

Jordan R Croy, Ph.D.

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CURRENT POSITION

Postdoctoral Researcher

2022-present

University of Georgia | Athens, GA

Advisor: William E. Snyder

Department of Entomology

EDUCATION

Ph.D. in Ecology and Evolutionary Biology

Fall 2021

University of California, Irvine | Irvine, CA

Advisor: Kailen A. Mooney

Thesis: “Drivers of plant local adaptation and consequences for multi-trophic communities in a rapidly changing world”

M.S. in Ecology and Evolutionary Biology

Fall 2018

University of California, Irvine | Irvine, CA

Advisor: Kailen A. Mooney

B.S. Biology

Spring 2015

Louisiana State University | Baton Rouge, LA

PUBLICATIONS

1. **Croy, JR**, Zaviezo T, Crossley MS, Smith OM, Snyder WE, AA Grez. 2023. Temporal niche differences between native and invasive lady beetles and the implications for complementary biocontrol of aphids. *Biological Control*. DOI: <https://doi.org/10.1016/j.biocontrol.2023.105148>
2. Hu Y, Xu ZW, Li MY, **Croy JR**, Zhang ZY, Li HM, Guo WH, Jiang XL, Lu HC, X Guo. 2022. Increasing soil heterogeneity strengthens the inhibition of a native woody plant by an invasive congener. *Plant and Soil*. DOI: <https://doi.org/10.1007/s11104-022-05666-0>
3. **Croy, JR**, Pratt JD, & KA Mooney. Latitudinal resource gradient shapes multivariate defense strategies in a long-lived shrub. *Ecology*. DOI: <https://doi.org/10.1002/ecy.3830>
4. Cope OL, Burkle LA, **Croy JR**, Mooney KA, Yang LH, & WC Wetzel. 2022. The role timing in intraspecific trait ecology. *Trends in Ecology and Evolution*. DOI: <https://doi.org/10.1016/j.tree.2022.07.003>
5. **Croy, JR**, Pratt JD, Sheng D, & KA Mooney. 2021. Climatic displacement exacerbates the negative impact of drought on plant performance and associated arthropod abundance. *Ecology*. DOI: <https://doi.org/10.1002/ecy.3462>
6. **Croy, JR**, Acosta NA, & KA Mooney. 2021. Regulating plant herbivore defense pathways in the face of attacker diversity. *New Phytologist*. DOI: <https://doi.org/10.1111/nph.17509>
7. **Croy, JR**, Meyerson LA, Allen WJ, Bhattarai GP, & JT Cronin. 2020. Lineage and latitudinal variation in *Phragmites australis* tolerance to herbivory: Implications for invasion success. *Oikos*. DOI: <https://doi.org/10.1111/oik.07260>
8. Nell CS, Meza-Lopez MM, **Croy JR**, Nelson AS, Moreira X, Pratt JD, & KA Mooney. 2018. Relative effects of genetic variation *sensu lato* and sexual dimorphism on plant traits and associated arthropod communities. *Oecologia*, 187 (2), 389–400. DOI: <https://doi.org/10.1007/s00442-018-4065-y>
9. Allen WJ, Young RE, Bhattarai GP, **Croy JR**, Lambert AM, Meyerson LA, & JT Cronin. 2015. Multitrophic enemy release of introduced *Phragmites australis* genotypes and gall-forming *Lipara* spp. in North America. *Biological Invasions*, 17 (12), 3419–3432. DOI: <https://doi.org/10.1007/s10530-015-0968-2>

PUBLICATIONS (*in prep*)

1. **Croy, JR**, Vázquez-González C, Pratt JD, & KA Mooney. **In review**. Effects of plant ontogeny on arthropod communities are altered by drought. *Ecology*.
2. Crossley MS, Smith OM, Barman AK, **Croy JR**, Schmidt JM, Toews MD, and WE Snyder. **In review**. Warmer temperatures trigger insecticide-associated pest outbreaks.
3. **Croy, JR** & KA Mooney. **In preparation**. Local soil and aridity interact to shape local adaptation of a foundational shrub species.
4. **Croy, JR**, Crossley MS, Meehan TD, Glassberg J, Nick V. Grishin, and WE Snyder. **In preparation**. Butterfly development rate shapes response to climate change. *PNAS*
5. **Croy, JR**, Crossley MS, Meehan TD, Glassberg J, Nick V. Grishin, and WE Snyder. **In preparation**. Unrecognized recent

declines among widespread North American butterflies. *Global Change Biology*

PROFESSIONAL PRESENTATIONS

Crossley MS, Smith OM, Barman AK, **Croy JR**, Schmidt JM, Toews MD, and WE Snyder. Warmer temperatures trigger insecticide-associated pest outbreaks Entomological Society of America Annual Meeting. November 12-17, 2022. Vancouver, CA. Symposium Talk.

Croy JR, Patel K, Rodrigues PAP, & BE Snyder. Climate change, biological control, and whitefly outbreaks in cotton. Whitefly Conference. Tifton, GA. June 12th, 2022.

