



NFWF

Conservation on the Island of Lānaʻi

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PARTNERS

- Pūlama Lānaʻi
- National Oceanic and Atmospheric Administration
- U.S. Fish and Wildlife Service
- U.S. Department of Defense

ABOUT NFWF

Chartered by Congress in 1984, the National Fish and Wildlife Foundation (NFWF) protects and restores the nation's fish, wildlife, plants and habitats. Working with federal, corporate and individual partners, NFWF has funded more than 6,800 organizations and generated a total conservation impact of more than \$10 billion. Learn more at www.nfwf.org

NATIONAL HEADQUARTERS

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Aerial view of Lānaʻi | Credit: Joe West

OVERVIEW

In 2019, the National Fish and Wildlife Foundation (NFWF) and Pūlama Lānaʻi established the Kuahiwi a Kai: Lānaʻi Watershed Conservation Program to strategically preserve and enhance Lānaʻi's unique natural and cultural resources from mauka to makai (from the top of the mountain down to the ocean), while encouraging community engagement and shared stewardship. Awarded projects on Lānaʻi take a comprehensive approach to land management to achieve the goals of the program.

GOALS AND OBJECTIVES

The goals of the Kuahiwi a Kai Program are to:

- Reduce sediment run-off to nearshore reefs
- Restore native vegetation to improve watershed health
- Protect and enhance populations of endangered and endemic species
- Improve habitat and predator management for Hawaiian petrel ('ua'u)
- Improve the quality of the landscape for the local community and visitors through preservation of nearshore resources, beaches and cultural sites
- Increase community conservation ethic and involvement in landscape protection efforts

To date, the Kuahiwi a Kai Program, with additional support from other NFWF partnerships, has awarded 17 grants totaling \$3.13 million. These projects have generated more than \$1.91 million in grantee matching funds, providing a total conservation impact greater than \$5 million on Lānaʻi.

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Lānaʻi tree snail

Conservation on Lānaʻi: Project Highlights

KUAHIWI A KAI GRANTS

The Kuahiwi a Kai Program takes a landscape-level approach to preserve and enhance Lānaʻi’s unique natural and cultural resources from mauka to makai.

Ungulate Fencing Assessment and Feasibility Study on Northeast Lānaʻi

Grantee: Pono Pacific Land Management
Grant Amount:\$19,000
Matching Funds:\$20,000
Total Project Amount:\$39,000
Identify, map, and provide cost estimates and implementation plans for ungulate fencing alignments along the northern and southern borders of the program area, as well as interior fencing options on northeast Lānaʻi, Hawaiʻi. This project will assist in prioritizing fence implementation locations and provide conservation recommendations for ungulate monitoring and control strategies.

Installation of Landscape-scale Ungulate Fencing on Lānaʻi

Grantee: Pono Pacific Land Management
Program Funding: \$620,400
Grantee Match: \$206,200
Total Investment: \$826,600
Install the first line of ungulate-control fencing mauka to makai

(mountain to ocean) to enclose the core of the Kuahiwi a Kai Program Area on Lānaʻi for the management of invasive axis deer and mouflon sheep populations. This project will begin installation of invasive ungulate-proof fencing in preparation for future successful ungulate control to improve watershed conditions and protect native habitats.

Lānaʻi Community Stewardship through Game Management

Grantee: Lānaʻi Culture & Heritage Center
Program Funding: \$150,200
Grantee Match: \$255,300
Total Investment: \$405,500
Develop and implement a community-based program centered around hunting as stewardship on Lānaʻi, Hawaiʻi. Project will include opportunities for residents to participate in active game management of invasive ungulates, and in workshops and trainings that steward the unique bio-cultural landscape within the Kuahiwi a Kai program area.

