2021 Bloom-Hays Ecological Research Grant Recipients

2021 Bloom-Hays Ecological Research Grant: Seven excellent student proposals were selected for funding by the Sea and Sage Science Committee. The objective of the Bloom-Hays Ecological Research Grant is to advance ecological research, particularly research related to avian species and the natural communities upon which they depend, by providing funds or supplies to support research activities benefitting native species and habitats in Southern California.

- **Joseph Curti, University of California, Los Angeles (PhD), $2,500, Assessing Barriers to California Quail Gene Flow in the Santa Monica Mountains.** Joseph is studying how isolation by roadways affects the genetics of California quail across eight populations in the Santa Monica Mountains Recreation Area. The study will determine how habitat fragmentation affects inbreeding and the amount of genetic differentiation on either side of major roadways. Joseph’s study will serve as an important baseline condition prior to the construction of the Liberty Canyon wildlife overcrossing.

- **Caryn Iwanaga, University of California, Riverside (Undergraduate), $1,200, Campus Hill Restoration Research Project.** Caryn submitted the application on behalf of the Ecological Society of America’s Strategies for Ecology Education, Diversity, and Sustainability (SEEDS) chapter at UCR. The SEEDS chapter will test whether thatch removal is an effective method for controlling invasive species and increasing native biodiversity in degraded coastal sage scrub. It will also look at how litter removal interacts with annual precipitation. This project builds upon previous work conducted by undergraduate classes at UCR.

- **Alexandria Koedel, California Polytechnic State University, Pomona (MS), $1,300, Genetic Polymorphism in Candidate Genes of Resident and Migratory Turkey Vultures.** Alexandria is looking at the biochemical effects of lead exposure in turkey vultures in resident, migratory, and museum specimens. Alexandria will be looking at the genetic variation in four genes to determine the susceptibility of turkey vultures to lead and whether genetics have changed over time due to prolonged lead exposure.

- **Stephanie Calloway, California Polytechnic State University, San Luis Obispo (MS), $2,500, Saving a Rare Plant Species to Increase Seabird Nesting Habitat on Anacapa Island.** Stephanie is seeking to understand the reproductive limitations of northern island mallow, a plant used extensively in restoration on Anacapa Island. Native shrub cover protects the many nesting seabirds on Anacapa Island. None of the northern island mallow plants used in restoration are reproducing; Stephanie will conduct a series of life-history experiments to determine which stage the mallow mortality is greatest.

- **Rachel Bockrath, California Polytechnic State University, Pomona (MS), $1,000, Avian Diversity and Foraging Behavior in a Heterogeneous Urban-Agroecosystem.** Rachel is investigating species diversity and foraging activity in
a complex agroecosystem composed of natural, agricultural, and urban habitats in the Santa Clara River Valley. Rachel is conducting point counts and observing foraging behavior to understand the dietary niches in each habitat type and their interactions.

• **Joanna Tang, University of California, Santa Barbara (PhD), $1,000, Ecotypic Variation in Vernal Pool Communities.** Joanna is testing the “local is best” paradigm in vernal pool restoration that suggests that local seed captures adaptations to local conditions. However, local populations could be maladapted due to genetic drift or inbreeding depression. Seed collected from vernal pools throughout Southern California will be grown in an experiment at UC Santa Barbara to measure the fitness and competitive ability of the seed.

• **Nina Vinuti, University of California, Davis (MS), $500, Can Injured Trees Keep Up With Climate Change? Assessing the Effects of Fire Injury on Conifer Fecundity in Sierra Nevada Forests.** Nina aims to characterize ways in which fire injury might impact the reproductive capacity of two conifer species, Jeffrey pine and white fir, in recently burned yellow pine and mixed conifer forests in the Sierra Nevada. Nina will estimate the effects of tree size, fire injury, stand density, and interactions on fecundity (cone production and seed viability) and implications for post-fire forest regeneration. Given the projected increases in wildfire size, frequency, and severity due to climate change, reduced fecundity due to fire injury could hinder the ability of conifer species to adjust to climate change.