

# Zachary L. Steel

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## EDUCATION

University of California, Davis, Ph.D. Ecology	2014–2018
University of California, Davis, M.S. Ecology	2008–2011
Whitman College, B.A. Biology	2002–2006

## EMPLOYMENT

<i>University of California, Berkeley:</i>	
Post-doctoral Researcher	2019–Present
<i>University of California, Davis:</i>	
Graduate Student Researcher	2014–2018
Jr. Specialist Researcher	2012–2014
Fire Science Consortium Technical Coordinator	2012–2013
<i>US Fulbright Program, Santiago, Chile:</i>	
Research Fellow	2011
<i>University of California, Davis:</i>	
Graduate Student Researcher	2008–2011
<i>University of California, Santa Cruz:</i>	
Assistant Biologist	2007–2008
<i>PRBO Conservation Sciences:</i>	
Biology Technician	2007–2008

## PUBLICATIONS

### Journal Articles

**Steel, Z. L.**, M.J. Goodwin, M.D. Meyer, G.A. Fricker, H.S.J. Zald, M.D. Hurteau, and M.P. North. *Accepted*. Do forest fuel reduction treatments confer resistance to beetle infestation and drought mortality? *Ecosphere*. [Pre-print available](#)

**Steel, Z. L.**, B. M. Collins, D. B. Sapsis, and S. L. Stephens. *In Revision*. “Quantifying pyrodiversity and its drivers”. *Proc. R. Soc. B*.

Jager, H., J. Long, R. Malison, B. Murphy, A. Rust, L. Silva, R. Sollman, **Z. Steel**, M. Bowen, J. Dunham, J. Ebersole, and R. Flitcroft. *In Revision*. “Resilience of terrestrial and aquatic fauna to historical and future wildfire regimes in western North America”. *Journal of Animal Ecology*. **\*All authors contributed equally**

**Steel, Z. L.**, D. Foster, M. Coppoletta, J. M. Lydersen, B. Wing, S. L. Stephens, and B. M. Collins. *In Review*. “Ecological resilience and vegetation transition in the face of multiple large wildfires”. *Journal of Ecology*.

**Steel, Z. L.**, B. Campos, W. Frick, R. Burnett, and H. D. Safford. 2019. “The effects of wildfire severity and pyrodiversity on bat occupancy and diversity in fire-suppressed forests”. *Scientific Reports* 9, 16300. [doi:10.1038/s41598-019-52875-2](https://doi.org/10.1038/s41598-019-52875-2)

Wilkins, L. G. E., K. R. Matthew, **Z. L. Steel**, S. C. Nussle, and S. M. Carlson. 2019. "Population dynamics of *Rana sierrae* at Dusy Basin: Influence of non-native predators, drought, and restoration potential". *Ecosphere* 10(11):e02951.

**Steel, Z. L.**, M. Koontz, and H. Safford. 2018. "The changing landscape of wildfire: Burn pattern trends and implications for California's yellow pine and mixed conifer forests". *Landscape Ecology* 33(7), 1159-1176.

**Steel, Z. L.**, A. E. Steel, J. Williams, J. H. Viers, P. Marquet, and O. Barbosa. 2017. "Patterns of bird diversity and habitat use in mixed vineyard-matorral landscapes of Central Chile". *Ecological Indicators* 73:345-357.

Grof-Tisza, P., **Z. L. Steel**, E. Cole, M. Holyoak, and R. Karban. 2017. "Testing predictions of movement behavior in a hilltopping moth". *Animal Behavioral* 133:161-168.

Grof-Tisza, P., **Z. L. Steel**, and R. Karban. 2017. "The spatial distribution and oviposition preference of the Ranchman's tiger moth, *Platyrepia virginalis* (Lepidoptera: Arctiidae)". *Journal of the Lepidopterists' Society* 71(1):16-19.

**Steel, Z. L.**, H. D. Safford, and J. H. Viers. 2015. "The fire frequency-severity relationship and the legacy of fire suppression in California forests". *Ecosphere* 6(1):1-23.

Schwartz, M.W., L. B. Smith, and **Z. L. Steel**. 2013. "Conservation investment for rare plants in urban environments". *PLOS ONE* 8(12):e83809.

Siegel, R. B, R. L. Wilkerson, J. F. Saracco, and **Z. L. Steel**. 2011. "Elevational distribution of common bird species on the Sierra Nevada's west slope". *Western Birds* 42:2-26.

#### *Technical Reports and Software*

**Steel, Z. L.**, M. Meyer, A. Wuenschel, S. Ostojka, and M. North. 2020. "Climate-wise reforestation toolkit". Rshiny web application prepared for the US Forest Service, and the California Climate Hub. [Available online](#)

**Steel, Z. L.**, B. R. Campos, and H. D. Safford. 2018. "Bat occupancy in Sierra Nevada wildfire areas and implications for post-fire management". Prepared for US Forest Service, Region 5.

Campos, B. R., **Z. L. Steel**. FIRE-BAT spatial predictive tool. ArcGIS toolbox prepared for US Forest Service, Region 5.

Campos, B. R., R. D. Burnett, and **Z. L. Steel**. 2017. "Bird and bat inventories in the Storrie and Chips fire areas 2015-2016: Final report to the Lassen National Forest". Point Blue Conservation Science, Petaluma, CA. Point Blue Contribution No. 2142.

**Steel, Z. L.** and H. D. Safford. 2017. "Acoustic inventory and monitoring of bat species in the Power Fire burn area – 2014, 2015, and 2016 field season". Prepared for Eldorado National Forest, California, USDA Region 5.

Fogg, A. M, **Z. L. Steel** and R. D. Burnett. 2017. "Avian Monitoring in Freds and Power fires: Final Report". Point Blue Conservation Science, Petaluma, CA. Point Blue Contribution No. 2138.

