Sarah Kimball
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Professional Appointments

Assistant Director and *Project Scientist*, Center for Environmental Biology, University of California, Irvine, 2011-present

Postdoctoral Researcher with Amy Angert, Travis Huxman, and Larry Venable, University of Arizona, 2007-2011

Education

Ph.D., University of California, Irvine — *Nov. 2007*
M.S., California State University, Northridge — *Dec. 2001*
B.S., Willamette University, Salem, Oregon — *May 1996*

Academic Publications

(*student co-author; **undergraduate student co-author)

Kimball, S., M.E. Lulow, K. Balazs, and T.E. Huxman. 2017. Predicting drought tolerance from slope aspect preference in restored plant communities. ***Ecology and Evolution***.

Tamura, N.**, M. Lulow, Halsch, C.**, M. Major, K. Balazs, P. Austin, T. Huxman, and **S. Kimball.** 2017. Effectiveness of seed sowing techniques for sloped restoration sites. ***Restoration Ecology***.

Kimball, S., J. Funk, M. Goulden, and K.N. Suding. 2016. Can functional traits predict plant community response to global change? ***Ecosphere*** 7(12).

Balshor, B.**, M. Garrambone*, P. Austin, K.R. Balazs, C. Weihe, J.B.H. Mariny, T. Huxman, J.R. McCollum, and **S. Kimball**. 2016. The effect of soil inoculants on seed germination of native and invasive species. ***Botany***.

Gremer, J., **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***.

Kimball, S., J. L. Funk, D. Sandquist, and J.R. Ehleringer. 2016. Ecophysiological considerations for restoring plant communities. Chapter 6 in: D.A. Falk, M. Palmer, J. Zedler, and R.J. Hobbs, editors. ***Foundations of Restoration Ecology***. Island Press, Washington.

Nguyen, M.A.**, A.E. Ortega**, Q.L. Nguyen**, M. Goulden, **S. Kimball,** and J.L. Funk. 2016. Evolutionary responses of invasive grass species to variation in precipitation and soil nitrogen. ***Journal of Ecology*** 104: 979-986.

Kimball, S., M.E. Lulow, Q. Sorenson, K. Balazs, Y. Fang, S. Davis, M. O'Connel, and T.E. Huxman. 2015. Cost effective ecological restoration. ***Restoration Ecology*** 23: 800-810.

Matulich, K.*, C. Weihe, S. Allison, A. Amend, M. Goulden, **S. Kimball**, A. Martiny,

and J. Martiny. 2015. Temporal variation overshadows the response of leaf litter microbial composition to simulated global change. ***The ISME Journal.***

Angert, A.L., **S. Kimball,** M. Peterson, T.E. Huxman, and D.L. Venable. 2014. Phenotypic constraints and community structure: Linking trade-offs within and among species. ***Evolution*** 68: 3147-3165.

Kimball, S., M. Goulden, K. Suding, and S. Parker. 2014. Water and nitrogen manipulations alter succession in a Southern California Coastal Sage Scrub community. ***Ecological Applications*** 24: 1390-1404.

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: 1-14.

Kimball, S., M. Lulow, K. Mooney, and Q. Sorenson. 2014. Establishment and management of native functional groups in restoration. ***Restoration Ecology*** 22: 81-88.

Horst, J.*, **S. Kimball,** J.X. Becerra, K. Nogi, and D.L. Venable. 2014. Documenting the early stages of invasion of *Matthiola parviflora* and predicting its spread in North America. ***Southwestern Naturalist*** 59: 47-55.

Kimball, S., J.R. Gremer, D.L. Venable, T.E. Huxman, and A.L. Angert. 2013. Phenotypic selection favors missing trait combinations in coexisting annual plants. ***The American Naturalist*** 182: 191-207.

Venable, D. L. and **S. Kimball.** 2013. Population and community dynamics of Sonoran Desert winter annuals. In: C.K. Kelly, M.G. Bowler and G.A. Fox, editors. ***Temporal Dynamics and Ecological Process***. Cambridge University Press, Cambridge.

