Objectives: In three sentences or less, please summarize how your post-graduate career objectives will have a positive impact on the environment.

My goal is to increase the climate resilience of human and non-human communities living in working landscapes by co-managing these landscapes for both humans and nature. To do so, I hope to serve as faculty in ecology or conservation at a research institution while collaborating with government scientists, policymakers, economists, and social scientists to produce rigorous, actionable, policy-relevant science. Furthermore, I will use my position to make academia more accessible and welcoming for scientists with marginalized identities to improve the rigor and equity of conservation science.

The Switzer Network: How might the Switzer Network help you further your goals? What might you contribute to the Network?

I am seeking to collaborate with economists and social scientists to understand how to incentivize conservation interventions in working landscapes. To that end, the Switzer Network is a wide and diverse group of scholars, many of whom likely share my goals. I hope to make lifelong connections to new collaborators that increases the impact and rigor of the science that we produce together.

I also hope to learn more about the policy-making process. The Switzer Network does include members who are policymakers, and I hope to collaborate with them to ensure that my science is relevant and actionable, and to increase the chance that my science will help shape policy.

I am grateful for the opportunities I have received to grow beyond my origins. I am non-binary and grew up in a rural area without representation. After relocating to California for graduate school, I have finally recognized and begun to express my gender identity. I could have spent my life in an identity that felt suffocating, in a place that did not accept my full humanity, simply because I faced financial barriers. 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. I learned to speak Indonesian and spent hours in conservation with our local guides, and in the process, learned how privileged I was, despite the challenges my upbringing posed.

My experiences with financial insecurity and gender identity, coupled with my experiences abroad, have forged my determination to use my privilege for positive change. I pursue this ambition in three main ways. Firstly, I seek to produce actionable science. I have co-developed research abroad with NGOs in service of their community-driven research programs, and my current research program is focused on conservation science applicable to farms across the US. Secondly, I mentor and collaborate with folks that have been historically excluded from academia, both abroad and in the US. Finally, I am involved as a leader in efforts to build a more just and inclusive community at UC Davis.

When conducting research abroad, I have been careful to co-develop projects with NGOs to ensure their relevance and help build local capacity. During my Fulbright in Indonesia, I worked with a local NGO to design a research project to quantify the effects of the wild bird trade on populations living in nature reserves (Rentschlar *et al.* 2018, *Tropical Conservation Science*, and Lauck *et al*. in prep). My findings that commercially valuable birds lived disproportionately far from roads compared to their non-valuable counterparts directly supported 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 an NGO and the Costa Rican government to help develop research focused on tourism, infrastructure development and biodiversity (Echeverri *et al*. 2022, *PNAS*). The results of this research will help the government create new policies to incentivize sustainable tourism.

My current research is designed to suggest concrete conservation interventions that could help maintain biodiversity in agriculture in the US. Habitat conversion and climate change are the primary drivers of terrestrial species loss and endangerment. Their effects are often analyzed in isolation, despite widespread acknowledgement that their interactions can result in disproportionate biodiversity declines. 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. Many forms of habitat conversion remove insulating tree canopies or other complex microhabitats, thereby exposing organisms to warmer maximum and/or cooler minimum temperatures. Thus, as temperatures warm, climate change may cause cities and farms to become even less hospitable, undermining efforts to safeguard biodiversity in human-dominated landscapes. I led a research team that analyzed a continental-scale dataset of 152,863 nesting attempts by 58 bird species across 23 years (1998-2020) and 37,869 sites to explore the interactive effects of land cover and climate change on the nest success of birds across the conterminous US. In a manuscript currently under review in *Science* (Lauck *et al*.)*,* we found that anomalously hot temperatures disproportionately reduced nesting success in agriculture but not in forests, indicating that tree cover may increase birds’ resilience to climate change. We also found that species of conservation concern are disproportionately affected and forecasting over projected climate change predicted even lower nesting success in the future with more extreme climate change.

I hypothesized that the two main mechanisms underlying this effect are a reduction in food provided to nestlings and physiological stress caused by hyperthermia. Understanding which mechanism predominates in which land covers would suggest concrete conservation interventions. For example, if the direct effects of heat are more important than food-mediated effects, nest boxes could be modified to reduce their internal temperature. If food-mediated effects predominate, then maintaining patches of non-crop habitats in working landscapes to support food resources may be more effective. Retaining birds in agricultural areas will maintain the ecosystem services that they provide to people, such as pest control and aesthetics. With this goal in mind, I partnered with farmers and other landowners in California’s Central Valley to build a network of about 150 nest boxes and gathered a research team including both undergraduate and graduate students. For two years March to August, we have measured nestling growth and survival, collected blood samples to quantify physiological stress, monitored temperature inside and outside nest boxes, and used motion-activated Raspberry Pi-based cameras to measure how often parents bring food to their offspring. I have self-funded this project through a variety of grant-based sources and collaborations with other researchers. At the conclusion of this project, I hope to leverage my collaborations with local NGOs and the UC Davis Museum of Natural History to disseminate my findings to groups working to conserve bird populations in the Central Valley of California and other agricultural centers.

In addition to producing actionable science, I am committed to collaborating with and empowering aspiring scientists of underrepresented identities. I believe that solving global challenges requires a diverse set of perspectives, and yet academia is inaccessible and unwelcoming for many. 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. More recently, during my work as a teaching assistant, non-binary and gender-nonconforming undergraduate students 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. 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.

My research and mentorship efforts have given me broad and deep experience with the ecological dimensions of conservation in agricultural landscape. In the future, I hope to partner with economists and social scientists to design policies and incentives to implement conservation interventions in working landscapes. With that goal in mind, I am applying to the Switzer Fellowship in hopes that I will meet collaborators for applied, community driven research focused on co-managing working landscapes for people and nature. After I complete my PhD, I will apply for interdisciplinary postdoctoral research programs that will provide mentorship as I develop this new research direction. In the long term, I aim to pursue either a faculty position at a research-focused institution where I could continue mentoring or a fully research-oriented position in government. Ultimately, I hope to continue to produce policy-relevant, actionable science that will increase the climate resilience and biodiversity of human and non-human communities in working landscapes.