

ALYSSA HERNANDEZ

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Functional Morphologist/Entomologist/Ecologist
attachment systems, insect movement, biological surfaces

EDUCATION

Harvard University, Graduate School of Arts and Sciences
PhD in Organismic and Evolutionary Biology

Cambridge, MA
Degree Expected: Fall 2021

Cornell University
B.S. in Natural Resources, Applied Ecology

Ithaca, NY
Aug 2010

RESEARCH EXPERIENCE

Harvard Graduate School of Arts and Sciences
Graduate Researcher (Farrell Lab)

Cambridge, MA
2015 - Present

- Designed project that examines adaptive functional morphology in chrysomelid beetles, specifically investigating attachment mechanisms on various plant surfaces
- Produced and analyzed roughness profiles for various plants using novel imaging technique (GelSight)
- Utilized various imaging and recording techniques for research, including scanning electron microscopy, gel-based profilometry, and high-speed video analysis

University of California, Berkeley
Research Assistant II (Van Steenwyk Lab)

Berkeley, CA
2012 - 2015

- Contributed to a large-scale project examining the use of neonicotinoid insecticides in California and its relationship to European honey bee (*Apis mellifera*) decline
- Directed a project that involved testing the attractiveness of different trap/lure combinations for monitoring walnut husk fly (*Rhagoletis completa*) in English walnut
- Managed various laboratory experiments testing the susceptibility of different English walnut (*Juglans regia*) cultivars to walnut husk fly infestation

University of California, Berkeley
Research Assistant I (Kremen Lab)

Berkeley, CA
Spring/Summer 2012

- Performed insect-oriented field collection for the Kremen Lab's primary research project focusing on native pollinator occupancy within established hedgerows in Yolo County, California
- Contributed to a PhD study that examined the emergence of nesting bees along agricultural field settings
- Performed laboratory work that involved extensive preparation and database entry of various insect specimens for the Kremen Lab's research collection

Department of Ecology and Evolutionary Biology, Cornell University
Undergraduate Research Lab Assistant (Harvell Lab)

Ithaca, NY
2007 - 2008

- Maintained a simulated ocean system containing living coral samples
- Performed water analysis tests on both ocean system water and isotope-laced water
- Participated in a project that examined how nutrient enrichment in sea water can advance the spread of a fungal disease, aspergillosis, in sea fan corals

Harvard Forest, Harvard University
Summer REU Intern

Petersham, MA
Summer 2008

- Developed a research project examining how various forest canopy densities affect the competition dynamics of carabid beetles
- Collected soil respiration measurements on a biweekly basis and performed laboratory work involving extensive invertebrate identification and preservation

