

Sarah MacLean

Science Educator

I am a passionate educator and communicator specializing in biology. My ideal career will synthesize science outreach with undergraduate teaching/mentoring,

Education

- 2018** **PhD in Environmental Science**
University of California Berkeley, August 2013 – May 2018
- 2013** **BS in Natural Resources**
Cornell University, August 2009 – May 2013

Work Experience

- Present** **Visiting Assistant Professor of Biology**
August **2020** *University of La Verne*
Full Time
- Instructor for BIOL 201: General Biology lab, BIOL 312: Ecology, and BIOL 323: Environmental Biology lecture and lab.
- Present** **Lecturer in Biology and Biological Engineering**
April **2019** *California Institute of Technology*
Part Time
- Instructor for Bi/BE 24: Science Communication
 - Curriculum includes science writing, outreach, and oral presentations
- May **2020** **Visiting Associate Professor of Biology**
January **2020** *Keck Science Department, Scripps College*
Full Time
- Instructor for BIOL44: Introductory Biology
 - Curriculum includes lecture and lab in ecology and evolution
- December **2019** **Lecturer in Environmental Analysis**
August **2019** *Pomona College*
Part Time
- Instructor for EA10: Introduction to Environmental Analysis
 - Curriculum includes a survey of topics and methods in environmental analysis, with focus on student writing and discussion
- August **2019** **Science Instructor**
June **2019** *Summer Nature Camp, LA County Arboretum*
Full time
- Developed and taught hands-on science curriculum for K-5
- May **2018** **Graduate Student in Environmental Science**
August **2013** *University of California Berkeley*
Full Time
- Mentored three undergraduate students in senior research theses
 - Three years building partnerships with public and private landowners
 - Three years hiring, training, budgeting, and scheduling a field crew
- June **2013** **Research Technician**
May **2011** *Shoals Marine Laboratory*
Summer
Full Time
- Three years co-teaching an undergraduate field ornithology course
 - Two years training and mentoring interns in research protocol
- May **2013** **Research Assistant**
August **2009** *Cornell Lab of Ornithology*
Academic Year
Full Time
- Translated scientific papers into blog posts for the general public
 - Created and co-taught Cornell's first bird banding course
 - Maintained research database and electronic RFID bird feeders

Personal Info

Websites

- www.macleanscience.com
www.twitter.com/BennuBirdy

Skills

STEM Education & Outreach

- K-12
- Undergraduate
- Adult

Curriculum Development

- Lesson Plans
- Hands-on Labs
- Multimedia

Database Management

- 7+ years with Access
- Museum-Quality Metadata
- SQL and Linked Tables

Science Writing

Scheduling and Collaboration

Community Engagement

Computer Expertise

PC and Mac

Microsoft Office and Access

Adobe Creative Cloud

Google Suite

R, JAGS, WinBUGS

Other Interests

Popular Science Blogging

Digital Science Illustration

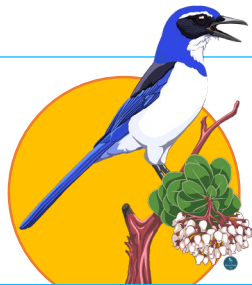
STEM Outreach Experience



Bird Sugar Cookies



Life-size Paper Eagle



Science Illustration

Present **Freelance Scientific Illustrator**

August 2017 *Bennu Birdy Art*, www.bennubirdy.com

- Website design and management
- Personal Twitter with 1800+ followers and a history of two internet-viral science comics. <https://imgur.com/gallery/1xm5TW5>
- Commissioned by entities including Denali National Park, the American Bird Conservancy, and the Cornell Lab of Ornithology.