Croy JR, Pratt JD, & KA Mooney. Using plant local adaptation to multiple layers of the abiotic environment as a tool for predicting climate change impacts. Ecological Society of America Annual Meeting. August 6-11, 2021. Long Beach, CA. Virtual talk.

Croy JR. Causes and consequences of plant local adaptation. Concordia University Irvine. *Invited Speaker*. November 19th, 2020. Virtual presentation.

Croy JR. Causes and consequences of plant local adaptation. California State University San Bernardino. *Invited Speaker*. October 2nd, 2020. Virtual presentation.

Croy JR, Pratt JD, Sheng D, & KA Mooney. Climatic displacement and severe drought deplete arthropod abundance. Winter Ecology and Evolutionary Biology Graduate Student Seminar. March 18th, 2019. Irvine, CA. Contributed talk.

Croy JR, Pratt JD, Sheng D, & KA Mooney. Severe drought and plant maladaptation deplete arthropod densities. Gordon Research Conference (Plant-Herbivore Interactions). February 24th-March 1st, 2019. Ventura, CA. Contributed poster.

Croy JR & KA Mooney. Testing for genetically-based clines in growth and defense in a long-lived shrub. Ecological Society of America Annual Meeting. August 3-10, 2018. New Orleans, LA. Contributed poster.

Croy JR, Pratt JD, Sheng D, Dwilaksono J., & KA Mooney. Genetic clines in drought mediation of plant-herbivore interactions. Ecological Society of America Annual Meeting. August 6-11, 2017. Portland, OR. Contributed talk.

Croy JR, Pratt JD, Sheng D, Meza-Lopez MM, & KA Mooney. Causes and community-level consequences for clinal adaptation in a foundational plant species. California Botanical Society Graduate Student Meeting. April 7-9, 2017. Santa Barbara, CA. Contributed talk.

Croy JR, Pratt JD, Sheng D, Dwilaksono J., & KA Mooney. Testing for clinal genetic variation in drought mediation of plant-herbivore interactions. Winter Ecology and Evolutionary Biology Graduate Student Seminar. March 20th, 2017. Irvine, CA. Contributed talk.

Croy JR, Allen WJ, Meyerson LA, JT Cronin. Latitudinal variation in tolerance to herbivory in *Phragmites australis*. June 30, 2015. Presentation at Shandong University, Shandong, China. Contributed talk.

Croy JR, Allen WJ, Meyerson LA, JT Cronin. Latitudinal variation in tolerance to herbivory in *Phragmites australis*. Society of Wetland Scientists Annual Meeting, June 1-4, 2015. Providence, RI. Contributed talk.

GRANTS AND FELLOWSHIPS

Edward Steinhaus Teaching Award	\$750	2021
Graduate Dean's Dissertation Fellowship	\$5,000	2020
Graduate Research Fellowship, NSF	\$138,000	2016-19
UC-Irvine EEB Departmental Travel Reward	\$400	2019
UC-Irvine Microbiome Initiative Pilot Project Award	N/A	2017
Sigma Xi Grant-In-Aid of Research (GIAR) Grant	\$400	2015
Tiger Athletic Foundation Undergraduate Thesis Grant	\$1,000	2014
Taylor Opportunity Program for Students (TOPS) Award	\$20,000	2012-15

PEER-REVIEWS (19)

Ecology (1)
Evolutionary Ecology (1)
Functional Ecology (7)
New Phytologist (3)
Arthropod-Plant Interactions (1)
Journal of Animal Ecology (3)
Pest Management Science (1)
Plant and Soil (1)
Journal of Applied Ecology (1)

TEACHING

Invited Guest Lectures

Climate change and the prospects for applied biological control. *ENTO 4500e: Biological Control*.

Spring 2023

Assistantships

Agroecology Seminar

Aug 2022 - Dec 2022

3 hours/week | 15 weeks | 7 students | UGA

Graduate-level seminar covering a range of specialized topics in agroecological research. Seminar comprised primarily of paper discussions on key topics.

Tropical Biology

Apr 2021 - Jun 2021

20 hours/week | 10 weeks | 78 students | UC-Irvine

Introductory biology course taught virtually due to COVID-19; adapted course content to online format; graded all assignments for the course; assisted with developing exam questions; led lecture on how to interpret climate diagrams from tropical habitats.

Habitats and Organisms

Jan 2021 - Mar 2021

20 hours/week | 10 weeks | 24 students | UC-Irvine

Senior level, communication intensive course taught virtually due to COVID-19; worked closely with students on review paper throughout the quarter; gave a lecture on dissertation research covering plant local adaptation and consequences in the face of a changing climate; adapted course content to online format.

Field Biology Lab

September 2020-December 2020

20 hours/week | 10 weeks | 13 students | UC-Irvine

Senior level, field-based lab taught virtually due to COVID-19. Teaching students the scientific method through ecological field experiments, data analysis in R programming language, and communication through lab reports and oral presentations.

