

# Martha W. Zillig

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Department of Forestry and Conservation  
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## EDUCATION

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Ph.D. Ecology, Graduate Group in Ecology, **University of California, Davis**, 2021

B.A. Biology, Magna Cum Laude, **Carleton College**, Northfield, Minnesota, 2013

## RESEARCH EXPERIENCE

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**June 2022—Present**

**Postdoctoral Researcher**

University of Montana, Department of Forestry and Conservation

Advisor: Paul Lukacs

- Development of quantitative methods to estimate demographic rates of wildlife populations using camera trap data

**November 2021—May 2021**

**Statistical Consultant, The Nature Conservancy**

- Estimating density of unmarked Island Foxes (*Urocyon littoralis*) from camera trap data, and development of conservation monitoring strategy

**October 2021 – June 2022**

**Postdoctoral Researcher**

Joint position with University of California, Davis and Oregon State University

Advisor: Erica Fleishman

- Research and development of drone-based telemetry platform for tracking birds in remote locations

**September 2016 – October 2021**

**Dissertation Research:** *Elevational movement ecology and habitat associations of birds across the Great Basin*

University of California, Davis, Graduate Group in Ecology

Advisor: Erica Fleishman

- Point-count surveys of breeding birds, nest searching and monitoring, vegetation identification and measurements, collection of climate data and insects, mist netting
- Analysis of field data with ArcGIS, R, NIMBLE, and Bayesian modeling methods (JAGS, STAN)
- Extensive knowledge of life history, phenology, and visual and auditory identification of birds

**November 2017 – present**

**Leader in statistical and programming literacy**

University of California, Davis and University of Montana

- Instructor of R-DAVIS, a graduate level introduction to R (2019–2020)
- Co-leader, Davis R Users Group (2017—2021)
- Co-leader of University of Montana R Users Group (2022—Present)

- Founder, statistical modeling group, Graduate Group in Ecology (Winter 2019–Fall 2022)
- Data Carpentries certified instructor

## January 2020 – Present

### Federal Aviation Administration-Certified Drone Pilot

Applications of drones to tracking wild animals

## 2012–2013

**Undergraduate Thesis Research:** *The continuum of sex determination: transition between sex determining mechanisms in non-avian reptiles*

Carleton College, Department of Biology

Advisor: Mark McKone

## PEER-REVIEWED PUBLICATIONS

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Hendrix, A.N., Fleishman, E., **Zillig, M.W.**, and Jennings, E.D. Relations between abiotic and biotic environmental variables and occupancy of delta smelt (*Hypomesus transpacificus*) in autumn. *Estuaries and Coasts*. In Press.

**Zillig, M.W.**, and Fleishman, E. In review. Shifts in elevational distributions of Great Basin birds from 2001–2021. *Global Change Biology*.

**Zillig, M.W.**, Fogarty, F., and Fleishman, E. In Review. Associations of birds with floristics and physiognomy differ across five biogeographic subregions of the Great Basin. *Ornithological Applications*.

Fogarty, F.A., **Zillig, M.W.**, and Fleishman, E. 2021. Evaluating the ability of occurrence models to predict nest locations and associated vegetation. *Ibis*, 164:519-534.

Mahood, A.L., Fleishman, E., Balch, J.K., Fogarty, F.A., Horning, N., Leu, M., **Zillig, M.W.**, and Bradley, B.A. 2021. Cover-based allometric estimates of aboveground biomass of a non-native, invasive annual grass (*Bromus tectorum* L.) in the Great Basin, USA. *Journal of Arid Environments* 193:104582.

Horning, N., Fleishman, E., Erts, P.J., Fogarty, F.A., and **Zillig, M.W.** 2020. Mapping of land cover with open-source software and ultra-high resolution imagery acquired with unmanned aerial vehicles. *Remote Sensing in Ecology and Conservation* 6:487–497.

Williamson, M.A., Fleishman, E., Mac Nally, R.C., Chambers, J.C., Bradley, B.A., Dobkin, D.S., Board, D.I., Fogarty, F.A., Horning, N., Leu, M., and **Zillig, M.W.** 2020. Fire, livestock grazing, topography, and precipitation affect occurrence and prevalence of cheatgrass (*Bromus tectorum*) in the central Great Basin, USA. *Biological Invasions* 22:663–680.

Carter, S.K., Fleishman, E., Leinwand, I.F., Flather, C.H., Carr, N.B., Fogarty, F.A., Leu, M., Noon, B.R., **Wohlfeil, M.**, and Wood, D.J.A. 2019. Quantifying ecological integrity of terrestrial systems to inform management of multiple-use public lands in the United States. *Environmental Management* 64:1–9.

Fogarty, F.A., **Wohlfeil, M.**, and Fleishman, E. 2018. Response to Horns et al. 2018: Using opportunistic citizen science data to estimate avian population trends. *Biological Conservation* 221:151–159.