RESEARCH PUBLICATIONS

15. Medeiros, B.A., Nunez-Avellaneda, L.A., **Hernandez, A.M.**, & Farrell, B.D. (2019). Flower visitors of the licuri palm (*Syagrus coronata*): Brood pollinators coexist with a diverse community of antagonists and mutualists. *Biological Journal of the Linnean Society*, 126(4), 666-687. doi: 10.1093/biolinnean/blz008
14. Van Steenwyk R.A., **Hernandez A.M.**, Poliakon R.A, Wong B.J. (2016) "Control of Walnut Aphid in Walnut". *Arthropod Management Tests*, 41. doi: 10.1093/amt/tsw034
13. Van Steenwyk R.A., **Hernandez A.M.**, Poliakon R.A, Wong B.J. (2016) "Control of Peach Twig Borer in Almonds". *Arthropod Management Tests*, 41. doi: 10.1093/amt/tsw057
12. Van Steenwyk R.A., Poliakon R.A, **Hernandez A.M.**, Wong B.J. (2016) "Control of Codling Moth in Walnuts". *Arthropod Management Tests*, 41. doi: 10.1093/amt/tsw055
11. Van Steenwyk R.A., Wise C.R., Poliakon C.R., Wong B.J., **Hernandez A.M.**, Hasey J.K. (2016) "Control of Walnut Scale in Walnuts". *Arthropod Management Tests*, 41. doi: 10.1093/amt/tsw048
10. Van Steenwyk R.A., Coates W.W., Poliakon R.A, Wong B.J., **Hernandez A.M.** (2016) "Insecticidal Control of Walnut Husk Fly in Walnuts". *Arthropod Management Tests*, 41. doi: 10.1093/amt/tsw054
9. Van Steenwyk R.A., Poliakon R.A, Verdegaal P.S., Wong B.J., **Hernandez A.M.** (2016) "Control of Vine Mealybug in Wine Grapes". *Arthropod Management Tests*, 41. doi: 10.1093/amt/tsy041
8. Van Steenwyk, R.A., Coates, W.W., Poliakon, R.A., Wong, B.J., & **Hernandez, A. M.** (2016). Insecticidal Control of Walnut Husk Fly in Walnuts. *Arthropod Management Tests*, 41(1). Tsw054
7. Van Steenwyk R.A., Wise C.R., **Hernandez A.M.**, Poliakon R. (2015) "Control of Peach Twig Borer in Almonds". *Arthropod Management Tests*, 40. doi: 10.1093/amt/tsv049
6. Van Steenwyk R.A., **Hernandez A.M.**, Poliakon R., Taylor A.L. (2015) "Control of Codling Moth with Intrepid Edge in Walnuts". *Arthropod Management Tests*, 40. doi: 10.1093/amt/tsv051
5. Van Steenwyk R.A., Wise C.R., **Hernandez A.M.**, Poliakon R., Taylor A.L. (2015) "Control of Codling Moth in Walnuts". *Arthropod Management Tests*, 40. doi: 10.1093/amt/tsv050
4. Van Steenwyk R.A., Coates W.W., **Hernandez A.M.**, Poliakon R., Taylor A.L. (2015) "Control of Walnut Husk Fly in Walnuts". *Arthropod Management Tests*, 40. doi:10.1093/amt/tsv052
3. Van Steenwyk R.A., **Hernandez A.M.** (2014) "Evaluation of Intrepid Combined with Delegate for Control of First Generation Codling Moth Control in Walnuts". *Arthropod Management Tests*, 39. doi: 10.4182/amt.2014.D18
2. Van Steenwyk R.A., **Hernandez A.M.** (2014) "Control of Codling Moth with Intrepid Edge in Walnuts". *Arthropod Management Tests*, 39. doi: 10.4182/amt.2014.D19
1. Van Steenwyk R.A., **Hernandez A.M.** (2014) "Control of Codling Moth in Walnuts". *Arthropod Management Tests*, 39. doi: 10.4182/amt.2014.D20

RESEARCH PRESENTATIONS

- Co-author**, SICB Conference, Virtual Format January 2021
- Pulliam, J.N, Salcedo, M.K., Weiss, T.M., **Hernandez, A.M.**, Socha, J.J. (2021) *Climbing strategies of cicadas across vertical 'gaps' of low friction*
- Co-author**, SICB Conference, Virtual Format January 2021
- Socha, J.J., Pulliam, J.N, Salcedo, M.K., **Hernandez, A.M.**, Jackson, B.E. (2021) *Wing flexibility of cicadas during takeoff: A pandemic story*
- Poster Presenter**, SICB Conference, Austin, TX January 2020
- **Hernandez, A.M.**, Wainwright, D.K., Farrell, B.D. (2020) *Locomotion on a leaf: measuring the microtopography of a leaf surface*
- Presenter**, SICB Conference, San Francisco, CA January 2018
- **Hernandez, A.M.**, Farrell, B.D. (2018) *The Claw's the Limit: Understanding the Importance of Different Beetle Tarsal Structures in Relation to Landing Attachment*
- Research presenter**, Orchard Pest and Disease Management Conference, Portland, OR January 2015
- **Hernandez, A.M.**, Van Steenwyk R.A. (2015) *Temperature and Time Requirements for Walnut Husk Fly Emergence*
- Research presenter**, Orchard Pest and Disease Management Conference, Portland, OR January 2015
- **Hernandez, A.M.**, Van Steenwyk R.A. (2015) *Efficacy of Intrepid Edge for the Control of Codling Moth in Walnuts*
- Research presenter**, Orchard Pest and Disease Management Conference, Portland, OR January 2014
- **Hernandez, A.M.**, Van Steenwyk R.A. (2014) *Walnut Husk Fly Trap Type and Lure Evaluation*
- Research presenter**, Orchard Pest and Disease Management Conference, Portland, OR January 2014
- **Hernandez, A.M.**, Van Steenwyk R.A. (2014) *Insecticide Evaluations for Control of Codling Moth in Walnut*

