Continuing fellowship application

**Statement of Purpose (4000 characters)**

“Please provide an essay addressing the following points:

-Academic status and objectives

-Research interests and accomplishments

-Plans for the fellowship period

This essay should also address how fellowship funding will enhance your work and overall career goals.”

Currently ~3500 characters

Habitat conversion and climate change are the primary drivers of terrestrial species loss and endangerment (Sala et al. 2000, Spooner et al. 2018). Yet, the effects of climate and land use change are often analyzed in isolation (Oliver and Morecroft 2014) despite widespread acknowledgement that complex interactions between them can result in disproportionate biodiversity declines (Miller et al. 2017, Betts et al. 2019, Northrup et al. 2019, Frishkoff and Karp 2019, Williams et al. 2020b). For example, since the 1980s, the strongest declines in forest bird species across the continental U.S. occurred in warming or drying locations where forest has been lost (Northrup et al. 2019). In Costa Rica, climate drying and conversion of forest to agriculture increased occupancy and abundance of the same suite of species, driving beta diversity declines across the country (Frishkoff et al. 2016, 2018, Karp et al. 2018).

Our knowledge of how climate and land-use change interactively affect species is mostly restricted to changes in species distributions and/or abundances. To fill this gap, my dissertation will trace these interactive effects of climate and land use change on both temperate and tropical birds through three chapters. First, I leveraged a continental-scale dataset to explore the interactive effects of temperature spikes and land use on avian reproduction across the United States. This manuscript is currently under review at *Science* [cite?]. Second, I am using a model system of artificial nest boxes located in riparian forests, grasslands, orchards, and open row-crops to differentiate among the possible mechanisms that may underlie the interactive effects of temperature extremes and land-use change on avian fitness. In this chapter, I will explore the mechanisms underlying why nest success of birds during heat waves is lowest in agriculture. These results will point to concrete conservation interventions that may increase resilience of bird populations living in multi-functional landscapes such as working landscapes. Finally, I will scale up to the community level and shift from my focus from temperature to precipitation, exploring how spatiotemporal differences in rainfall regimes influence colonization and extinction rates in Costa Rica bird communities located across a gradient of tree cover.

In 2022, I conducted a second field season for my second chapter and submitted and revised the manuscript for my first chapter. In 2023, I will conduct lab work pertaining to my second chapter, publish my first chapter, and write the manuscript for my third chapter. In 2024, I will write the manuscript for my second chapter and publish my third chapter. To meet this ambitious timeline, I will need fellowship funding to allow me to work full-time on writing and lab work. With no other way to support myself, I will need to work as a teaching assistant if I am not awarded a fellowship. In addition, if I am awarded a fellowship, I will be able to spend more time mentoring undergraduate students. In 2022, several young scientists involved in Dr. Karp’s lab including five undergraduate students, worked with me in various capacities. They will receive mentoring in proposal writing, analysis, and bird handling that will help prepare them for a career in wildlife research. Ultimately, with more time to write and mentor, I will produce more and higher quality manuscripts, allowing me to apply for faculty positions sooner after graduation.

**Personal History and Diversity Statement (4000 characters)**

“Please explain how your personal background and/or present circumstances informs your graduate education and research. You may include any educational, familial, cultural, economic, or social experiences, challenges, community service, outreach activities, residency and citizenship, first-generation college status, or opportunities relevant to your academic journey; how your life experiences contribute to the social, intellectual, or cultural diversity within our campus community and your chosen field; or how you serve educationally underrepresented and underserved segments of society with your graduate education.”

Currently ~4500 characters

I grew up in a rural area and faced significant financial barriers such that I would not have been able to attend university without the full scholarship I received from Cornell University. I felt my socioeconomic class keenly there. But after university, I won a Fulbright to conduct an independent research project in Indonesia. Because I learned to speak Indonesian and spent hours in conservation with our local guides, I learned how privileged I was. To leverage that privilege for good, I seek to produce actionable science. To do so, I have partnered with NGOs to design and apply my research and will continue to do so throughout my career. In Indonesia, I worked with a local NGO, Planet Indonesia, to ensure that the results of my research would fill a crucial information gap for their community conservation programs. My findings directly support their efforts to facilitate conservation agreements among small communities surrounding the nature reserve where I worked. During the first year of my graduate education, I worked with the Natural Capital Project to understand how biodiversity is related to nature-based tourism in Costa Rica. We developed this study in collaboration with Costa Rican policymakers, thus its results will be used to design new policy that supports biodiversity conservation in Costa Rica. Finally, the results of the second chapter of my dissertation will point to concrete conservation interventions that may increase resilience of bird populations living in multi-functional landscapes such as working landscapes.

