



Erin Conlisk

Conservation Biology Institute
136 SW Washington Ave., Suite 202
Corvallis, OR 97333
Ph. 858-776-2939
erin.conlisk@consbio.org

As a quantitative ecologist and conservation biologist, Erin Conlisk integrates field experiments with quantitative techniques to understand California plant and wildlife responses to climate change, land-use change, and their interactions with changing wildfire regimes. Her research ranges from applied land management to academic ecology and is typically multidisciplinary, focusing on conservation co-benefits in socio-ecological systems. Currently, Erin is interested in using empirically-driven vegetation and wildfire simulation modeling to understand the influence of climate change, urban development, and forest management on California wildfire risk. Previously, Erin has used vegetation simulation models to understand the impacts of wildfire, examined satellite data to support waterbird management in the Central Valley of California, modelled landscape connectivity for iconic wildlife in Southern California, created mechanistic models of species' distributions and abundances, analyzed data from a treeline warming experiment, and worked in the social sciences with an emphasis on educational equity and environmental justice. When Erin is not working you will find her getting outdoors, talking to young people about newfangled things they didn't have in her day, and combining these two pastimes.

EDUCATION

2007 PhD, Energy and Resources Group, University of California, Berkeley
2004 MS, Energy and Resources Group, University of California, Berkeley
2002 MS, Chemistry, University of California, Berkeley
2000 BS, Biology-Chemistry, Claremont-McKenna College

PROFESSIONAL SKILLS

- Working with internal and external partners to design, execute, and synthesize applied research and analyses;
- Stewarding data from collection to analysis, presentation, publication, and archival;
- Communicating findings in non-technical reports, peer-reviewed papers, educational materials, media outlets, and story maps (interactive geospatial visualizations);
- Coding for high-performance computing, primarily using R and ArcGIS but with familiarity in Python, Access, FileMaker, R Shiny, R Markdown, and Matlab;
- Producing scripts, tutorials, and reports for multi-partner collaborative workflow;

- Collaborating with team members in remote or in-person settings and accomplishing complex tasks on my own across multiple projects with rapid timelines;
- Contributing conceptual knowledge of ecology and conservation gathered while lecturing on University campuses, including: biogeography; ecological principles; connectivity science, and conservation biology; and
- Grant-writing, including the successful procurement of external funding from state and national calls.

PROFESSIONAL EXPERIENCE

2023-present	Researcher, University of California, Riverside, Center for Conservation Biology.
2023-present	Senior Quantitative Ecologist, Conservation Biology Institute.
2022-2023	Researcher, University of California, Riverside, Center for Social Innovation.
2017-2022	Quantitative Ecologist, Point Blue Conservation Science.
2020	Lecturer, University of California, Riverside.
2016-2017	Research Scientist, San Diego State University.
2014-2016	Postdoctoral Researcher, University of California, Berkeley.
2012-2014	Postdoctoral Researcher, San Diego Zoo Institute for Conservation Research.
2010-2012	Postdoctoral Researcher, University of California, Riverside.
2009-2010	Postdoctoral Fellow, Forestry and Forest Products Research Institute, Tsukuba, Japan.
2007-2010	Associate Scientist, Pesticide Research Institute.
2007-2008	Research Assistant, Freedom to Roam and the California Academy of Sciences.

SELECTED PROJECT EXPERIENCE:

Understanding how high-elevation forests respond to climate change

San Diego State University

Working with stakeholders at the California Department of Fish and Wildlife (CDFW), we created a multispecies connectivity analysis using a comprehensive set of analytical approaches. The work resulted in a decision support tool for the CDFW to use in designing climate resilient connectivity across the south coast ecoregion. My role was to advise a postdoctoral researcher to develop species distribution models (SDMs) for five focal species under current and future climate scenarios across a range of habitat types. The habitat output from these SDM was connected to metapopulation models to determine the degree to which connectivity could benefit population viability. We published one of our metapopulation models in Conlisk et al. 2021 (*Diversity and Distributions*). Colleagues took these output and developed a robust set of prioritization approaches that resulted in a multispecies linkage network.

Please see: <https://drive.google.com/file/d/1H3FmBcTfiQ6YGuCS2ePaCYR42gsa74DZ/view>.

Understanding how high-elevation forests respond to climate change

University of California, Berkeley

In this DOE-funded, basic research project, we sought to address three fundamental questions about forest response to climate change: (i) how will local adaptation influence species' responses, (ii) how quickly can species respond, and (iii) will treeline move to higher elevations with climate change? To address questions (i) and (ii), I analyzed five years of subalpine tree seedling survival data from a common garden, climate manipulation experiment and used these data to build dynamic, spatially-explicit, stochastic population models. Warming did not benefit conifer seedlings in or beyond their current elevation range, likely due to moisture limitation. There was no evidence of local adaptation: seeds originating from warmer, low-elevation sites – compared to colder, high-elevation sites – had higher survival across treatments. To answer (iii), I used recruitment data to parameterize demographic rates of long-lived trees and found that declines at low elevation occurred more rapidly than population expansion into the alpine (Conlisk et al. 2018 *GCB*, Kueppers et al. 2017 *GCB*). Transient population declines observed for all species were most pronounced for locally common Engelmann spruce, portending a potential shift in species composition (Conlisk et al. 2017 *J of Ecol*).

