



Nihoku Ecosystem Restoration Project

www.nihoku.org

PARTNERS



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BACKGROUND

The Nihoku Ecosystem Restoration Project was created in 2012 in order to protect both rare coastal ecosystems as well as provide a predator-free nesting area for native ground-nesting birds in Hawai'i. Nihoku is an area between Crater Hill and Mōkōlea Point at Kīlauea Point National Wildlife Refuge on the North Shore of Kaua'i. The project is a result of a partnership among multiple government and non-profit groups who have come together to help preserve the native species of Hawai'i. The focus is on creating safe nesting habitat for Newell's Shearwaters ('A'o) and Hawaiian Petrels ('Ua'u), Hawai'i's only two endemic seabirds, and enhancing the existing breeding colonies of Mōli (Laysan Albatross) and Nēnē (Hawaiian Goose) who already nest in the area.

THREATS

Introduced predators, including cats, dogs, feral pigs, rats, and mice, prey on ground-nesting birds including endemic seabirds such as Newell's Shearwater and Hawaiian Petrel, in addition to native plants and insects, and other ground-nesting birds. These species also face threats from light attraction and fallout, collision with power lines, and habitat degradation from invasive plants, as well as threats in the marine environment while they are out at sea. While suitable mountain habitats exist, none of them are completely free from predators. As a result, there are no predator-free nesting areas for these species. The goal of this project is to provide a safe nesting place for seabirds on Kaua'i.



Andre Raine carefully extracting a Newell's Shearwater chick from its burrow before translocation. Photo by Lindsay Young, Pacific Rim Conservation



Feral cat eating a Hawaiian Petrel chick. Photo: Kauai Endangered Seabird Recovery Project



Kilauea Point. Photo: Pacific Rim Conservation



Artificial burrow designed for nesting seabirds. Photo by Lindsay Young, Pacific Rim Conservation



A Newell's Shearwater chick exercising its wings outside of its burrow. Photo from Pacific Rim Conservation.

SOLUTIONS

The goal of ecosystem restoration is to provide a safe place for native birds, plants, and insects by removing invasive mammals. Multiple approaches are used to accomplish this goal.

Predator-proof Fencing

To combat invasive predators and plants, an eight acre predator-free area (Nihoku) was created at Kilauea Point National Wildlife Refuge in 2014 by constructing a predator-proof fence and removing all mammalian predators from inside of it. The fence is tall enough to prevent animals from jumping over, has a hood to prevent them from climbing, mesh that is small enough even mice can't squeeze through and has a skirt underground that prevents them from digging in. All of the materials are marine grade stainless steel to ensure it lasts in the harsh coastal environment.

Habitat Restoration

To restore the habitat inside the fence, invasive plants were removed and more than 10,000 native plants representing 30 species have been outplanted to date. Plants were chosen that were not only adapted for the harsh coastal ecosystem but provided food for Nēnē and cover for nesting seabirds. Each year one acre is restored so that over time, the entire enclosure will ultimately be comprised of native plants. To encourage seabirds to nest in the area, 50 artificial burrows were installed to provide nesting habitat for the seabirds.

Seabird Social Attraction and Translocation

The final phase of the Nihoku Ecosystem Restoration Project has been translocating and attracting Newell's Shearwater and Hawaiian Petrels into the area. This is done in two ways. First, social attraction relies on broadcasting their calls from two large speakers to 'call them in' and encourage adult birds to nest. Second, chicks that have not yet left their burrows in the mountain colonies are translocated to the site.

By choosing chicks who have not yet emerged from their mountain burrows, we ensure that they imprint on Nihoku by observing the night sky there. In 3-5 years we expect the translocated chicks to return to Nihoku and breed as adults. The first Hawaiian Petrel chicks were translocated to the site in 2015, and the first Newell's Shearwater chicks were moved in 2016; we hope to do at least five years of translocations of each species.

Finding Chicks for Translocation

Finding suitable burrows is labor-intensive and requires an enormous amount of effort searching densely vegetated and extremely steep terrain. Nests are located through first pinpointing areas of adult call activity at night and following up with active searching under vegetation for burrow entrances. Nests are then monitored using trail cameras, with regular burrow checks to assess the age and health of chicks prior to translocation. At the same time, extensive predator control operations are undertaken to protect the chicks from being eaten by introduced predators such as feral cats and rats. A few weeks before natural fledging, a cohort of chicks that have not yet left their burrows in these colonies are translocated to the site and cared for until they fly out to sea for the first time.