Gremer, J.R., **S. Kimball,** K. 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: 2009-2015.

Huxman, T.E., **S. Kimball,** A.L. Angert, J.R. Gremer, Barron-Gafford, G.A., and D.L. Venable. 2013. Understanding past, contemporary, and future dynamics of plants, populations and communities of Sonoran Desert winter annuals. ***American Journal of Botany*** 100: 1369-1380. [cover article]

Gremer, J., **S. Kimball,** A.L. Angert, D.L. Venable, and T.E. Huxman. 2012. Variation in photosynthetic response to temperature in a guild of winter annuals. ***Ecology*** 93: 2693-2704.

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: 319-329.

Kimball, S., A.L. Angert, T.E. Huxman, and D.L. Venable. 2011. Differences in the timing of germination and reproduction relate to growth physiology and population dynamics of Sonoran Desert winter annuals. ***American Journal of Botany*** 98: 1773-1781.

Kimball, S., A.L. Angert, T.E. Huxman, and D.L. Venable. 2010. Contemporary climate change in the Sonoran Desert favors cold-adapted species. ***Global Change Biology*** 16: 1555-1565.

Kimball, S., and D.R. Campbell. 2009. Physiological differences among two

Penstemon species and their hybrids in field and common garden environments. ***New Phytologist*** 181: 478-488.

Kimball, S., D.R. Campbell, and C. Lessin*. 2008. Differential performance of reciprocal hybrids in multiple environments. ***Journal of Ecology*** 96: 1306-1318. [cover article]

Kimball, S. 2008. Links between floral morphology and floral visitors along an elevational gradient in a *Penstemon* hybrid zone. ***Oikos*** 117: 1064-1074.

Kimball, S., P. Wilson, and J. Crowther. 2004. Local ecology and geographic ranges of plants in the Bishop Creek watershed, Sierra Nevada, California. ***Journal of Biogeography*** 31: 1637-1657.

Kimball, S. and P.M. Schiffman. 2003. Differing effects of cattle grazing on native and alien plants. ***Conservation Biology*** 17: 1681-1693.

Other Publications

Kimball, S. 2014. Developing a restoration plan for Upper Newport Bay. *Tracks,* Newsletter for the Newport Bay Conservancy.

Kimball, S. and P. Wilson. 2009. The insects that visit penstemon flowers. *Bulletin of the American Penstemon Society,* Spring 2009.

Kimball, S. and P. Wilson. 2005. Local habitat is related to the geographic ranges of plants. *Sierra Nature Notes*, Spring/Summer 2005.

Wilson, P. and **S. Kimball**. 2001. Review of The Origin, Expansion, and Demise of Plant Species by Donald A. Levin. In *Quarterly Review of Biology* 76: 84-86.

Grants and Fellowships

Funded

Oak and vegetation monitoring grant, The Nature Conservancy, 2015-present

Doctoral Dissertation Improvement Grant, National Science Foundation, 2006

Dr. James D. Watson Scholar, ARCS Foundation Fellowship, 2006 & 2007

GAANN Fellowship, Department of Ecology and Evolutionary Biology, University of California, Irvine, 2005

Educational Grant, California Native Plant Society, 2005

Applicant Fellowship, Department of Ecology & Evolutionary Biology, University of California, Irvine, 2002

Declined

Microbial-plant community trait feedbacks and global change: The influence of cross-trophic interactions on ecosystem processes. National Science Foundation DEB full proposal, 2015, PI (S. Kimball), Co-PIs (J. Martiny) - *Invited to Submit Full Proposal*

Beyond functional traits: Understanding ontogeny and resource use to assemble invasion-resistant communities. National Science Foundation DEB pre-proposal, 2014, PI (S. Kimball, T. Huxman) - *Invited to Submit Full Proposal*

