

Jennifer R. Gremer

Curriculum vitae

PROFESSIONAL APPOINTMENTS

Assistant Professor	2015 - Present
Department of Evolution and Ecology, University of California	Davis, CA
Ecologist	2013 - 2015
Colorado Plateau Research Station, U.S. Geological Survey	Flagstaff, AZ
Postdoctoral Research Associate	2010 - 2013
Department of Ecology and Evolutionary Biology, University of Arizona	Tucson, AZ

EDUCATION

Ph.D. Organismal Ecology and Biology	2010
University of Montana, Missoula	
B.S. Environmental Studies	2002
University of California, Santa Barbara	

PUBLICATIONS

Journal articles

22. Laughlin, D.C., **J.R. Gremer**, P.B. Adler, R.M. Mitchell, and M.M. Moore. 2020. The net effect of functional traits on fitness. *Trends in Ecology & Evolution* 35:1037-1047.
21. ten Brink, H., **J. R. Gremer**, and H. Kokko. 2020. Optimal germination times in unpredictable environments: the importance of dormancy for both among- and within-season variation. *Ecology Letters* 23(4): 620-630. *Recommended by Faculty of 1000*
20. **Gremer, J.R.**, A. Chiono, E. Suglia, M. Bontrager, L. Okafor*, and J. Schmitt. 2020. Variation in the seasonal germination niche across an elevational gradient: The role of germination cueing in current and future climates. *American Journal of Botany* 107(2): 350-363.
*undergraduate author
19. **Gremer, J.R.**, C. Wilcox, A. Chiono, E. Suglia, and J. Schmitt. 2020. Contingency in life history and fitness is mediated by germination timing and exposure to chilling in a native wildflower. *Journal of Ecology* 108(1): 239-255.
18. Cuello, W.S., **J.R. Gremer**, P.C. Trimmer, A. Sih, and S.J. Schreiber. 2019. Predicting evolutionarily stable strategies from functional responses of Sonoran Desert annuals to precipitation. *Proceedings of the Royal Society B* 286(1894): 20182613.
17. Munson, S.M, E.L. Bunting, J. B. Bradford, B.J. Butterfield, and **J.R. Gremer**. 2019. Plant production responses to precipitation differ along an elevation gradient and are enhanced under extremes. *Ecosystems*: 22(4): 699-708.
16. **Gremer, J.R.**, C. Andrews, J.R. Norris, L.P. Thomas, S.M. Munson, M.C. Duniway, J.B. Bradford. 2018. Climate-driven shifts in grass-shrub abundance in drylands: Soil moisture effects may be overwhelmed by rising temperatures. *Oecologia* 188(4): 1195-1207.
15. Winkler, D.E., **J.R. Gremer**, K.J. Chapin, M. Kao, and T.E. Huxman. 2018. Rapid alignment of functional trait variation with locality across the invaded range of Sahara mustard (*Brassica tournefortii*). *American Journal of Botany* 105(7): 1188–1197.