In addition to producing actionable science, I am committed to collaborating with and empowering aspiring scientists of underrepresented identities. Firstly, I am an out and proud LGBTQ person in academia. I am non-binary and grew up without visible representation, but since moving to California for graduate school, I have recognized and begun to express my gender identity. Simultaneously, non-binary and gender-nonconforming undergraduate students I teach have recognized my gender identity spontaneously and told me how motivated they feel to see non-binary people succeed as graduate students. I am gratified to provide the representation that I lacked as a young person. Secondly, I have mentored children and peers in parallel to my research activities since the beginning of my research career and have continued to do so during my graduate education. During my work with Kauai Forest Birds Recovery Project in 2016, I assisted with their outreach programs to bring stories of native Hawaiian birds to primary school students. During my Fulbright in Indonesia, I mentored three Indonesian post-baccalaureate students who worked as my field assistants. One of my mentees was recently awarded a Chevening Scholarship and will attend graduate school in the UK. I helped to mentor two undergraduates as collaborators on my manuscript currently in review in *Science*. Finally, For the past two summers, I have helped undergraduates access funding so that they could be paid to work with me on my field research. I have mentored four undergraduates and two graduate students as my field assistants so far.

I am also actively working to advance equity and inclusion at UC Davis through much-needed structural changes. In my second year, I was elected to Co-Chair of the Ecology Graduate Student Association. In this role, I facilitated several committees tasked with organizing a yearly research symposium, social events, a student newsletter, and a fundraiser for local charities. To support new students, I created a new comprehensive resource for incoming graduate students to connect underrepresented students with specialized resources. Moreover, as a committee member of my graduate program’s Diversity, Equity, and Inclusion Task Force, I helped draft community policies that would establish a culture of accountability for discriminatory actions. In my third year, I served as the co-chair of the Ecology Graduate Group Diversity Committee’s Admissions and Awards Subcommittee. In this role I helped facilitate implicit bias trainings for admissions reviewers and facilitate discussion of improvements to the holistic review admissions process. Finally, this past year I was elected to be a Student Representative on the Ecology Graduate Group’s Executive Committee, a group of faculty who make decisions about how the graduate group runs. From this position I hope to improve the program’s recruitment and retention of diverse graduate students.

**Future Plans Essay (2000 characters)**

Briefly describe your proposed future occupation or profession:

I aim to become a leader in conservation science as either faculty at a large research institution or a lead scientist at an international NGO. After completing a PhD focused on the interactive effects of climate change and land cover on biodiversity, I will apply for a more interdisciplinary post-doctorate position focused on identifying socio-political, economic, and ecological conditions that maintain biodiversity in agriculture. I will create knowledge that will help maintain the resilience of our biosphere’s functions and sustainable, universal access to its ecosystems’ services. I will continue to mentor students, but hope to work primarily in research, not teaching.

**Future Financial Statement**

If you have already been awarded financial support (fellowship, academic employment, etc.) for the 2023-24 academic year, please list the type of funding, the name of the funding agency or organization, and the amount of the award. (2000 characters)

None, correct?

Briefly explain why you qualify for financial need fellowships (2500 characters)

I qualify for financial need fellowships because I do not have savings significant enough to pay for graduate school. I am not a dependent of my parents and they do not have the resources or the inclination to pay for graduate school. Finally, I do not have enough time to work a job that could pay for both living expenses and tuition as well as conduct my research.

If you have previously received financial assistance as an undergraduate or graduate student, briefly describe the forms (loan, fellowship, academic employment, etc.) (didn’t see a character limit)

As an undergraduate, I received a full scholarship from Cornell University that consisted entirely of grants. In addition, I received a federal Pell Grant.

As a graduate student, I received a four-quarter fellowship from the Ecology Graduate Group. In addition, I have worked as both a Graduate Student Researcher and a Teaching Assistant.