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Light Detection and Ranging (LIDAR) Mapping and Sedimentation Evaluation on Lānaʻi

Grantee: U.S. Geological Survey
Program Funding: \$149,900
Grantee Match: \$155,000
Total Investment: \$304,900

Map, model and monitor sources of fine-sediment pollution from the ridgelines down to the shoreline on northeast Lānaʻi, Hawaiʻi. This project will collect high-quality airborne LIDAR data, conduct infiltration tests and install erosion pin monitoring sites to identify sedimentation hotspots to inform management decisions on priority fence alignments, ungulate population control and re-vegetation efforts.

Mapping Native and Non-Native Vegetation Communities on Lānaʻi

Grantee: U.S. Geological Survey
Program Funding: \$115,600
Grantee Match: \$97,100
Total Investment: \$212,700

Develop vegetation classification maps and conduct a vegetation change analysis of the Program Area on Lānaʻi using high-resolution spatial imagery, historical data and on-the-ground data samples. This project will inform land managers on areas of recent and rapid invasive-species encroachment, and inform priority locations for future Hawaiian petrel (ʻuaʻu) habitat conservation and restoration efforts.

Review of Hawaiian Petrel Reproductive Success Monitoring on the Island of Lānaʻi

Grantee: Zoological Society of San Diego
Program Funding: \$41,100
Grantee Match: \$29,100
Total Investment: \$70,200

Develop a monitoring plan for Hawaiian petrels (ʻuaʻu) on Lānaʻi, Hawaiʻi. This project will improve efficiency and ensure a robust sampling strategy for detecting changes in reproductive success and report on the effectiveness of species-specific conservation measures, including predator control and habitat restoration.



Hidden-petaled abutilon

Improving Native Habitat for ʻUaʻu on Lānaʻi (HI)

Grantee: Pono Pacific Land Management
Program Funding: \$36,400
Grantee Match: \$36,400
Total Investment: \$72,800

Identify and establish a 10-acre area to initiate systematic removal of invasive plants to promote regeneration of native species and increase vegetative cover within ʻuaʻu (Hawaiian petrel) nesting habitat on Lānaʻi. Project will perform herbicide treatment and physical removal of invasive plants, and conduct native seed collection, nursery propagation, outplanting and outreach events in partnership with the local community.

Coral Reef and Nearshore Water Quality Assessment and Mapping on Northeast Lānaʻi

Grantee: The Nature Conservancy
Program Funding: \$71,400
Grantee Match: \$71,400
Total Investment: \$142,800

Establish a baseline of the nearshore fish and coral communities along the northeast coast of Lānaʻi, Hawaiʻi, to inform local watershed mitigation activities and support the State of Hawaiʻi's goals to establish 30 percent of nearshore waters as marine management areas by 2030. This project will collect benthic, fish and nearshore water quality data and establish sedimentation flow patterns that will inform recommendations for a long-term monitoring plan.

Coral Reef 3D Remote Sensing Imagery Using NASA's FluidCam and MiDAR on Lānaʻi

Grantee: University of Miami
Program Funding: \$61,700
Grantee Match: \$145,000
Total Investment: \$206,700

Conduct an airborne field campaign using NASA's FluidCam and MiDAR technology to provide 3D remote sensing imagery of focal coral reef systems on Lānaʻi. This project will provide state-of-the-art high-resolution imaging of the reef ecosystem and utilize NASA's NeMO-Net game, a new online machine-learning application, to engage Lānaʻi's community in mapping baseline reef conditions to measure nearshore conservation management impacts.

Community Engagement Building and Water Quality Monitoring on Lānaʻi

Grantee: University of Hawaiʻi Office of Research Services
Program Funding: \$48,900
Grantee Match: \$54,000
Total Investment: \$102,900

Engage the community by hosting workshops to facilitate the building, deployment and monitoring of low-cost real-time water sensors to track rainfall, surface water levels through stream gauges and nearshore water levels through tide gauges at two strategic coastal sites on northeast Lānaʻi, Hawaiʻi. This project will establish, support and enhance community participation

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from local students, teachers, conservation organizations, and interested citizen scientists to fill data gaps to inform future management decisions and track program impacts.