Schwartz, M. W., et al. 2013. "Sensitive Animals - Appendix 15 to SEKI Natural Resources Condition Assessment". Natural Resource Report NPS/SEKI/NRCA—2013/665. National Park Service. Fort Collins, Colorado. Assessments within:

**Steel, Z. L.**, E. Reddy and R. Green. The American Pika - *Ochotona princeps*

**Steel, Z. L.**, J. Shields. Sierra Nevada Bighorn Sheep - *Ovis canadensis sierrae*

Copeland, S., K. Dybala, **Z. L. Steel**. California Condor - *Gymnogyps californianus*

**Steel, Z. L.**, Sierra Nevada Chipmunks - *Tamias spp.*

**Steel, Z. L.**, M. L. Bond, R. B. Siegel, and P. Pyle. 2012. "Avifauna of Sierra Nevada Network parks: Assessing distribution, abundance, stressors, and conservation opportunities for 145 bird species". Natural Resource Report NPS/NIEN/NRR—2012/506. National Park Service, Fort Collins, Colorado.

## TEACHING

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### *Graduate Teaching:*

Guest Lecturer – UCB, Fire Ecology Seminar	Spring 2020
Co-Instructor – UCD, Fire Ecology	Winter 2018
Guest Lecturer – UCD, Ecogeomorphology	Springs 2014–2018
Certificate of Completion – UCD Foundations of Teaching workshop series	Fall 2017
Guest Lecturer – American River College, Experimental Design	Spring 2017
Teaching Assistant – UCD, Trees and Forests; PLS 144	Fall 2015
Teaching Assistant – UCD, Trees and Forests; PLS 144	Fall 2014

### *Mentoring:*

Undergraduate Mentor – Student research experience	Spring 2019–Present
Undergraduate Mentor – Association for Women in Science Mentoring program	2019
High School Mentor – Student & Landowner Education Stewardship program	2015–2016
Undergraduate Mentor – Student research experience	Summer 2009

### *Outdoor Education:*

Naturalist/Raft Guide – UCD, Outdoor & Watershed Sciences programs	2013–2018
Teacher/Scientist – Earthwatch citizen science programs	2013
Naturalist/Kayak Guide – San Juan Islands, WA	Summers 2006–2007

### *Undergraduate Teaching:*

Teaching Assistant – Whitman College, Genetics; BIO 205	Fall 2005
Teaching Assistant – Whitman College, Ecology; BIO 277	Spring 2005

## AWARDS

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### *Research grants:*

2020–22: *Implications of increasing the scale of managed wildfire on forest carbon stocks and pyrodiversity*. Funded by California Department of Forestry and Fire Protection (CALFIRE). \$422,000\*

2017–18: *Ecological implications of wildfire and forest restoration on birds and bats (phase II)*. Funded by US Forest Service. \$122,000\*

2014–17: *Ecological implications of wildfire and forest restoration on birds and bats (phase I)*. Funded by US Forest Service. \$127,000\*

2011: *Quantifying avian habitat use and carbon stocks in Chilean vineyards*. Funded by US Fulbright Program. \$17,000

\*Unofficial PI due to temporary position

### *Fellowships:*

2014–18 (7 quarters): *Graduate Group of Ecology Fellowship*. Funded by UC Davis. \$79,000

2017: *Ecology Student Endowment*. Funded by UC Davis. \$1500

2010: *Graduate Group of Ecology Fellowship*. Funded by UC Davis. \$11,000

2002–06: *Walter Brattain Merit scholarship*. Funded by Whitman College. \$32,000

2001-02 (2 awards): Governor's college scholarship. Funded by State of California. \$2000

## PRESENTATIONS

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Ecological Society of America Annual Meeting	2020
<i>What doesn't kill you makes you stronger - or not: Conifer mortality following forest treatments and drought (<a href="#">Recording available</a>)</i>	
The Wildlife Society Annual Conference	2019
<i>The Influence of Burn Severity and Pyrodiversity on Bat Communities in Sierra Nevada Forests</i>	
Mediterranean Forest Ecosystems International Conference (MedPine6)	2018
<i>Changing patterns of severe wildfire lead to bird diversity declines &amp; community transitions in conifer forests of California, USA</i>	
Ecological Society of America Annual Meeting	2018
<i>Bat species occupancy varies across a disturbance gradient; implications for a future of extreme wildfire events</i>	
Instituto Politécnico Nacional, CIIDIR-Unidad Oaxaca, Mexico ( <b>Invited</b> )	2017
<i>Murcielagos en un paisaje caracterizado por incendios: Impactos en diversidad y uso de habitat</i>	
Ecological Society of America Annual Meeting	2017
<i>The influence of spatial context and successional pathways on bird communities following high-severity wildfire</i>	
Northwest Science Conference ( <b>Invited</b> )	2017
<i>The influence of burn severity on bat species occurrence in post-fire landscapes</i>	
Mediterranean Ecosystems Conference (MEDECOS)	2017
<i>Shifting patterns of California fire and forest landscapes in an era of global change</i>	
Natural Areas Conference	2016
<i>The Changing Landscape of California Fire: Trends in Burn Patterns and Post-Fire Forest Heterogeneity</i>	
Universidad Mayor, Santiago, Chile ( <b>Invited</b> )	2011
<i>Mercados de carbono: una oportunidad potencial para biodiversidad en agroecosistemas</i>	
Buenos Aires Fulbright Regional Enhancement Seminar	2011
<i>Carbon Sequestration: Risk or tool for biodiversity?</i>	
Bay Area Conservation Biology Symposium	2011
<i>Assessing species vulnerability to climate change in the Willamette Valley Ecoregion</i>	