14. Butterfield, B.J., J.B. Bradford, Seth M. Munson, and **J.R. Gremer**. 2017. Aridity increases belowground niche breadth in grass communities. *Plant Ecology* 218(4): 385-394.
13. **Gremer, J.R.**, S. Kimball, and D.L. Venable. 2016. Within and among-year germination in Sonoran Desert winter annuals: Bet hedging and predictive germination in a variable environment. *Ecology Letters* 19(10): 1209-1218.
12. **Gremer, J. R.**, J. B. Bradford, S. M. Munson, and M. C. Duniway. 2015. Desert grassland responses to climate and soil moisture suggest divergent vulnerabilities across the southwestern US. *Global Change Biology* 21(11): 4049-4062.
11. Kimball, S., **J. R. Gremer**, G. A. Barron-Gafford, A. L. Angert, T. E. Huxman, and D. L. Venable. 2014. High water-use efficiency and growth contribute to success of non-native *Erodium cicutarium* in a Sonoran Desert Winter Annual Community. *Conservation Physiology* 2(1): 1-14.
10. **Gremer, J. R.** and D. L. Venable. 2014. Bet hedging in desert winter annual plants: Optimal strategies in a variable environment. *Ecology Letters* 17(3): 380-387.
 Winner- Ecological Society of America's Mercer Award, 2016
 Incorporated into educational material for science education
 (<https://student.societyforscience.org/article/desert-plants-ultimate-survivors>)
 Press (<http://blogs.discovermagazine.com/inkfish/2014/02/04/think-youre-smart-gamblerseven-flowers-know-how-to-hedge-their-bets/>;
<https://dynamicceology.wordpress.com/2015/03/16/recent-papers-i-thought-were-reallygood/>)
9. **Gremer, J. R.**, S. Kimball, K. R. Keck*, T. E. Huxman, A. L. Angert, and D. L. Venable. 2013. Water-use efficiency and relative growth rate mediate competitive interactions in Sonoran Desert winter annual plants. *American Journal of Botany* 100(10): 2009–2015. *Undergraduate author
8. Kimball, S., **J. R. Gremer**, T. E. Huxman, D. L. Venable, and A. L. Angert. 2013. Phenotypic selection favors missing trait combinations in coexisting annual plants. *The American Naturalist* 182(2):191-207.
7. Huxman, T. E., S. Kimball, A. L. Angert, **J. R. Gremer**, G. A. Barron-Gafford, and D. L. Venable. 2013. Understanding past, contemporary, and future dynamics of plants, populations and communities using Sonoran Desert winter annuals. *American Journal of Botany* 100(7): 1369–1380.
6. **Gremer, J. R.**, and A. Sala. 2013. It is risky out there: The costs of emergence and the benefits of prolonged dormancy. *Oecologia* 172(4): 937–947.
5. Tuomi, J., E. E. Crone, **J. R. Gremer**, A. Jäkäläniemi, P. Lesica, Bård Pedersen, and S. Ramula. 2013. Prolonged dormancy interacts with senescence for two perennial herbs. *Journal of Ecology* 101(3): 566-576.
4. **Gremer, J. R.**, S. Kimball, T. E. Huxman, A. L. Angert, and D. L. Venable. 2012. Variation in photosynthetic response to temperature in a guild of winter annuals. *Ecology* 93(12): 2693–2704.
3. Kimball, S., **J. R. Gremer**, A. L. Angert, T. E. Huxman, and D. L. Venable. 2012. Fitness and physiology in a variable environment. *Oecologia* 169(2):319-329.
2. **Gremer, J. R.**, E. E. Crone, and P. Lesica. 2012. Are dormant plants hedging their bets? Demographic consequences of prolonged dormancy. *The American Naturalist* 179(3): 315-327.

1. **Gremer, J. R.**, A. Sala, and E. E. Crone. 2010. Disappearing plants: Why they hide and how they return. *Ecology* 91(11):3407-3413.

Book chapters

- Gremer, J.R.**, S. Ramula, B. Pedersen, E.E. Crone, P. Lesica, A. Jäkäläniemi, and J. Tuomi. 2017. Complex life histories and senescence in plants: Avenues to escape age-related decline? In: *The Evolution of Senescence in the Tree of Life*. Shefferson, R.P., R. Salguero-Gomez, and O. Jones, editors. Cambridge University Press.

Submitted articles

1. Eskelinen, A, E.C. Elwood, E.E. Beyen, S.P. Harrison, and **J.R. Gremer**. *Invited for revision: in review*. Resource-enhancing global changes drive loss of natives and shifts in trait composition in grassland seed banks. Submitted to *Ecology*.

Other publications

- Andrews, C., J. Bradford, J. Norris, **J.R. Gremer**, M. Duniway, S. Munson, L. Thomas, and M. Swan. 2018. Modeling past and future soil moisture in Southern Colorado Plateau National Parks and Monuments. Project Brief. National Park Service. Fort Collins, Colorado.
<https://www.nps.gov/articles/modeling-past-and-future-soil-moisture-in-parks.htm>

GRANTS

Current

National Science Foundation, Dimensions of Biodiversity program, “Diversity and constraint in the germination niche: Implications for persistence in a biodiversity hotspot.” J. Gremer, J. Maloof, J. Schmitt, and S. Strauss (\$1,999,989). 2019 - 2024

National Science Foundation, Population and Community Ecology program, Collaborative Research Grant, “Integrating vital rates to predict the net effect of functional traits on fitness.” PIs: D. Laughlin (University of Wyoming, \$356,151) and M. Moore (Northern Arizona University, \$353,000). J Gremer as senior personnel. 2019-2023.

Recommended for funding (declined): National Science Foundation, DEB-Evolutionary Ecology, “Life history variation in a native wildflower: Mechanisms and fitness consequences in variable environments.” J. Gremer, J. Schmitt, and J. Maloof (\$880,000).