Effective decision-making in ecology - optimizing restoration outcomes with effective ecosystem valuation. National Science Foundation pre-proposal, 2014, PI (T. Huxman), Co-PI (S. Kimball)

A Knowledge Network for Non-Traditional Science Informing Non-Native Species Management. National Science Foundation RCN-SEES, 2013, PI (T. Huxman), Co-PI (S. Kimball and C. Lopes)

Competition in a variable environment: Importance of abiotic factors and functional traits in determining community structure. National Science Foundation DEB pre-proposal, 2011, PI (T. Huxman), Co-PI (S. Kimball and J. Gremer)

Drought, temperature and mortality: The interaction of physiology and life history in determining community dynamics. National Science Foundation DEB pre-proposal, 2011, PI (D. Venable), Co-PI (S. Kimball and J. Gremer)

Presentations at Scientific Conferences

Resilience and fragility: 10 years of monitoring shrub and prairie communities in Orange County, CA, USA. *Ecological Society of America,* August 2017

Cost-effective ecological restoration. *Ecological Society of America,* August 2014

Type conversions in response to precipitation and nitrogen manipulations in Southern California Coastal Sage Scrub and grassland systems. *Ecological Society of America,* August 2012

Phenotypic selection on physiological traits in four species of coexisting annual plants. *Ecological Society of America,* August 2011

Contemporary climate change in the Sonoran Desert favors cold-adapted species. *Ecological Society of America,* August 2009

Climate induced changes in plant community composition in the Sonoran Desert. *American Geophysical Union,* December 2008

Phenological differences promote coexistence in Sonoran Desert Winter Annuals. *Ecological Society of America,* August 2008

Mechanisms defining geographic range limits in a plant hybrid zone. *Ecological Society of America,* August 2007

Floral visitors of *Penstemon* hybrids. *Botanical Society of America,* Summer 2007

Physiological differences maintain ecological range limits in a plant hybrid zone. *Botanical Society of America,* Summer 2006

Differing effects of grazing on native and alien plants. *San Joaquin Valley Natural Communities Conference,* March, 2003

Local ecological gradients and geographic affinities of plants in the Bishop Creek watershed, Sierra Nevada, California. *Ecological Society of America,* August 2002

The effects of simulated grazing on native and non-native plants at Carrizo Plain National Monument. *Ecological Society of America*, August 2001

Invited Talks

Date	*Venue*
August 2017	Ecological Society of America Ignite Session on Variable Environments, Portland, OR
March 2014	Ecology Across Scales Symposium, Duke University
May 2012	Habitat Conservation Plan Climate Change Workshop, UC Riverside Palm Desert Center
March 2012	University of California, Riverside, Biology Department Seminar
Oct. 2011	California State University Northridge, Biology Department Seminar
Jan. 2011	De Paul University, Biology Department Seminar
Dec. 2010	University of Northern Iowa, Biology Department Seminar

Oct. 2010	University of San Diego, Biology Department Seminar
Spring 2007	White Mountain Research Station Lecture Series, Bishop, CA
Spring 2006	California Native Plant Society, Bristlecone Chapter, Bishop, CA

Outreach

Organized Workshops

Ecological Research and Managment in Orange County, annual workshop attended by 70-80 people from 5-10 academic institutions and 10-20 land management agencies, Center for Environmental Biology, University of California, Irvine

Restoration on Steep Slopes, attended by 40 land managers and 5 ecology faculty and graduate students, May 2014, Beckman Center, University of California, Irvine

Graduate Student Luncheon, attended by 15 ecology graduate students and 3 land managers, November 2013, University of California, Irvine

CEB Faculty Research Symposium, attended by 20 faculty, September 2013, University of California, Irvine

Orange County Ecological Data Portal Workshop, attended by 28 people from 13 different agencies, October 2012, Duck Club, Irvine, CA

