

# Megan L. Peterson

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## PROFESSIONAL APPOINTMENTS

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- 2015 – present Postdoctoral Research Associate  
Environmental Studies  
University of Colorado Boulder
- 2011-2014 NSF Graduate Research Fellow  
University of California Santa Cruz

## EDUCATION

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- 2011 – 2015 Ph.D., Ecology and Evolutionary Biology  
University of California, Santa Cruz, CA  
Advisor: Kathleen Kay, Co-advisor: Amy L. Angert  
Dissertation title: *Ecological divergence in flowering plants: Niche expansion, selection, and reproductive isolation*
- 2009 - 2011 Ph.D. student  
Program in Ecology (Evolutionary Ecology)  
Colorado State University, Fort Collins, CO.  
Advisor: Amy L. Angert
- 2009 B.S. Evolution, Ecology and Biodiversity with Highest Honors  
University of California, Davis, CA.

## PUBLICATIONS

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- 11) **Peterson, ML**, DF Doak, and WF Morris. Incorporating local adaptation into forecasts of species' distribution and abundance under climate change. In review at *Ecology Letters*.
- 10) Dibner, R, **ML Peterson**, A Louthan, and DF Doak. Multiple mechanisms confer stability to isolated populations of a rare endemic plant. In revision for *Ecological Monographs*.
- 9) Hall\*, E, L Piedrahita\*, E Waddle\*, G Kendzierski\*, DF Doak, and **ML Peterson**. Climate and synchrony with conspecifics determine the effects of flowering phenology on

reproductive success in *Silene acaulis*. In revision for *Arctic, Antarctic, and Alpine Research*.

- 8) **Peterson, ML**, DF Doak, and WF Morris. 2017. Both life history plasticity and local adaptation will shape range-wide responses to climate warming in the tundra plant *Silene acaulis*. *Global Change Biology* 24: 1614-1624. ([pdf](#))
- 7) Abbott, RE, DF Doak, and **ML Peterson**. 2017. Portfolio effects, climate change, and the persistence of small populations: analyses on the rare plant *Saussurea weberi*. *Ecology* 98: 1071-1081. ([pdf](#))
- 6) **Peterson, ML**, KM Kay, and AL Angert. 2016. The scale of local adaptation in *Mimulus guttatus*: comparing life history races, ecotypes, and populations. *New Phytologist* 211: 345-356. ([pdf](#)) \* Featured in special commentary: "Local adaptation or foreign advantage? Effective use of a single-test site common garden to evaluate adaptation across ecological scales." *New Phytologist* 211: 8-10. ([link](#))
- 5) **Peterson, ML**, and KM Kay. 2015. Mating system plasticity promotes persistence and adaptation of colonizing populations of hermaphroditic angiosperms. *The American Naturalist* 85(1): 28-43. ([pdf](#))
- 4) **Peterson, ML**, TJ Miller, and KM Kay. 2015. An ultraviolet floral polymorphism associated with life history drives pollinator discrimination in *Mimulus guttatus*. *American Journal of Botany* 102(3): 1-11. ([pdf](#))
- 3) Angert, AL, S Kimball, **ML Peterson**, TE Huxman, and DL Venable. 2014. Phenotypic constraints and community structure: Linking trade-offs within and among species. *Evolution* 68(11): 3149-3165. ([pdf](#))
- 2) **Peterson, ML**, KJ Rice, and JP Sexton. 2013. Niche partitioning between close relatives suggests trade-offs between adaptation to local environments and competition. *Ecology and Evolution* 3(3): 512-522. ([pdf](#))

*Other publications –*

- 1) Doak, DF, R Dibner, A Louthan, and **ML Peterson**. 2016. Final report on Desert Yellowhead (*Yermo xanthocephalus*) conservation status. Report and recommendations to the Bureau of Land Management and the U.S. Fish and Wildlife Service.