Present **Science Blogger**

May 2011 *Bird on the Move*, www.birdonthemove.com

- Five summers writing about my experiences in field research
- Three years baking scientifically-accurate bird sugar cookies (255 species and counting)

June 2017 **Volunteer Docent**

August 2013 *UC Berkeley Botanical Garden*

- 100+ hours of interpretive tours for K-12, undergraduate, and adults
- Designed and led a monthly bird walk, including 40+ hours of tours
- Developed and trained docents for two Migratory Bird Day programs

July 2013 **Photographer**

May 2013 *Shoals Marine Laboratory*

- Took photos and videos to promote science at the marine laboratory
- Filmed and edited three promotional videos, featured on Cornell Cast

May 2013 **Educator and Student Supervisor**

August 2010 *Cornell Raptor Program*

- Three years as an education team member, transporting and presenting live raptors to local schools and community groups
- Trained and supervised over 50 undergraduate volunteers

July 2012 **Volunteer Field Assistant**

June 2012 *USFWS Steller's Eider Project, Barrow, AK*

- Worked alongside high school students from the native Inupiat community to build conservation partnerships

December 2013 **Educator**

August 2013 *Cornell Naturalist Outreach Practicum*

- Developed materials and curriculum for an inquiry-based biology lesson and presented it to local elementary school classes
- Wrote and narrated a STEM video on bird adaptations that won 3rd place in the 2014 Animal Behavior Society Film Festival

May 2013 **Educator**

August 2009 *Cornell Lab of Ornithology*

- Migration Celebration, leader for public bird banding demonstration
- Independently trained/mentored undergraduates in field techniques

Conferences and Invited Seminars

2018	Wildlife Fisheries, and Conservation Seminar, UC Berkeley, California
2017	American Ornithological Society Conference, Lansing, Michigan
2017	UC Berkeley Botanical Garden Seminar, Berkeley, California
2016	American Geophysical Union Conference, San Francisco, California
2016	North American Ornithological Conference, Washington, D.C.
2015	American Ornithologists' Union Conference, Norman, Oklahoma
2014	American Ornithologists' Union Conference, Estes Park, Colorado
2012	Monday Night Seminar, Cornell Lab of Ornithology, Ithaca, New York
2013	North American Ornithological Conference, Vancouver, Canada

Grants and Fellowships

2016	National Geographic, Explorer's Grant	\$20,000
2016	American Museum of Natural History, Chapman Grant	\$2,000
2015	National Science Foundation, Doctoral Dissertation Improvement Grant	\$20,000
2015	UC Berkeley Museum of Vertebrate Zoology, Karl Koford Fund	\$2,000
2015	Wilson Ornithological Society, Research Grant	\$2,000
2015	American Ornithologists' Union, Research Grant	\$3,000
2014	National Science Foundation, Graduate Research Fellowship	\$96,000
2013	UC Berkeley, Chancellor's Fellowship	\$57,000

Popular Science Writing and Videos

2017 – Present	Science Baking Blog	www.birdonthemove.com/baking
2017 – Present	Birds of North America Illustrated	www.twitter.com/BennuBirdy
2017	Video: Total Solar Eclipse	youtu.be/26ZAFufFnaU
2011 – 2016	Research Blog	www.birdonthemove.com/research
2013	Video: Shoals Is	www.cornell.edu/video/shoals-is
2013	Video: Learning at Shoals	www.cornell.edu/video/learning-at-shoals
2013	Video: A Day in the Life of a Shoals Gull Intern	www.cornell.edu/video/a-day-in-the-life-of-a-shoals-gull-intern
2013	Video: Bird Feeding Adaptations	youtu.be/IFZ8NMBDCJw
2012	<i>An Artist Among Falconers</i> , BirdScope Magazine	www.allaboutbirds.org/news/an-artist-among-falconers
2011	<i>Battling Squirrels to Collect Feeder Data</i> , BirdScope Magazine	www.allaboutbirds.org/news/battling-squirrels-to-collect-feeder-data/

Awards and Honors

2013	SUNY Chancellor's Award for Student Excellence
2012	Nancy Klamm Undergraduate Presentation Award, North American Ornithological Conference
2010	Henry E. and Nancy H. Bartels Scholarship, Cornell University
2009	Hunter R. Rawlings III Presidential Research Scholarship, Cornell University