AWARDS/HONORS/GRANTS

- 2020 - Honorable Mention, Ford Foundation Dissertation Fellowship
- 2020 - Derek Bok Center Certificate of Distinction in Teaching
- 2019 - Derek Bok Center Certificate of Distinction in Teaching
- 2018 - WiSTEM Mentor of the Year
- 2018 - Derek Bok Center Certificate of Distinction in Teaching
- 2018 - SICB Broadening Participation Travel Award
- 2016 - David Rockefeller Center for Latin American Studies Summer Research Travel Grant

TEACHING EXPERIENCE

Department of Organismic and Evolutionary Biology, Harvard University

Cambridge, MA

Teaching Fellow (OEB 10 – Foundations of Biological Diversity)

Fall 2016 - 2020

- Taught 2.5 hour lab/section covering a broad range of topics in biology (evolutionary biology, ecology, etc.)
- Supervised weekend field trips to Boston Harbor Islands and Harvard Forest
- Student Evaluation Scores (averages for each year): **4.4/5.0** (2016), **4.8/5.0** (2017), **4.7/5.0** (2018), **4.7/5.0** (2019)

Department of Organismic and Evolutionary Biology, Harvard University

Cambridge, MA

Teaching Fellow (OEB 55 – Ecology: Populations, Communities and Ecosystems)

Spring 2020

- Taught 1.5 hour section reviewing ecological topics such as population dynamics, predator-prey interactions, ecosystem stability and natural resource management
- Provided mathematical modeling tutorials and office hours for population dynamics exercises
- Moved to a virtual teaching format (Zoom) mid-semester due to COVID-19 pandemic (No student evaluation scores as a result of the switch)

Department of Natural Resources, Cornell University

Ithaca, NY

Undergraduate Teaching Assistant

Fall 2009

- Spent 8 hours a week teaching field biology skills to undergraduate students (e.g. map reading, plant identification)
- Taught identification of over 300 Northeastern plant, animal and bird species
- Organized and supervised weekend field trips at Arnot Teaching and Research Forest, Ithaca NY

PROFESSIONAL AND OUTREACH EXPERIENCE

San Mateo County Resource Conservation District

Half Moon Bay, CA

AmeriCorps Member

2010 - 2011

- Worked with District Conservationist to educate local farmers about beneficial insects and implementation of integrated pest management on farms
- Helped local partnership office provide entomological technical assistance to landowners
- Led in field-based entomology instruction for local high school and adult students
- Developed and implemented a written insect monitoring protocol (involving both pest and beneficial insects) for San Mateo County organic farms

US FWS Rachel Carson National Wildlife Refuge

Wells, ME

Student Conservation Intern

Summer 2009

- Helped to implement and provide field assistance on a project involving the biological control of Purple Loosestrife (*Lythrum salicaria*) through *Galerucella* beetles
- Delivered weekend environmental education programs
- Provided technical assistance in marsh and invasive plant studies
- Worked with and helped manage the summer Youth Conservation Corps program

INVITED TALKS AND PANEL PARTICIPATION

Panelist , Harvard Integrated Life Sciences	August 2020
• <i>Choosing a Lab and Thriving in Graduate School</i>	
Panelist , Harvard GSAS Office of Diversity and Minority Affairs	April 2020
• <i>Thriving as an Underrepresented Student at Harvard</i>	
Panelist , Harvard Graduate School of Arts & Sciences	August 2019
• <i>Thriving in Graduate School</i>	
Panelist , Harvard Integrated Life Sciences	June 2019
• <i>Preparing for Graduate School</i>	
Panelist , Harvard Integrated Life Sciences	August 2018
• <i>Thriving in Graduate School</i>	
Panelist , Harvard Integrated Life Sciences	June 2018
• <i>Preparing for Graduate School</i>	
Panelist , Harvard GSAS Office of Diversity and Minority Affairs	March 2018
• <i>Thriving as an Underrepresented Student at Harvard</i>	
Guest presenter , Pie Ranch, Pescadero, CA	September 2013
• <i>Identifying beneficial insects within your hedgerows</i>	
Guest presenter , Portrero Nuevo Farm, San Gregario, CA	July 2011
• <i>Identifying beneficial insects within your hedgerows</i>	
Guest presenter , Pie Ranch, Pescadero, CA	November 2010, January & April 2011
• <i>Identifying beneficial insects within your hedgerows</i>	
Guest presenter , Camp Glenwood, La Honda, CA	October & November 2010
• <i>Identifying aquatic macroinvertebrates in Northern California streams</i>	