Savoca, M., **Wohlfeil, M.**, Ebeler, S., and Nevitt, G. 2016. Marine plastic debris emits a keystone infochemical for olfactory foraging seabirds. *Science Advances* 2(11):e1600395.

## TEACHING EXPERIENCE

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### September 2022—December 2022

Instructor, Conservation of Wildlife Populations (WILD 470, University of Montana)

### September – December 2020

Teaching Assistant, Ecological Principles and Applications (ECL200A, UC Davis)

### January 2018 – February 2020

Instructor, R-DAVIS: R Data Analysis and Visualization in Science (UC Davis)

- Graduate-level course required for students in the Graduate Group in Ecology

### September – December 2019

Teaching Assistant, Environmental Analysis (ESP001, UC Davis)

### January – April 2018

Teaching Assistant, Public Lands Management (ESP172, UC Davis)

## SCIENTIFIC PRESENTATIONS

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**Zillig, M.W.** August 2021. Elevational shifts of Great Basin birds over the past two decades. North American Ornithological Conference.

**Zillig, M.W.** August 2020. Elevational movements of songbird species within the breeding season: how resource availability and climate drive movement patterns. Ecological Society of America.

**Zillig, M.W.** August 2020. Effects of resource availability and climate on elevation movements of passerine species within the breeding season. North American Ornithological Conference.

**Wohlfeil, M.E.** March 2019. Potential mechanism responsible for within-season movements of birds in the Great Basin. 2019 Wildlife Professional Development Conference. University of California, Davis.

**Wohlfeil, M.E.** February 2018. Potential mechanism responsible for within-season movements of birds in the Great Basin. Tenth Annual Graduate Student Symposium in Ecology. University of California, Davis.

**Wohlfeil, M.E.,** and Fleishman, E. May 2017. Potential mechanisms responsible for within-season elevational movements of passerine species. Great Basin Bird Conference, Reno, Nevada.

Savoca, M.S., **Wohlfeil, M.E.,** Ebeler, S.E., and G.A. Nevitt. February 2014. Marine plastic debris as an olfactory trap for procellariiform seabirds. Seventh Annual Graduate Student Symposium in Ecology. University of California, Davis.

**Wohlfeil, M.E.** January 2013. The continuum of sex determination: transitions between sex determining mechanisms in non-avian reptiles. Senior Thesis Presentation, Carleton College, Northfield, Minnesota.

## GRANTS

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**2019.** William J. Hamilton III Memorial Fund Scholarship. Hamilton Community Foundation. \$2000.

**2018.** Frances M. Peacock Scholarship for Native Bird Habitat. The Garden Club of America. \$4500.

**2018.** Summer Award for Upper Level Division and Graduate Students. Charles Redd Center for Western Studies, Brigham Young University. \$3000.

**2018, 2020.** Graduate Group in Ecology Fellowship. University of California, Davis. \$12,000 (2018), \$12,700 (2021)

**2017, 2018, 2019.** Henry A. Jastro Research Fellowship. College of Agricultural and Environmental Sciences, University of California, Davis. \$2000 (2017), \$3000 (2018), \$2000 (2019)

## **AWARDS**

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**2018.** Best Oral Presentation. Graduate Student Symposium in Ecology, University of California, Davis.

## **OUTREACH**

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### **January 2016 – October 2021**

President, Kids into Discovering Science (KiDS)

*Graduate student-run nonprofit teaching place-based ecology to underrepresented, elementary-age children*

- President, 2018 – present
- Weekly teaching volunteer in fifth grade classroom
- Coordinator and volunteer of Field Day, a field trip that culminates the program each year
- Responsible for organization of the program, management of volunteers, and coordination of Field Day

### **2017 – October 2021**

Co-president, Davis R Users Group

*Weekly meetings and assistance to graduate students, undergraduates, and postdoctoral scholars.*

- Proficient in providing guidance on diverse R-related quandaries
- Organized presentations and speakers, managed listserv and website

### **2019 – October 2021**

Co-Founder and president, Statistical Support Group for Ecologists

*Weekly statistical presentations and a work-group environment for graduate students*

- One of four graduate student founders of the group
- Lecture on a statistical topic once per academic quarter
- Manage listserv, website, coordinate presenters and group activities for weekly meetings

## **OTHER PROFESSIONAL EXPERIENCE**

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### **December 2015 – April 2016**

#### **Research Assistant**

Molecular Biology and Biotechnology

Monsanto, Woodland, California

### **September 2015 – December 2015**

#### **Climate Change Indicators Intern**

Office of Environmental Health and Hazards Assessment

California Environmental Protection Agency, Sacramento, California

### **May 2014 – July 2014**

**Field Research Technician**

University of Minnesota

**July 2013 – September 2014**

**Sensory Ecology Research Assistant**

University of California, Davis