Field Freshwater Ecology Lab

Mar 2020 – June 2020

20 hours/week | 10 weeks | 69 students | UC-Irvine

Senior level, field-based lab taught virtually due to COVID-19. Teaching students how to write effective science lab reports for their independent lab projects, and led lectures on introductory statistical analyses.

Organisms to Ecosystems

Jan 2020 - Mar 2020

20 hours/week | 10 weeks | 90 students | UC-Irvine

Designed and led my own discussion sections to facilitate active learning on the core themes of biology; created and led review session.

Habitats and Organisms

Sept 2019 - Dec 2019

20 hours/week | 10 weeks | 20 students | UC-Irvine

Senior level, communication intensive course; worked closely with students on review paper throughout the quarter; designed and led a two hour, active-learning activity on plant adaptation; led a discussion on the evolutionary ecology of plant-herbivore interactions; gave a mini-lecture on experimental design.

Global Sustainability

Mar 2016 - June 2016

10 hours/week | 10 weeks | 20 students | UC-Irvine

Senior level, communication intensive course; worked closely with students on research projects and poster presentations

Intro to Ecology

Jan 2016 - Mar 2016

10 hours/week | 10 weeks | 220 students | UC-Irvine

Global Sustainability

Sep 2015 - Dec 2015

20 hours/week | 10 weeks | 40 students | UC-Irvine

Senior level, communication intensive course; worked closely with students on research papers and oral presentations

Workshops:

Fall 2019 Quantitative Methods in Ecology and Evolution, UC-Irvine, Instructor: Dr. Diane Campbell. Co-led a workshop on data visualization using ggplot2 in R.

Fall 2019 Writing Tutor, NSF GRFP Proposal Writing Workshop, School of Biological Sciences, UC-Irvine.

MENTORING

Agroecological Research

Spring 2022-present

3 Students | 1.5 years | UGA

Training students in field ecology methodology, insect identification, and reading the literature critically. Currently preparing students for independent research projects.

Climate Change Research

Fall 2015-2021

34 Students | 5 years | UC-Irvine

Trained students from diverse backgrounds in ecological data collection and analysis; lead weekly discussions on special topics in ecology and evolutionary biology; guiding students through their independent research projects and on writing grants (\$800 acquired); assisting with professional development. Mentored 7 students on independent research projects.

Invasive Species Research

Spring 2014-2015

5 Students | 1 year | LSU

Trained students in data collection and processing.

Related workshops and certificates:

Spring 2016 Effective Mentor Certificate

Spring 2016 Becoming an Effective Mentor Workshop, UC-Irvine. Instructors: Galina Schmunk and Briac Halbout. Over the course of five weeks, I participated in discussions on mentoring strategies and philosophies, which culminated in a peer-reviewed mentoring philosophy.

COMMUNITY OUTREACH

Reach Out Teach Out

Fall 2019

Irvine, CA. Designed a three-hour seminar for high school students from underrepresented communities on how to quantify insect biodiversity in the field.

UCI EEB Research Lab Tour

Spring 2019

Irvine, CA. Co-designed activities for high school students touring UCI's Ecology and Evolutionary Biology department, focused on the role that plant leaf chemistry plays in shaping ecological interactions between plants and insects.

Science Saturday

Spring 2019

Irvine, CA. Co-organized activities for middle school students from underrepresented communities illustrating the obstacles that insects face while foraging for food.

Science Saturday

Spring 2018

Irvine, CA. Co-organized activities for middle school students from underrepresented communities illustrating how plants defend themselves against and attract insect herbivores and pollinators, respectively.

Orange County Society for Conservation Biology, Board Member

Winter 2016-Spring 2018

Irvine, CA. Acquired \$800 in grants for our Conservation Café series, where we invited speakers and hosted discussions about local conservation topics with community members. Hosted retreats and connected the public with local restoration efforts through our Spring Restoration Series.

What can I do with my PhD?

Spring 2017

Irvine, CA. Co-organized a departmental panel event comprised of 10 invited speakers from diverse, non-R1 professions to highlight the versatility of a PhD in ecology and evolutionary biology.

Science Olympiad

Winter 2017

Irvine, CA. Created, supervised, and graded the middle school and high school ecology exams for the 2017 Science Olympiad.

A day in the life: A Graduate Student's Perspective

Winter 2016

Newport Beach, CA. Presented to Sage Hill High School, sharing my perspective on and path towards conducting research in the biological sciences high school students.

PROFESSIONAL MEETINGS ATTENDED

2022 Entomological Society of America Annual Meeting, Vancouver, CA

2021 Ecological Society of America Annual Meeting, Long Beach, CA

2019 Gordon Research Conference, Ventura, CA

2018 Ecological Society of America Annual Meeting, New Orleans, LA

2017 Ecological Society of America Annual Meeting, Portland, OR

2015 Society of Wetland Scientists Annual Meeting, Providence, RI

2014 Ecological Society of America Annual Meeting, Sacramento, CA

2013 Ecological Society of America Annual Meeting, Minneapolis, MN
