Graduate Studies, University of California, Davis

Achievement Rewards for College Scientists (ARCS) 2021-22 Nomination

Student Name: Katherine Lauck **Graduate Program: PhD Ecology**

ARCS prefer previous ARCS scholars if possible.

Previous/current ARCS Scholar? ___ Yes _x_ No Ranking (Ex: 1 of 2): _____

Does the nominee have any current fellowship awards?__Y____ If so, please list: One quarter of GGE Fellowship ($6000 stipend + tuition) remaining.

FORM INSTRUCTIONS: Please complete the following in third person (from faculty sponsor perspective). Font size must 12 point. Nomination must print as one page. Please attach a letter of recommendation from student's academic advisor – must be one page or less.

BIOGRAPHY (1 paragraph)

Katherine Lauck grew up in rural Virginia, surrounded by human-dominated ecosystems. During her undergraduate degree at Cornell University, she helped plan three expeditions to Malaysian Borneo, and was confronted with deforestation for oil palm agriculture. She realized that she could not understand natural systems, let alone develop strategies for protecting them, by studying ecology alone. After graduation, she worked for conservation-oriented projects in Indonesian Borneo and Hawaii but was disappointed with their lack of engagement with local communities and policy. She then won a Fulbright Research Award to study the impacts of the Indonesian songbird trade on wild bird populations and collaborated with an Indonesian NGO to do so. She developed relationships with village residents and became curious about the policies that had shaped the drivers of deforestation and about the management strategies that might preserve vital ecosystem services in the long term. To pursue this new program of study, she returned to academia as a PhD student in Ecology at UC Davis. She is also working to advance equity and inclusion at UC Davis: she is a chair of the Ecology Graduate Student Association and a member of the GGE Diversity, Equity and Inclusion Task Force. She intends to become a leader in conservation science, with the goal of creating knowledge that will safeguard biodiversity and empower rural and indigenous people.

RESEARCH: include explanation of how ARCS funding will assist in educational goals (2 paragraphs).

Prior to beginning her graduate studies, Katherine led a project funded by the Fulbright Student Research Award to measure the impacts of the Indonesian songbird trade on wild bird populations. She co-authored a study that challenged the prevailing belief that the bird trade has only affected birds on Java and Sumatra by documenting a widespread and lucrative trade in Indonesian Borneo (Rentschlar *et al*. 2018, *Trop. Con. Sci.*). Then, she designed and executed an independent study that sought to unravel the interactive effects of forest loss and the wild bird trade on bird distributions. She found that, unlike most species, commercially valuable (*i.e.*, traded) birds were very unlikely to occupy areas within ~5 km of roads, even in otherwise suitable forest habitats (Lauck *et al*. submitted to *Con. Bio.*). This result suggests that the wild bird trade is intensifying habitat loss for commercially valuable songbirds even in areas far from Java, the historical center of the bird trade.

At UC Davis, in collaboration with the Natural Capital Project, she contributed to an effort that found that biodiversity conservation may help maintain nature-based tourism revenue in Costa Rica (in prep; planned submission to *PNAS* in summer 2021). For her graduate studies, Katherine has designed a dissertation focused on understanding the interactive effects of climate and land use change on avian communities. Her first chapter explores the ecological dynamics of bird communities in Northwest Costa Rica; specifically, the interactive effects of drought and land use change on community resilience. The second leverages a 20-year database of nests spanning North America to find that nestlings in agriculture are less likely to survive heat waves than those in urban areas, natural open areas, or forest, and then clarifies the mechanisms underlying how land use mediates the negative effects of heat waves on nestling growth in California's Central Valley. If she were awarded an ARCS fellowship, she would take a quarter away from teaching to travel to Costa Rica to pursue a third chapter that explores how drought alters the tourism value of Costa Rican bird communities. This experience would allow her to broaden her understanding of the socio-ecological dynamics of climate change and deforestation beyond her ecology background.