Undergraduate Courses Taught

- 2020 Fall **Environmental Biology (BIOL 312), Visiting Assistant Professor**
University of La Verne
- Description: Using an interdisciplinary lens and critical thinking/writing skills, students examine current environmental issues including natural resource management, climate change, and conservation biology.
- 2020 Fall **Ecology (BIOL 323), Visiting Assistant Professor**
University of La Verne
- Description: This course examines biotic (living) and abiotic (nonliving) elements that influence the distribution and abundance of organisms, moving from scales of individuals to global systems.
- 2020 Fall **General Biology Lab (BIOL 201), Visiting Assistant Professor**
University of La Verne
- Description: Lab provides hands-on exploration of ecological interactions, anatomy/physiology, animal diversity, and hypothesis testing.
- 2020 Spring **Introductory Biology Lecture and Lab (BIOL 44), Visiting Associate Professor**
Keck Science Department of the Scripps, Pitzer, and Claremont McKenna College Consortium
- Description: Structure, function, and evolution of plant and animal forms, physiology of plant and animal systems, and principles of ecology.
- 2021 Winter
2020 Spring
2019 Fall
2019 Spring **Scientific Communication for Biologists and Bioengineers (Bi/BE 24), Lecturer**
California Institute of Technology
- Description: This course offers instruction and practice in writing and speaking relevant to professional biological scientists and engineers working in research, teaching, and/or medical careers.
- 2019 Fall **Introduction to Environmental Analysis (EA 10), Lecturer**
Pomona College
- Description: Examines the history of environmental change over the past century, the environmental ramifications of economic and technological lifestyles, and the need to evaluate arguments critically.
- 2015 Fall **Principles of Conservation Biology (ESPM c103), Graduate Student Instructor**
University of California Berkeley
- Description: Examines factors that affect the creation, destruction, and distribution of biological diversity at the level of the gene, species, and ecosystem. Explores tools and management options derived from ecology and evolutionary biology that can recover or prevent the loss of biological diversity.
- 2013 Spring
2012 Spring **Field Methods in Bird Banding (NTRES 2300), Founder and Undergraduate Co-Instructor**
Cornell University
- Description: Students gain experience with techniques employed to safely capture, handle, mark, and track wild birds for scientific research. The course also includes a classroom component where we explore the legal and ethical implications of handling wildlife.
- 2013 Summer
2012 Summer
2011 Summer **Field Ornithology (BIOSM 3740), Undergraduate Co-Instructor**
- Description: Explore the diverse and abundant seabirds and migratory songbirds of the Isles of Shoals as you gain an understanding of avian ecology, anatomy, physiology, and behavior.
- 2012 Fall
2011 Fall **Applied Population Ecology (NTRES 3100), Undergraduate Teaching Assistant**
Cornell University
- Description: In-depth analysis of the ecological factors influencing the natural fluctuation and regulation of animal population numbers. Develops models of single- and multi-species population dynamics. Significant emphasis is placed on application to conservation and management. Computer exercises are used to reinforce concepts presented in lecture.

** = undergraduate mentee

6. **MacLean, SA**, KJ Iknayan, and SR Beissinger. *In prep*. Divergent effects of a century of urbanization, agriculture, and climate change on avian diversity. *Science Advances*.
5. **MacLean, SA**, AF Rios-Dominguez**, P de Valpine, and SR Beissinger. 2018. A century of climate and land-use change drive compositional shifts but β -diversity stability in Central Valley birds. *Global Change Biology* 24: 5882-5894.
4. **MacLean, SA** and SR Beissinger. 2017. Species' traits as predictors of range shifts under contemporary climate change: A review and meta-analysis. *Global Change Biology* 10: 4094-4105.
3. Shah, SS**, El Greig, **SA MacLean**, and DN Bonter. 2015. Risk-based alarm calling in a non-passerine bird. *Animal Behaviour* 106: 129-136.
2. Bonter, DN, **SA MacLean**, SS Shah**, and MC Moglia**. 2014. Storm-induced shifts in optimal nesting sites: a potential effect of climate change. *Journal of Ornithology* 155: 631-638.
1. **MacLean, SA** and DN Bonter. 2013. The sound of danger: threat sensitivity to predator vocalizations, alarm calls, and novelty in gulls. *PLoS One* 8(12): e82384.