Nā Maka Nou: Engaging Community and Island Stewardship Through Video Documentaries on Lānaʻi

Grantee: Kekulamamo
Program Funding:\$64,200
Grantee Match: \$102,400
Total Investment: \$166,600
Capture and present stories of Lānaʻi's people, their historical interactions with the land and lessons learned to communicate the current conservation needs on the island and encourage community stewardship. This project will support student interns to develop various videos documenting the progress of the Kuahiwi a Kai program, as well as the history, human impact, and environmental threats to the watershed and native species.

Creating Protected Nesting Habitat for Band-rumped Storm Petrels on Lānaʻi (HI)

Grantee: Pacific Rim Conservation
Program Funding: \$674,800
Grantee Match: \$250,000
Total Investment: \$924,800
Construct a 3-acre predator proof fence for band-rumped storm-petrels near Hauola Canyon on Lānaʻi and initiate social attraction for band-rumped storm-petrels and Newell's shearwater within the completed enclosure. Project will create the first fully protected band-rumped storm petrel colony in Hawaiʻi and will increase effective nest monitoring resulting in improved knowledge, management and recovery of the species across Hawaiʻi.

Ungulate Distribution and Abundance Monitoring on Lānaʻi (HI)

Grantee: White Buffalo
Program Funding: \$120,200
Grantee Match: \$5,000
Total Investment: \$125,200
Develop a repeatable ungulate monitoring program focused on estimating ungulate distribution and abundance within the Kuahiwi a Kai program area on the island of Lānaʻi. Project will establish a trail camera grid and use drone technology in collaboration with the Hawaiʻi Department of Forestry and Wildlife's helicopter surveys to determine ungulate demographics and assess population levels to inform future management actions and monitoring efforts.

Establishing a Seed Bank and Native Seed Collection Program on Lānaʻi (HI)

Grantee: Terraformation
Program Funding: \$199,300
Grantee Match: \$45,000
Total Investment: \$244,300
Establish a seed bank and initiate seed collection activities to

source native plants for future watershed restoration projects within the Kuahiwi a Kai program area on Lānaʻi, Hawaiʻi. Project will supply and install a modular seed bank, provide training and operational guidance, and begin collecting seeds to build a repository of propagation materials.

Developing a Long-term Coastal Water Quality and Coral Reef Monitoring Plan on Lānaʻi (HI)

Grantee: The Nature Conservancy
Program Funding:\$68,000
Grantee Match:\$0
Total Investment:\$68,000
Develop a monitoring plan to measure long-term impacts of terrestrial restoration actions on marine water quality and coral reef health along the coast of the Kuahiwi a Kai Program on Lānaʻi. Project will utilize existing and newly collected data and consult with program partners, scientists, natural resource managers and community members to design an achievable monitoring plan to track and attribute change over time.

ADDITIONAL PROJECTS

The following projects were funded through other NFWF programs in support of core objectives for 'ua'u and coral conservation on Lānaʻi.

Construction of a Predator-proof Fence for Hawaiian Petrel ('ua'u) on the Island of Lānaʻi

Grantee: Pūlama Lānaʻi
Grant Amount:\$450,000
Matching Funds:\$189,000
Total Project Amount:\$639,000
Construct a fully predator-proof fence around approximately 85 acres of nesting habitat supporting Hawaiian petrels ('ua'u) on the Island of Lānaʻi, Hawaiʻi. This project will result in the largest predator-proof fence outside of New Zealand, protect more than 40 percent of the known 'ua'u burrows on Lānaʻi, and support continued monitoring and additional predator control in adjacent unfenced colonies.

Reducing Land-based Sources of Pollution on Lānaʻi

Grantee: Ridge to Reefs
Grant Amount: \$91,000
Matching Funds: \$90,000
Total Project Amount:\$181,000
Implement sediment and nutrient reducing practices to decrease run-off on the northeast reef tract of Lānaʻi. This project will work with management and local partners on Lānaʻi to install green infrastructure and utilize nature-based solutions, such as vetiver grass sediment traps combined with native plants and soil amendments, to stabilize sediment source areas.