COMMITMENTS TO DIVERSITY, EQUITY & INCLUSION (DEI) IN ACADEMIA

1. Working Groups & Committees:

Society for Integrative and Comparative Biology (SICB) *Herdon, VA*
Broadening Participation Committee Board Member 2020 - Present

- Provided insight and feedback on the development of various SICB DEI programs, including the annual meeting's peer mentorship program and broadening participation travel awards

Evaluation Advisory Subcommittee Member

- Tasked with revising pre-conference demographic survey for annual conference and assisted in developing post-conference evaluation survey with focus on the development of DEI initiatives for future conferences

Working Group for Broadening Participation in Academia 2020 - Present

- Collaborative group of graduate students, postdoctoral researchers and professors from various academic institutions dedicated to researching and solving institutional practices that impede DEI efforts in academia
- Group members currently come from the following institutions: Harvard University, Bryn Mawr College, Virginia Tech, UC Berkeley, UC Davis, UC Santa Cruz and the University of Montana
- Currently working on research projects focusing on recruitment and retention of underrepresented groups in scientific societies

Harvard LGBTQ@GSAS Association *Cambridge, MA*
Vice President of External Affairs 2019 - 2020

- Acted as primary liaison between LGBTQ@GSAS, diversity/inclusivity associations, and student affinity groups
- Coordinated and co-sponsored intersectional and collaborative programming (social hours, panels)
- Served as LGBTQ@GSAS representative on committee of student leaders tasked with interviewing and evaluating candidates for the position of Executive Director of Harvard GSAS Student Center

Harvard GSAS Latinx Student Association (LSA) *Cambridge, MA*
Board Member 2019 - 2020

- Assisted in planning various events for Harvard's graduate community, including social events, film screenings and panel discussions

Harvard GSAS Office of Diversity and Minority Affairs

Diversity and Inclusion Fellow

Cambridge, MA

2018 - 2019

- Served as a graduate student liaison between upper administration and student affinity groups
- Developed diversity statements for departmental websites
- Presented to administrators on DEI initiatives that could be implemented within their programs.
- Assisted in organizing town halls, panels and welcome events for underrepresented graduate students

SACNAS at Harvard

Board Member

Cambridge, MA

2016 - 2018

- Assisted in organizing events through Harvard's chapter for the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS). These included demonstrations for the "I Heart Science" event at Harvard's Museum of Natural History and hosting high school students from the Ivy League Project

2. Recruiting and Mentorship:

Harvard College Women in STEM (WiSTEM) Mentoring Program

Graduate Mentor

Cambridge, MA

2016 - Present

- Provided feedback on grant/fellowship proposals and pursuing a career in STEM fields
- Honored with 2018 Mentor of the Year Award

Harvard Department of Organismic and Evolutionary Biology

Diversity Recruiter

Cambridge, MA

2017 - 2019

- Attended conferences to speak with underrepresented undergraduate students about applying to graduate programs, choosing mentors and pursuing research goals
- Recruited for three years (2017-2019) at annual SACNAS National Diversity in STEM Conference

Peer Mentor

Summer 2020

- Provided research guidance for summer REU students and developed DEI in STEM lecture for a summer seminar

PRESS

Hall, Ann. "GSAS Adds LGBTQ-Focused Diversity and Inclusion Fellow" GSAS News. **11 Dec 2018.**

<https://gsas.harvard.edu/news/stories/gsas-adds-lgbtq-focused-diversity-and-inclusion-fellow>

Fisher-Pinkert, Anna. "Emboldening Student Voices" GSAS Bulletin. **23 March 2018.**

<https://gsas.harvard.edu/news/gsas-bulletin/april-2018/emboldening-student-voices>

Bixler, Lily. "AmeriCorps member shares love of bugs" Half Moon Bay Review. **3 Aug 2011.**

https://www.hmbreview.com/news/ameri-corps-member-shares-love-of-bugs/article_6dcc2a14-be23-11e0-87d1-001cc4c002e0.html

PROFESSIONAL ASSOCIATIONS

Society for Integrative and Comparative Biology (SICB)

2016 - Present

Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)

2017 - Present

Ecological Society of America (ESA)

2015 - 2017