PUBLICATIONS

- Conlisk, E., K. Byrd, E. Matchett, A. Lorenz, M. Casazza, G. Golet, M.D.Reynolds, K.A. Sesser, M.E. Reiter. In press at *Ecosphere*. Changes in habitat suitability for wintering dabbling ducks during dry conditions in the Central Valley of California.
- Shuman, J.K.,...E. Conlisk,...+84 authors. 2022. Reimagine Fire Science for the Anthropocene. Accepted to *PNAS Nexus* 1(3): pgac115.
- Wilson, T., E. Matchett, K. Byrd, E. Conlisk, M. Reiter, C. Wallace, L. Flint, A. Flint, M. Moritsch. 2022. Integrated modeling of climate and land use change impacts on future dynamic wetland habitat – a case study from California's Central Valley. *Landscape Ecology* 37: 861-881.
- Rojas I., M. Jennings, E. Conlisk, A. Syphard, J. Mikesell, A.M. Kinoshita, K. West, D. Stow, E. Storey, M. De Guzman, D. Foote, A. Warneke, A. Pairis, S. Ryan, L. Flint, A. Flint, R. Lewison. 2022. A new landscape-scale framework for identifying refugia to advance conservation in a changing world. *Conservation Biology* 36(1): e13834.
- Conlisk, E., G. Golet, M. Reynolds, B. Barbaree, K. Sesser, K. Byrd, S. Veloz, M. Reiter. 2022. Both real-time and long-term environmental data perform well in predicting shorebird distributions in managed habitat. *Ecological Applications* 32(4): e2510.

- Conlisk, E., E. Haeuser, R. Lewison, M. Jennings. 2021. Predicting functional connectivity with climate change to prioritize corridors for Southern California spotted owls. *Diversity and Distributions* 25(5): 844-856.
- Jennings, M., E. Haeuser, D. Foote, R. Lewison, E. Conlisk. 2020. Planning for dynamic connectivity: Operationalizing robust decision-making and prioritization across landscapes experiencing climate and land use change 9(10): 341.
- Saenz, B., D. Ainley, K. Daly, G. Ballard, E. Conlisk, M. Elrod, S. Kim. 2020. Drivers of concentrated predation in an Antarctic marginal-ice-zone food web. *Scientific Reports* 10, 7282.
- Jennings, M., E. Conlisk, E. Haeuser, D. Foote, R. Lewison, M. 2019. Climate resilient connectivity for the South Coast Ecoregion of California. Report for the California Department of Fish and Wildlife. State Wildlife Grant #F16AF00551, Project #G1698064. <https://www.climate-science-alliance.org/resilient-connectivity-project>
- Syphard, A.D., D. Ackerly, H. Rustigian-Rosmos, M. Mann, E. Conlisk, M. Moritz, V. Butsic, S. Di Tommaso. 2019. Which matters most and where? The relative influence of climate and housing pattern on current and projected fire distribution and structure loss across three California landscapes. *Global Environmental Change* 56: 41-55.
- Conlisk, E., C. Castanha, A. Moyes, M. Germino, T. Veblen, J. Smith, L. Kueppers. 2018. Seed origin influences the pace of lodgepole pine population responses to experimental climate change. *Global Change Biology* 24: 197-211.
- Kueppers, L., A. Fiast, S. Ferrenberg, C. Castanha, E. Conlisk, J. Wolf. 2017. Lab and field warming advance germination date and limit germination rate for high and low elevation provenances of two widespread subalpine conifers. *Forests* 8: 433.
- Conlisk, E., C. Castanha, A. Moyes, M. Germino, T. Veblen, J. Smith, L. Kueppers. 2017. Declines in low-elevation subalpine tree populations outpace growth in high-elevation populations with warming. *Journal of Ecology* 105: 1347-1357.
- Kueppers, L., E. Conlisk, C. Castanha, A. Moyes, M. Germino, J. Mitton, M. Torn. 2017. Warming and provenance limit tree recruitment across and beyond the elevation range of subalpine forest. *Global Change Biology* 23(6): 2383-2395.
- Kitzes, J., E. Berlow, E. Conlisk, K. Erb, K. Iha, N. Martinez, E. Newman, C. Plutzer, A.B. Smith, J. Harte. 2017. The global wildlife footprint: linking biodiversity loss to economic consumption. *Conservation Letters* 10(5): 531-538.
- Conlisk, E. 2016. Colonization rules and spatial distributions in ecology. *Ecological Complexity* 28: 218-221.
- Conlisk, E., R. Swab, A. Martinez-Berdeja, M. Daugherty. 2016. Post-fire recovery in coastal sage scrub: seed rain and community trajectory. *PLoS ONE* 11(9): e0162777.
- Conlisk, E., A. Syphard, J. Franklin, H. Regan. 2015. Predicting the impact of fire on a vulnerable multi-species community using a dynamic vegetation model. *Ecological Modelling* 301: 27-39.

