



U.S. Fish & Wildlife Service

Partners for Fish and Wildlife Program *in Hawaii*

Introduction and General Description

This mosaic of physiographic regions The State of Hawaii is home to 25 percent (317 taxa) of the species listed as endangered or threatened plants and animals, but only 8 percent of the land is federally-owned. Thus, effective conservation of listed and rare species in Hawaii must involve partnerships with non-Federal landowners.

Since 1997, the Partners for Fish and Wildlife Program has contributed approximately \$1.7M to habitat improvement projects in Hawaii with \$1.5M in matching funds from private landowners and organizations. Since 2002, through the Hawaii Endangered Species Act Community Conservation Initiative, nearly \$2.8M was provided for projects which has reduced conflicts between game mammal management and endangered species conservation. And, under the Hawaii Invasive Species Initiative, nearly \$1.5M has been provided since 2004 to reduce impacts and potential risks of invasive species to listed endangered species and native ecosystems.

Under the Partners program, a variety of habitats have been restored, protected, and maintained with the voluntary assistance of landowners and other cooperators.

The mission of the Pacific Islands Fish and Wildlife Office (FWO) Partners for Fish and Wildlife Program is to restore and protect native habitats by developing positive relationships with landowners, identifying biological resources and threats, implementing projects, monitoring results, and sharing information. As a part of the Conservation Partnerships Program, the program was recognized with the 2004 Four C's Award from the Secretary of Interior.

The Partners Program has grown steadily over the years and, lately, emphasis has been placed on private lands belonging to the nine established watershed partnerships, large-scale ongoing projects where multiple years of funding from various sources is needed, and ongoing projects needing small amounts of funding to successfully bring the project to completion.

Habitats of Special Concern

The Hawaiian Islands are among the most geographically isolated islands in the world (more than 2,500 miles from the nearest land mass). Though only a few plants and animals could establish themselves through long distance dispersal mechanisms, spread into many different habitats, and evolved into hundreds of new species unique to Hawaii.

The decline and extinction of native Hawaiian flora and fauna is a result of a variety of factors, perhaps the most significant of which is the introduction of alien plants and animals that prey upon, compete with, and spread disease to native species.

Given the uniqueness of Hawaii's flora and fauna and the speed with which they are being lost, it is important that the Pacific Islands FWO, through the Partners Program, restore some of these unique ecosystems that will benefit listed and other native species.

Some of the ecosystems that have been targeted by the Partners Program for restoration:

Dryland Forests - some of the most critically endangered ecosystems in the world.

Wet Forests - important habitats for

endangered forest birds.

Subalpine Forests – critically important for rare plants and the nene goose.

Wetlands - valuable habitat for endangered waterbirds.

Anchialine ponds - a unique brackish water wetland that is home to a rare shrimp.



Hawaii's famous Koa forests are home to some of the rarest plants and birds on earth.

Threats

Habitat degradation resulting from the invasion of nonnative weeds is a long-term, pervasive threat in many important native habitats.

Alien plants can drastically alter forest structure and function and impact native ecosystems by choking out native vegetation and altering food availability.

The detrimental effects of alien mammalian predators (rats, mice, feral cats, mongoose) on native species is all too common in Hawaiian forests. Hawaiian species evolved in the absence of these mammals and are extremely vulnerable predation and diseases that these animals cause.

Non-native ungulates degrade native ecosystems by foraging, trampling, and digging, and create eroded and degraded native habitats conducive to alien seedling establishment.

Conservation Strategies

Ecosystem Planning

In the Pacific Islands, an ecosystem approach is based on a landscape planning process. The Partners for Fish and Wildlife Program is one of a number of different programs that uses this approach to identify parcels of land with high conservation value.

Additionally, on oceanic islands, opportunities are available to restore both terrestrial and marine habitats. Consultation with experts in marine and stream ecosystems can help in the restoration of an entire land parcel from mountain summit down to the sea.

Local communities, private landowners, and agencies have formed 9 watershed partnerships throughout Hawaii. These voluntary alliances of public and private landowners are committed to the common value of protecting large areas of forested watershed for water recharge and other conservation values. The area of total coverage for all the watershed partnerships exceeds 1.1 million acres and nearly 57% of that land is privately owned. Our participation and support of these watershed partnerships is essential to support private landowners and the management goals of each of the partnerships.

Inter-programmatic Coordination

The Partners Program usually works with highly degraded habitats and attempts to bring back natives in areas that are suitable for conservation. The staff are knowledgeable about a variety of conservation programs and they provide this information to all potential partners. Partner's staff can also help to leverage funding for large-scale and expensive restoration projects with programs such as the FWS Coastal Program, Farm Bill Programs, and/or private foundations.

Due to conservation and recovery actions that are sometimes a result of Partners' efforts, the Pacific Islands FWO has initiated a programmatic consultation on its most common restoration activities in the hopes of streamlining the Endangered Species Act Section 7 consultation process.