Other Synergistic Activities

Developed web portal for ecological datasets in collaboration with Crista Lopes, Informatics Department, University of California, Irvine (http://ecodataportal.org) Currently being adapted by the UCI Library for broader usage (https://dash.lib.uci.edu/xtf/search?smode=orangecounty-home)

Established a system of weather stations along a transect across Orange County, in collaboration with Mike Goulden and Travis Huxman (http://128.200.14.200/index.html#)

Service

Mentor to multiple undergraduate UC Irvine (BioSci 199 and ESS 199) students conducting senior theses and Excellence In Research projects, 2011-present

Reviewed manuscripts for *American Journal of Botany*, *American Naturalist*, *Biological Conservation*, *Biological Invasions*, *Biological Reviews*, *Ecosphere*, *Environmental Management, Global Change Biology*, *Journal of the Torrey Botanical Society*, *Madroño,* and *New Phytologist*, 2004-present

Mentor to middle school student Anita Garg, *California State Science Fair*, 2013 - present

Judge, *Davis Magnet School Science Fair,* 2017

Scientist/Mentor, PlantingScience.org, on-line mentoring program, *Botanical Society of America,* 2008-2016

Mentor to undergraduate student Katie Keck, First Place Winner of Student Research Symposium, *University of Arizona*, 2010-2011

Visiting Scientist, Ask-A-Scientist Program*, Irvine and Costa Mesa Unified School Districts,* 2004-2006

Teaching Experience

Center for Environmental Biology Internship Program, 2011-present

Developed (and continue to collaboratively run) year-long, intensive internship program for 15-20 competitively selected undergraduate students. Students conduct research, education, and outreach activities in exchange for course credit through BioSci 197, BioSci199, ESS 199, or ESS 198.

Course Coordinator, 2007, UC Irvine

Supervised 10 Teaching Assistants, constructed and maintained course website, assisted in the writing of exams, graded exams, maintained course gradebook, and managed student administrative issues for Bio 94, an undergraduate course with about 900 students

Pedagogical Fellowship (formerly Teaching Assistant Consultant), 2004-2006, UC Irvine

Served as a mentor teacher in the training of 60 new graduate students in two Departments to be Teaching Assistants. Designed and implemented two full days of interactive, experiential workshops: Creating rubrics, grading, leading discussions & laboratories, conducting office hours, university and department policies and procedures in the campus-wide Teaching Assistant Professional Development Program. Received three quarters of course-work in pedagogy.

Teaching Assistant, UC Irvine

Bio 127, Physiological Plant Ecology, Fall 2005
Bio 166, Field Ecology, Fall 2004
Bio 175, Restoration Ecology, Winter 2004
Bio 94, Patterns of Diversity, Ecology & Evolution, Falls 2002-2004, Winter 05
Bio 96, Processes of Ecology & Evolution, Winter 2003

Teaching Associate, Sole Instructor, 1998 - 2001, California State University, Northridge

Principles of Biology I Lab (Survey of Organisms)
Principles of Biology II Lab (Cells to Anatomy)
General Biology Lab (Non-majors)

Teaching Assistant, 1998 - 2001, California State University, Northridge

Plant Biology (upper division lab course)
Plant Ecology (upper division and graduate field and lab course)
Principles of Ecology (upper division and graduate field and lab course)
Systematic Botany (upper division and graduate field and lab course)
Plant Morphology (upper division and graduate field and lab course)
Mammalogy (upper division and graduate field and lab course)

Awards

Edward Steinhaus Teaching Award, *University of California, Irvine,* 2007

Most Promising Future Faculty Member, *University of California, Irvine,* 2006

Best Physiology Student Paper, *Botanical Society of America,* 2006

Teaching Excellence and TA Mentoring Award, Instructional Resources Center, *University of California, Irvine,* 2004 and 2005

Donald E. Bianchi Graduate Student Research Award, *College of Science and Mathematics, California State University, Northridge*, 2002

Outstanding Graduate Student Award. Department of Biology, *California State University, Northridge,* 2002