FELLOWSHIPS AND AWARDS

Mercer Award, Ecological Society of America	2016
Postdoctoral Excellence Award, Ecological Society of America’s Plant Population Ecology Section	2014
Young PPE Member of the Month, Ecological Society of America’s Plant Population Ecology Section	2012
P.E.O. Scholar Award (\$15,000)	2009
David Nicholas Memorial Award (\$500)	2008
Jack E. Schmautz Graduate Research Award (\$3,000)	2006
NSF EPSCoR fellowship (\$ 35,000)	2005-2007
J. Gremer, CV	3

SELECTED PRESENTATIONS

Invited presentations

- 2019 Invitation to Evolution, Ecology, and Organismal Biology seminar series at University of California Riverside, postponed to 2020.
- 2018 "It's all in the timing: Evolutionary ecology of germination timing in variable environments." Rice University EEB Departmental seminar, Houston, TX.
- 2017 "Physiology, demography, and species coexistence: Mechanisms driving diversity in desert annual plants." UC Davis Plant Biology Graduate seminar series, Davis, CA.
- 2017 "From traits to communities: Physiology, demography, and community dynamics in desert annual plants." Ecology, Evolution, and Conservation Biology Graduate Program seminar, University of Nevada, Reno.
- 2016 "Incorporating soil water dynamics to improve understanding of climate response in arid- and semi-arid grasslands." Invited to organized oral session titled "Adapting and mitigating grassland response to a changing and variable climate." Natural Areas Conference, Davis, CA.
- 2016 "Plants that gamble: Bet hedging in Sonoran Desert winter annual plants." Howard Hughes Medical Institute Summer Seminar Series, Claremont Colleges, CA.
- 2015 "Gambling in the desert: Bet hedging in Sonoran Desert winter annual plants." Organized oral session titled "From Drought to Deluge: Evolutionary Lessons for Natural Resource Management in an Increasingly Variable World." Ecological Society of America, Baltimore MD.
- 2014 "From traits to communities: Understanding the role of physiology, life history, and demography in vegetation dynamics." UC Davis, Davis, CA.
- 2013 "Germination timing in Sonoran Desert winter annuals: Climate change, phenology, and community dynamics." National Phenology Network, Tucson, AZ.
- 2013 "Life in a variable environment: Challenges and opportunities." Michigan State University, Lansing, MI.
- 2010 "Plant life history trade-offs and prolonged dormancy: Why stay belowground?" Hanover Forest Science Seminar Series. Michigan State University, Lansing, MI.

Submitted presentations

- 2019 "Variation in life history cueing across an elevation gradient in a California wildflower." Ecological Society of America, Louisville, KY.
- 2018 "Life history contingency in a native wildflower, *Streptanthus tortuosus*: Mechanisms and fitness consequences." Ecological Society of America, New Orleans, LA and University of Michigan's Green Life Symposium, Ann Arbor MI.
- 2014 "Does incorporating soil water dynamics improve our understanding of plant responses to climate change in the Desert Southwest?" Ecological Society of America, Sacramento CA.
- 2013 "Bet hedging in desert winter annual plants: Optimal strategies in a variable environment." Ecological Society of America, Minneapolis MN.

TEACHING

Teaching

Plant Population Biology (ECL/PBG 207)	Alternating years, starting Winter 2017
Introduction to Ecology (EVE 101)	Alternating years, starting Winter 2018
Plant Ecology (EVE/PLB 117)	Alternating years, starting Fall 2019
Research conference in Evolutionary Biology or Ecology (PBG 270/271, ECL 271)	Occasionally, starting Spring 2017

Advising

Major advisor

Elise Elwood, Population Biology Graduate Group (2016- current)
Elena Suglia, Population Biology Graduate Group (2017- current)
Danielle De La Pascua, Population Biology Graduate Group (2019- current)

Undergraduates – mentored 38 undergraduates since 2015, 10 of whom conducted independent research projects

SERVICE

University service

UC Davis Strategies for Ecology Education, Diversity, and Sustainability (SEEDS)

Faculty advisor 2016- present

UC Davis Natural Reserve Committee 2016 – present

Professional Service

Ad hoc manuscript reviewer: *American Journal of Botany*, *Annals of Botany*, *Biological Invasions*, *Conservation Physiology*, *Ecology*, *Ecology Letters*, *Evolutionary Applications*, *Functional Ecology*, *Journal of Ecology*, *Journal of Tropical Ecology*, *New Phytologist*, *Oecologia*, *Plant Ecology*, *PLoSOne*, *Population Ecology*, *Proceedings of the Royal Society B*, *Theoretical Ecology*

Ad hoc proposal reviewer: National Science Foundation DEB Ecosystem Science and Evolutionary Ecology Clusters, Canada Research Chairs Program

Proposal reviewer for Society for Study of Evolution graduate research grants

Professional societies

Ecological Society of America (Plant Population Ecology and Physiological Ecology Sections), Botanical Society of America, Society for the Study of Evolution