

Statement of Qualifications

I am an assistant professor in the Department of Wildlife, Fish, and Conservation Biology at the University of California Davis, specializing on conservation ecology and ornithology. I have conducted scientific research on birds for >15 years. I was first trained in avian field methods in 2006, when I served as an intern for the bird banding program of the Klamath Bird Observatory (KBO). For the first two weeks of the 10-week program, I was constantly supervised by a Master Bander (Robert Frey and John Alexander) and was trained in all standard mist-netting protocols including: net set-up, extraction, banding, aging and sexing, feather sampling, net closure, data management, and net repairs. Training focused both on obtaining high-quality scientific data to inform monitoring programs and on ensuring bird safety. To that end, I learned how to minimize bird mortalities (e.g., through closing nets on cold, rainy, or especially busy days) and how to humanely euthanize injured birds. After two weeks of one-on-one training, I began working semi-independently (with other interns) to monitor birds across KBO's network of study sites. Periodically, seasoned banders would accompany me to field sites to ensure that my techniques were sound and to further train me in the nuances of mist-net operation and data collection (e.g., aging and sexing techniques). By the end of the field season, I had banded >1000 individuals across 71 species, and received a bander's merit badge, demonstrating banding skill.

After my work with KBO, I volunteered periodically (1-2 times per month in 2007) with the San Francisco Bay Bird Observatory (SFBBO) to maintain my skills as a bird bander. My next major banding project began in earnest in 2011. As a doctoral student supervised by Prof. Gretchen Daily at Stanford University, I was interested in exploring how farming landscapes could be better designed to conserve wildlife and the benefits that they provide to people. I therefore set up and operated a network of mist-netting stations on coffee plantations and adjacent patches of tropical forest in Southern Costa Rica. In 2011, I selected 6 study sites. Each site was visited for 6, 5-6 hour periods, beginning at sunrise. 20 nets were operated at each site. To determine whether insectivorous bats were also conferring benefits to coffee farmers, we also captured bats, operating nets for 4 hours beginning at sunset. In 2012, I returned to the sites to continue monitoring bird and bat abundance and collect additional fecal samples. Over both field seasons, I personally banded ~1250 birds across ~90 species and ~100 bats across 25 species.

In 2017, I joined the faculty at the University of California Davis and was applied for (and then received) a federal Master Bander license. After acquiring CDFW permits and IACUC approval, I then led a USDA-funded project quantifying the benefits and potential harms associated with birds in strawberry fields across the California Central Coast. Our objectives were to (1) analyze DNA content in bird fecal samples to identify pest, disease vector, and beneficial species and (2) quantify how farming practices affect birds' net economic impact on yields. We were also interested in analyzing the effects of farmland diversification on avian health (via physiological analyses of blood samples). I was trained alongside other lab members in safe blood sampling techniques, capturing birds near UC Davis with Potter traps and practicing venipuncture alongside Dr Jesse Krause (a postdoctoral fellow who had taken blood samples from >2000 birds). Following our training, our team collected >1000 fecal, blood, and feather samples across ~60 species; conducted a bird exclusion experiment across 15 farms; and surveyed birds, nest density, strawberry damage, and fecal contamination across 20 farms. Our fecal analyses identified species that consume pests, consume pest predators, consume strawberries, and/or vector foodborne diseases.

As an Assistant Professor, I have also gained extensive experience funding and managing an eclectic research program. Our work has focused on exploring the ecology of Californian and Neotropical working landscapes to help identify solutions for harmonizing biodiversity

conservation with food production. Most of this effort has focused specifically on birds. Pursuant to subsection 650(b)(19), I have supervised a large team of graduate students (3), postdoctoral scholars (5), undergraduates (14), and assistants to conduct field research projects both in California and in the Neotropics (Costa Rica, Ecuador, and Colombia). I have acquired funding to support these projects; specifically, 10 grants (total \$1.75 million) as PI or co-PI from funders including NSF, USDA, the Center for Produce Safety (CPS), and National Geographic. All necessary permits have been acquired and appropriately managed, including Scientific Collecting Permits from CDFW, federal banding permits, USFW import permits for biological specimens, and research/collection permits within Costa Rica.

Because my research program focuses on conservation in working landscapes, I have had the privilege of working closely with many farmers, ranchers, and other landholders in California and Costa Rica. For example, I have supervised research programs focused on bird communities on lettuce farms (N= 20) and strawberry farms (N= 22) in the California Central Coast. I have also established a long-term study system consisting of 20 farms and 5 protected areas in Northwest Costa Rica. Sharing my findings and maintaining strong relationships with these landowners and other stakeholders has been a priority. First, I have either helped organize or present at >10 workshops in Costa Rica and California, reaching >900 farmers, conservationists, government agencies, and industry officials. For example, I partnered with NGOs in California and Costa Rica to hold bird mist-netting demonstrations, organize bird identification workshops, and share our research findings with farmers and other community members. Second, I distributed research reports. For example, in Costa Rica, my team distributed written reports to ~200 households, government officials, and conservation organizations in which we synthesized our research and gave guidance for ongoing reforestation efforts in the region. Finally, I interacted with policy makers directly. For example, I testified before the Monterey County Water Control Board about the impact of riparian buffers on foodborne pathogens around farms.