- Conlisk, E., S. Motheral, R. Chung, C. Wisinski, B. Endress. 2014. Using spatially explicit population models to determine ideal restoration sites for the coastal cactus wren. *Biological Conservation* 175: 42-51.
- Conlisk, E., A. Syphard, J. Franklin, L. Flint, A. Flint, H. Regan. 2013. Uncertainty in assessing the impacts of global change using combined species distribution population models. *Global Change Biology* 19: 858-869.
- Conlisk, E., and J. Conlisk. 2012. Modeling spatial aggregation of finite populations: Comment. *Ecology*, 93, 2497-2498.
- Conlisk, E., D. Lawson, A. Syphard, J. Franklin, L. Flint, A. Flint, H. Regan. 2012. The roles of dispersal, fecundity, and predation on the population of an oak (*Quercus engelmannii*) under global change. *PLoS One*, 7, e36391.
- Conlisk, J., E. Conlisk, A. bin Kassim, I. Billick, J. Harte. 2012. The shape of spatial abundance distributions. *Global Ecology and Biogeography*, 21, 1167-1178.
- Conlisk, J., E. Conlisk, J. Harte. 2010. Hubbell's local abundance distribution: Insights from a simple colonization rule. *Oikos*, 119, 379-383.
- Conlisk, E., J. Conlisk, J. Harte. 2009. Improved abundance prediction from presence-absence data. *Global Ecology and Biogeography* 18:1-10.
- Harte, J., T. Zillio, E. Conlisk, A. Smith. 2008. Maximum entropy and the state variable approach to macroecology. *Ecology* 89: 2700-2711.
- Conlisk, E., M. Bloxham, J. Conlisk, B. Enquist, J. Harte. 2007. A new class of models of spatial distribution. *Ecological Monographs* 77: 269-286.
- Conlisk, E., J. Conlisk, J. Harte. 2007. The impossibility of measuring a negative binomial clustering parameter from presence-absence data. *American Naturalist* 70(4): 651-654.
- Harte, J., E. Conlisk, J. Green, A. Ostling, A. Smith. 2005. A theory of spatial structure in ecological communities at multiple spatial scales. *Ecological Monographs* 75: 179-197.

REPORTS

- Conlisk, E., L. Chamberlain, M. Vernon, K. Dybala. In press online. Evidence for Carbon and other Co-benefits of Wetland Conservation in North America: a rapid evidence assessment.
- Conlisk, E., N. Elliott, M. Reiter. 2022. Informing Strategic Wetland Restoration on Private Lands to Enhance Habitat Resilience in the Central Valley of California. Internal report for the Department of Fish and Wildlife.
- Conlisk E., M. Reiter, T. Gardali. 2022. East Bay Parks Nature Check, Chapter 7 Birds: <https://www.ebparks.org/natural-resources/naturecheck>.
- Jennings, M., E. Conlisk, E. Hauser, D. Foote, R. Lewison. 2019. Climate Resilient Connectivity for the South Coast Ecoregion of California: <https://drive.google.com/file/d/1H3FmBcTfiQ6YGuCS2ePaCYR42gsa74DZ/view>.

- Conlisk, E., A. Syphard, J. Franklin, H. Regan. 2013. Understanding and Improving Wildfire Decision Support for Marine Corps Base Camp Pendleton: User's Manual for the Simulated Response of Vegetation and At-Risk Species to Fire. Final Report to Land Management Branch AC/S Environmental Security, United States Marine Corps Base Camp Pendleton. U.S. Army Corps of Engineers Award W9126G-10-2-09943, 176 pp.
- Kegley, S., E. Conlisk, M. Moses. 2008. Risk Assessment for the Marin Municipal Water District's Vegetation Management Plan. Report no longer available online.
- Kegley, S., E. Conlisk. 2010. Pesticide Risk Mitigation Engine (PRiME): Inhalation Risk Index. Report supporting online pesticide risk tool for farmers. No longer available online.

PUBLICATIONS IN PROGRESS

- Byrd, K., E Matchett, T Wilson, C Mengelt, M Reiter, E Conlisk, M Moritsch, S Veloz, D DiPietro, D Schlafmann, M Casazza. In revision at *Conservation Biology*. Co-production of Scenario Data Products to Increase Adaptive Capacity for Dynamic Waterbird Habitat in California's Central Valley
- Conlisk, E. G Golet, R. Kelsey, M. Reynolds, N. Elliot, M. Reiter. In Prep. Local and landscape factors drive shorebird use of flooded rice land in California's Central Valley.
- Haeuser, E., E. Conlisk, R. Lewison, M. Jennings. In Prep for *Ecosphere*. Landscape characteristics of corridors in Southern California.
- Conlisk, E., S. Evans, A. Syphard, V. Butsic, M. Jennings. In Prep. Differential impact of burn damage by home price.