (Ithaca, NY)
2021 The Anti-Racist Path: A Series Focused on Anti-Racist Concepts, Dialogue, and Action. 5 sessions, Michigan State University (East Lansing, MI)
2020 Language matters: Considering racial microaggressions in science. 1 session, Society for the Advancement of Biology Education Research (SABER)

Mental health

2022 Adult Mental Health First Aid from National Council for Mental Wellbeing. NY FarmNet (Ithaca, NY)

Technical Experience

2025-Present High-Performance Computing (Beginner)
2021-Present Bioinformatics (Proficient)
2020-Present Agent based models (Beginner)
2020-Present Bayesian analysis (Beginner)
2013-Present R Programming Language (Expert)
2013-Present Geographic Information Systems (Expert)