

Curriculum Vitae - Elias H. Bloom

Department of Plant Pathology and Plant-Microbe Biology
314 Plant Science, Ithaca, NY, USA

Telephone: +1 607 255 0066
Email: ehb64@cornell.edu

Education

- Ph.D. Washington State University (WSU), Pullman, WA, Entomology, 2013-2019
 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-Present 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

Research Interests

Quantitative ecology, socio-ecological models, citizen science, sustainable agriculture, temporal and spatial analysis, decision support tools, policy

Refereed Publications (*undergraduate and †graduate student mentees)

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. *Accepted. 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*

Manuscripts in revision or review

4. **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. In revision for *Ecology*

3. **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. In 2nd review at *Frontiers in Sustainable Food Systems*
2. **Bloom EH**, Hauri, KC, Constancio N, Szendrei Z (2021) A newly invasive species promotes differences in pest populations between organic and conventional farming systems. In revision for *Ecological Applications*
1. Allen-Perkins A, Magrach A, Dainese M, Garibaldi LA, Kleijn D, Rader JR, ... **Bloom, EH**, ... Bartomeus I (2020) CropPol: a dynamic, open and global database on crop pollination. In 2nd review at *Ecology*

Manuscripts in preparation

1. **Bloom EH**, Brousil MR, Illan JG, Reganold JP, Northfield TD, Crowder DW (2021) Species interactions and farm management mediate pollinator communities on farms. In preparation for *PNAS*

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

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.

Grant support

Extramural

- 2021-Present “A novel socio-ecological approach for promoting areawide adoption of organic farming practices that enhance microbially mediated pest control” USDA Postdoctoral Fellowship (PI) (\$147,379)
- 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

- 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)

Undergraduate Internship Awards

- 2015-2017 “Undergraduate internships in entomology” (4 award). CAHNRS Undergraduate Research and Extension Internship Program (Mentor) (\$10,000)

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)

Teaching Experience (F – Fall Semester; S – Spring Semester, Sum – Summer Session)

- 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 Lab* (Lincoln, NE)
 2008-2012 (F) Hort 1310 - Teaching Assistant - *Introduction to Hort Sciences Lab* (Omaha, NE)

Student Training***Graduate students***

- 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

- 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 to Mentees

- 2018 WSU Student Showcase Novice Award (Egglestein)
- 2017 WSU Student Showcase Early Career Award (Cate)

Presentations

- 2020 “Responding to the US national pollinator plan: a case study in Michigan” Entomology Society of America (Online) and 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

- 2017 “Providing Habitat for Wild Bees on Organic Farms” eXtension/eOrganic, Oregon State University (Corvallis, OR), Views on YouTube: 749
- 2016 “Wild Bee Monitoring, Identification, and Outreach” eXtension/eOrganic, Oregon State University (Corvallis, OR), Views on YouTube: 588
- 2015 “Promoting Native Bee Pollinators” eXtension/eOrganic, Oregon State University (Corvallis, OR), Views on YouTube: 1,009

Posters

- 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

- 2020 Vegetable Grower News
<http://digital.vegetablegrowersnews.com/i/1212672-march-2020/25>
- 2019 Bee efficiency boosted by diversified farming
<http://news.cahnr.wsu.edu/article/bee-efficiency-boosts-diversified-farming/>
- 2018 Sound Consumer
<https://www.pccmarkets.com/sound-consumer/2018-04/>
- 2017 Time to BioBlitz

- <http://voicesforbiodiversity.org/articles/time-to-bioblitz>
Ask Dr. Universe: where do bumble bees live?
<https://askdruniverse.wsu.edu/2017/03/06/bumble-bees-live/>
- 2016 Palouse science spotlight: native bees of the Pacific Northwest
<http://geoffreywilliams.weebly.com/podcasts/dec-17th-elias-bloom-native-bees-of-the-pwn>
Citizen scientists collect data on urban wild bees
<https://news.wsu.edu/2016/05/02/citizen-scientists-collect-data-urban-wild-bees/>
After mass die-offs and gloomy reports, new hope for bees in Seattle
<http://crosscut.com/2016/03/after-die-offs-and-gloomy-reports-hope-for-saving-bees-in-seattle/>
- 2015 Promoting native bee pollinators in organic farming systems
<http://countryfolks.com/promoting-native-bee-pollinators-in-organic-farming-systems/>

Memberships in Professional Associations

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

Professional Service

- 2020-Present Associate Editor for *Environmental Entomology*
2019-Present Reviewer for *Renewable Agriculture and Food Systems*, *Journal of Applied Ecology*, *Scientific Reports*, *Journal of Ecology*, *Journal of Apicultural Research*
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)

Technical Experience

- 2020-Present Agent based models (Beginner)
2020-Present Bayesian analysis (Beginner)
2013-Present R Programming Language (Proficient)
2013-Present Geographic Information Systems (Proficient)

Teacher Trainings

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

Diversity Equity and Inclusion Workshops

- 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)

Relevant Prior Employment

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