\*Undergraduate author

## **GRANTS, FELLOWSHIPS, AND AWARDS**

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*Grants and awards -*

2018	NSF LTREB, “How will local adaptation and environmental extremes shape continental-scale changes in species distribution and abundance?” ( <i>PI with D. Doak and W. Morris, DEB 1753954</i> )	\$450,000
2016-2018	NSF REU Supplements for “Population-and community-level mechanisms of range limitation in a variable and changing environment” ( <i>contributed substantially to writing, PIs D. Doak and W. Morris</i> )	\$21,243
2014	University of California Chancellor’s Fellowship, UC Santa Cruz	\$24,000
2014	W. D. Hamilton Award for Outstanding Student Presentation ( <i>honorable mention</i> ), Society for the Study of Evolution, Raleigh NC	
2013	Jean H. Langenheimer Graduate Research Grant	\$1,500
2012	Educational Grant, California Native Plant Society	\$500
2011	August Stavros Family Fund, Colorado State University ( <i>declined</i> )	
2010	NSF Graduate Research Fellowship	\$130,000
2010	Rosemary Grant Award, Society for the Study of Evolution	\$2,500
2010	Graduate Student Award, Botanical Society of America	\$500
2010	Harold David Harrington Fellowship, Colorado State University	\$500
2009	Graduate Student Fellowship, Colorado State University	\$5,000
2009	EEB Departmental Citation for Scholarly Excellence, UC Davis	
2008	President's Undergraduate Research Grant, UC Davis	\$1,000
2008	Research Grant, Davis Botanical Society	\$1,000
2007	University of California Regent's Fellowship, UC Davis	\$7,500

## PRESENTATIONS

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### *Invited presentations –*

- 2016 Department of Biology, San Francisco State University
- 2015 Department of Evolutionary Biology, University of Colorado Boulder
- 2014 Department of Biology, University of San Francisco

### *Contributed presentations –*

- 2018 Macrosystems Biology Conference, Alexandria VA. “Can prairie plant communities move to track shifting climate?”
- 2017 Society for the Study of Evolution, Portland OR. “Plasticity and local adaptation shape range-wide responses to climate change in a long-lived tundra plant.”
- 2016 Niwot Ridge LTER annual meeting. “Comparative demography of some common alpine species: setting the stage.”
- 2014 Society for the Study of Evolution, Raleigh NC. “Life history selection drives the early evolution of reproductive barriers in *Mimulus guttatus*.” Honorable mention, W. D. Hamilton Award for outstanding student presentation.
- 2014 *Mimulus* meeting, Duke University. “UV nectar guide polymorphism associated with life history drives floral constancy in *Mimulus guttatus*.”
- 2013 Society for the Study of Evolution, Snowbird UT. “Adaptation to novel environments: can self-fertilization promote niche evolution?”

- 2013 Biennial Plant Research Symposium, UC Santa Cruz. "Self-fertilization promotes colonization of novel environments."
- 2013 Ecology and Evolutionary Biology Department Research Symposium, UC Santa Cruz. "Self-fertilization promotes colonization of novel environments."
- 2013 Species Interactions Workshop, UC Santa Cruz/Stanford. "Pollinator responses to a cryptic UV floral polymorphism in *Mimulus guttatus*."
- 2009 California Native Plant Society Conservation Conference, Sacramento CA. "Intraspecific facilitation and drought avoidance: niche adaptations in a Sierran endemic"

## TEACHING

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### *Instructor* –

- 2014 BIOE 20B: Physiology and Development of Organisms, UC Santa Cruz
- 2014 BIOE 117: Systematic Botany of Flowering Plants, UC Santa Cruz
- 2014 BIOE 117L: Systematic Botany of Flowering Plants Lab, UC Santa Cruz

### *Teaching assistant* –

- 2014 BIOE 109: Evolution, UC Santa Cruz
- 2009 BZ 450: Plant Ecology, Colorado State University
- 2009 Life 102: Attributes of Living Systems, Colorado State University

