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Education

University of California, Irvine 2020 – 2022

Postdoctoral Fellow, Ecology and Evolutionary Biology. Advisor: Diane Campbell.

University of California, Irvine 2015 – 2020

Ph.D., Ecology and Evolutionary Biology. Advisors: Ann Sakai, Stephen Weller.

University of North Carolina at Chapel Hill 2011 – 2015

B.S., Majors in Biochemistry, Quantitative Biology. Honors Program.

Fellowships and Awards

Edward Steinhaus Teaching Award 2019

Ron Leuschner Memorial Award for Research on the Lepidoptera 2018

Honorable Mention – NSF Graduate Research Fellowship Program 2016

Graduate Fellowship Award – UC Irvine 2015

Morehead-Cain Merit Scholarship – UNC Chapel Hill 2011 – 2015

National Merit Scholarship 2011

Research

Floral evolution, Campbell Lab, Rocky Mountain Biological Laboratory 2013, 2019 – 2022

With Dr. Diane Campbell. Collect field data on floral morphology, floral volatiles, and vegetative physiology for long-term evolutionary studies. Analyze temporal variation in pollinator-mediated selection to describe indirect relationships between climatic and ecological variables. Mentor undergraduate REU students as they complete independent projects. RMBL GC-MS Technician, 2019. Graduate Research Assistant, 2020. Postdoctoral Scholar, 2021-2022. Three publications with three manuscripts in preparation.

Pollination biology, Sakai/Weller Lab, University of California, Irvine 2015 – 2022

With Drs. Ann Sakai, Stephen Weller. For dissertation, studied the macroevolutionary diversification of floral volatiles as chemical signals for pollinators and their role in reproductive isolation for recently-diverged taxa in an island-endemic plant lineage. Analysis of floral scent by GC-MS, PTR-TOF-MS. Designed pollinator choice experiments at field sites in Hawai'i. Three publications, ongoing research on reproductive isolation.

Population genetics, Servedio Lab, University of North Carolina 2014 – 2018

With Dr. Maria Servedio. Constructed population genetic models of avian mate choice and parental investment to test hypotheses about the evolution of displays within the pair bond. Wrote code to create visual summaries of the parameter space under investigation. Co-first author of article in PNAS.

Publications

Navarro, J., **Powers, J.M.** (co-first authors), Paul, A., Campbell, D.R. (2022). [Phenotypic plasticity and selection on leaf traits in response to snowmelt timing and summer precipitation](#). *New Phytologist* 234: 1477–1490.

Powers, J.M., Sakai, A.K., Weller, S.G., Campbell, D.R. (2022). [Variation in floral volatiles across time, sexes, and populations of wind-pollinated *Schiedea globosa* \(Caryophyllaceae\)](#). *American Journal of Botany* 109: 345–360.

Powers, J.M., Briggs, H.M. (co-first authors), Dickson, R.G., Li, X. Campbell, D.R. (2021). [Earlier snowmelt and reduced summer precipitation alter floral traits important to pollination](#). *Global Change Biology* 28: 323–339.

Powers, J. M., Seco, R., Faiola, C. L., Sakai, A. K., Weller, S. G., Campbell, D. R., and Guenther, A. (2020). [Floral scent composition and fine-scale timing in two moth-pollinated Hawaiian *Schiedea* \(Caryophyllaceae\)](#). *Frontiers in Plant Science* 11, 1116.

Servedio, M. R., **Powers, J. M.** (co-first authors), Lande, R., and Price, T. D. (2019). [Evolution of sexual cooperation from sexual conflict](#). *Proceedings of the National Academy of Sciences* 116, 23225–23231.

Weller, S.G., Sakai, A.K., Campbell, D.R., **Powers, J.M.**, Peña, S.R., Keir, M.J., Loomis, A.K., Heintzman, S.M., and Weisenberger, L. (2017). [An enigmatic Hawaiian moth is a missing link in the adaptive radiation of *Schiedea*](#). *New Phytologist* 213: 1533–1542.

Campbell, D.R. and **Powers, J.M.** (2015). [Natural selection on floral morphology can be influenced by climate](#). *Proceedings of the Royal Society of London B* 282: 20150178.

Presentations

Navarro, J., **Powers, J.M.**, Paul, A., Campbell, D.R. Phenotypic plasticity and selection on leaf traits in response to snowmelt timing and summer precipitation.

Ecological Society of America Annual Meeting, August 2022.

Powers, J.M., Briggs, H.M., Dickson, R.G., Li, X. Campbell, D.R. Earlier snowmelt and reduced summer precipitation alter floral traits important to pollination.

Ecological Society of America Annual Meeting, August 2021.

Powers, J.M. Synchrony, function, and diversification of floral scent in Hawaiian *Schiedea* (Caryophyllaceae).

University of California, Irvine thesis defense, September 2020.

Powers, J.M., Sakai, A.K., Weller, S.G., Campbell, D.R. Sexual dimorphism, evolutionary divergence, and diel variation in floral volatiles of wind-pollinated *Schiedea globosa* (Caryophyllaceae).

Botanical Society of America Annual Meeting, July 2020.

Ecological Society of America Annual Meeting, August 2020.

Powers, J.M., Seco, R., Faiola, C.L., Sakai, A.K., Weller, S.G., Campbell, D.R., Guenther, A. Synchrony of floral scent and crepuscular activity of a shared pollinator in sympatric *Schiedea kaalae* and *S. hookeri*.

UCI Ecology and Evolutionary Biology Graduate Student Symposium, March 2018.

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

Powers, J.M., Sakai, A.K., Weller, S.G., Campbell, D.R. Flower scent as a potential reproductive barrier in a Hawaiian plant lineage. 2017.

UCI Ecology and Evolutionary Biology Graduate Student Symposium (Best Talk), March 2017.

Guest lectures: Mt. San Antonio College undergraduates, 2017, 2018. UCI Recruitment, 2017.

California Botanical Society Grad Student Symposium (Best Overall Presentation), April 2017.

Botanical Society of America Annual Meeting, Fort Worth, TX, July 2017.

Teaching

California State University, Dominguez Hills

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| Global Climate Change | Guest lecture, systems thinking | 2022 |
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University of California, Irvine

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| Quantitative Methods in Ecology (grad course) | Guest lecture, data visualization in R | 2020 |
| Biology of Birds | TA, guest lecturer | 2019 - 2020 |
| Ecology and Evolution Laboratory | TA, guest lecturer | 2019 |
| Evolutionary Genetics and Ecology | TA, discussion leader | 2018 |
| Field Biology | TA, guest lecturer, online teaching | 2017, 2019-2020 |
| Molecular Biology | TA, essay exam editor and grader | 2016 - 2018 |
| Biochemistry | TA, essay exam editor and grader | 2016 |
| From Organisms to Ecosystems | TA, discussion leader | 2016 - 2018 |
| From DNA to Organisms | TA, discussion leader | 2015 - 2016 |
| Global Sustainability | TA, capstone writing feedback | 2017 |
| Neurobiology and Brain Dysfunction | TA, exam writer, non-major students | 2016 |
| Plants Are Cool, Too! | Guest lecture, non-major students | 2016 |

Certifications

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| Associate, Center for the Integration of Research, Teaching and Learning | 2018 |
| Course Design Certification, Division of Teaching Excellence and Innovation, UC Irvine | 2017, 2018 |
| Teaching Assistant Pedagogical Development Program, UC Irvine | 2015 |
| Becoming an Effective Mentor (6 week course), UC Irvine | 2015 |

Service and Outreach

Climate Literacy, Empowerment, & Inquiry **Board Member** *2016 – 2021*

With nonprofit, develop 6th grade climate science curriculum and present monthly activities that highlight key concepts with hands-on experiments and empower students to take meaningful action.

Society for Conservation Biology, Orange Co. **Board Member** *2015 – 2018*

Plan community engagement and educational events for the nonprofit SCB Chapter. Invite speakers to host informal conservation science seminars and coordinate volunteer restoration projects.

Irvine Unified School District Science Fair **Ask-a-Scientist Night** *2015 – 2019*

Advise middle school students annually to develop their hypotheses and botany experiments.

Vista Verde Middle Earth Day **Presenter** *2018, 2019*

Co-designed and guided middle school students through exhibits on remote sensing of the environment.

UC Irvine Science Saturday **Presenter** *2018, 2019*

Co-designed and led an open-ended experiment in the UCI Ecological Preserve for middle school students.

Science Olympiad of Southern California Exam Writer *2017, 2018*

Event engages middle and high-school contestants with ecological principles and human impacts.

GSE Chemistry Honors Society at UNC **President** *2011 – 2014*

Organized undergraduate research symposium for the Chemistry department. Invited speakers from academia and industry to monthly seminar series targeted at undergraduates.

Carolina Campus Community Garden **Advisory Board** *2011 – 2015*

As the student representative to the board, developed strategies to unite the diverse interests of university administrators, employees, students, and faculty in nutrition and public health. Assisted during workdays and planned special events. Worked closely with the student government to develop UNC's residence hall composting program that now benefits the garden.

HOPE Gardens **Co-chair** *2012 – 2015*

Directed student-run urban farm. Coordinated projects that address local barriers to food access through sustainable agriculture and education. Worked with the Chapel Hill Town Council, Parks and Recreation Department, high schools, and homeless shelters to teach volunteers basic gardening techniques and grow ingredients for our low-income cooking class.