### *Guest lectures* –

- 2017 EBIO 4140: Plant Ecology. "Plant domestication"
- 2017 ENVS 220: Conservation Biology. "Local adaptation and conservation"
- 2016 EBIO 4140: Plant Ecology. "Plant domestication"
- 2016 ENVS 2000: Applied Ecology. "Predation"
- 2014 BIOE 109: Evolution. "Speciation"
- 2013 BIOE 117: Systematic Botany. "Local Adaptation"
- 2013 BIOE 109: Evolution. "Genetics of Speciation"
- 2011 BZ 450: Plant Ecology. "Ecological Impacts of Climate Change"
- 2009 Life 103: Biology of Organisms. "Plant Signal Transduction"

## UNDERGRADUATE ADVISING

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Advised five REU students from 2016 – 2018 through the University of Colorado Boulder, including three women, one Hispanic student, and three students from small liberal arts colleges. Supervised student field research at Niwot Ridge, data analysis, and preparation of final presentations, as well as two student-led publications.

Advised two undergraduate senior thesis projects from 2013 – 2014, submitted for the senior exit requirement for the Ecology and Evolutionary Biology B.S. degree at the University of California Santa Cruz. Supervised independent research projects on UV patterns and

crossing barriers in monkeyflowers (*Mimulus*), data analysis, and preparation of final theses.

Mentored and trained over 20 additional student researchers in field, greenhouse, and lab projects including: 13 women, 7 minority students, and 5 high school students through the UC Santa Cruz High School Science Internship (HSSI) program, which targets high-achieving students from an underperforming school district.

## PROFESSIONAL SERVICE

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Reviewer for *American Journal of Botany* (1), *American Naturalist* (1), *Ecography* (1), *Ecology* (2), *Ecology and Evolution* (1), *Evolution* (3), *Evolutionary Applications* (1), *Global Change Biology* (2), *Journal of Applied Ecology* (1), *Journal of Ecology* (3), *Madroño* (1), *New Phytologist* (3), and *Proc. Roy. Soc. B.* (1).

2013 – 2014 Proposal reviewer, Graduate Student Awards, Botanical Society of America  
2013 – 2014 Coordinator, Graduate Student Lunch with Visiting Speakers, UC Santa Cruz  
2013 Panelist, NSF Graduate Fellowship Application Roundtable, UC Santa Cruz  
2010 Graduate Student Representative, Graduate Degree Program in Ecology, Colorado State University

## COMMUNITY OUTREACH

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2018 K-12 teacher professional development workshop, CU Boulder  
2016 Science teen café, “Science speed-dating,” CU Boulder  
2014 Visiting scientist/instructor, “Science in Action: Flowers and Pollinators”, Harmony Union School District, Occidental CA.  
2013 Judge, Santa Cruz County Science Fair  
2013 Judge, Westlake Elementary School Science Fair  
2012 - 2013 Mentor, High School Science Internship (HSSI) Program, UC Santa Cruz  
2012 “Plant Adaptations” booth, Long Marine Lab High School Student Open House, UC Santa Cruz

## WORKSHOP AND COURSE PARTICIPATION

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2014 “Introduction to integral projection models in R.” Corey Merow and Rob Salguero-Gomez, Evolutionary Demography Society, Stanford, CA.  
2014 “Evolution education research.” Jon C. Herron, SimBio Webinar Series  
2014 “Using *Mimulus* in the classroom.” Erin Dolan, Andrea Sweigart, and Lila Fishman. Duke University, Durham NC  
2012 “Linear mixed effects models in R: lme4.” Rick Condit, UC Santa Cruz, Santa Cruz CA.  
2010 “Systems ecology: an introduction to methods of ecological modeling.” Tom Hobbs, Colorado State University, Fort Collins CO

**PROFESSIONAL SOCIETIES**

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American Society of Naturalists  
Botanical Society of America  
Ecological Society of America  
Society for the Study of Evolution