Forest Restoration

(\$500-\$3,000 per acre)

Fencing out non-native ungulates (hoofed animals, such as pigs and goats) is key to any restoration effort in Hawaii. Restoration of Palila habitat in the subalpine region on the island of Hawaii has begun with a fencing project on lands of the Kamehameha Schools and the Department of Hawaiian Homelands and will lead to conservation of this endangered forest bird.

Ungulate exclusion will enable restoration of upland koa forest habitat on leeward portions of Haleakala mountain on the island of Maui. This habitat is home to 13 rare plants (10 of them endangered), three endangered forest birds, the Nene goose, and the endangered Blackburn's sphinx moth.

Fence construction and feral (i.e., domesticated animals that have become wild over several generations) ungulate removal at the summit of the Koolau mountains on Oahu helps protect and restore 100 acres of habitat benefiting 5 listed plants and 2 taxa of listed tree snails. Similar efforts have begun on the island of Lanai.

Dog proof fencing has aided the survival of young Laysan Albatross chicks on the Island of Kauai. Private landowners working with staff from the adjacent Kilauea Point National Wildlife Refuge have prevented neighborhood dogs from entering important seabird nesting and fledgling habitats.

Invasive Species Removal

(\$200-\$1,000 per acre)

Efforts to control the spread of alien plants such as Kikuyu grass, miconia, koa haole, lantana, Christmas berry, and fountaingrass are integral to a successful outplanting and restoration strategy. Miconia control on Hana Ranch property has facilitated the restoration of pasture lands to native forest.

Community-based Efforts

(\$500-\$2,000 per acre)

Working with a Native Hawaiian organization with leases to Hawaiian Homelands, the Partners Program has helped to restore nearly 300 acres of native dryland forest on the island of Maui, 1,000 acres of koa forest on Maui, 50 acres of coastal habitat on the island of Molokai, 50 acres of forest on the island of Oahu, and 500 acres

of subalpine forest on the island of Hawaii.

A local community on the island of Molokai developed a 1,000-acre fencing project through a community empowerment zone planning process. The Partners Program is supporting this multi-party effort to remove feral ungulates, control alien plants, and reduce soil erosion. In addition, footpaths and barriers have prevented the trampling of important coastal habitat and have led to the conservation of 4 rare coastal plants.

Our involvement with watershed partnerships has encouraged private and public organizations to work cooperatively to improve water recharge, reduce erosion, improve water quality, and develop forest restoration plans.



Ungulate fencing is one of the most effective conservation tools. Here, a local hunting group and the community are working together to convert pasture land to koa forest on the island of Maui.

Wetland Restoration

(\$500-\$1,500 per acre)

The first Partners project in Hawaii was the fencing and restoration of a wetland on the southeastern coast of Maui. The project provided habitat for listed wetland birds through the removal of alien fish and planting of native wetland plants. Since this time, wetlands on the islands of Kauai and Hawaii too have seen improvements to waterbird habitat and water quality due to financial incentives provided by the Partners program.

In-Stream Restoration (\$1,000-\$3,000 per mile)

Habitat for the endangered Newcomb's snail occurs in two privately-owned streams on the northern portion of Kauai. Fence construction to prevent feral ungulates from causing erosion and sedimentation into these streams is crucial for recovery of this rare endemic stream invertebrate.

Partners

Alexander and Baldwin
Coevolution LLC
Department of the Army
East Maui Mountains Watershed Partnership
East Molokai Watershed Partnership
Haleakala Ranch
Hawaii Department of Forestry and Wildlife
Hawaii Department of Hawaiian Homelands
Hawaiian Silversword Foundation
Honolulu County Board of Water Supply
Hui Malama Pono O Moomomi
Kaala Farms, Inc.
Kamehameha Schools
Kohala Management Group
Koolau Mountains Watershed Partnership
Lanai Forest and Watershed Partnership
Lanai Institute For The Environment
Leeward Haleakala Watershed Restoration Partnership
Living Indigenous Forest Ecosystems
Maui County Board of Water Supply
Maui Land & Pineapple Company
Na Aina Kai botanical Gardens
Na Huapala O Hawaii
National Park Service
National Tropical Botanical Gardens
Natural Resources Conservation Service
Olaa-Kilauea Partnership
Pacific American Foundation
Parker Ranch, Inc.
Queen Emma Foundation
Queen Liliuokalani Trust
The Nature Conservancy
Tri-Isle RC&D
Tropical Reforestation and Ecosystems Education Center
U.S. Geological Survey-Biological Resources Division
Ulupalakua Ranch
University of Hawaii
Waipa Foundation
West Maui Mountains Watershed Partnership

Accomplishments

• Nearly 10,000 acres of forest, shrublands, and coastal habitat have

been restored and native plants and animals are now flourishing in many of these areas.

- Nearly 4,000 acres of upland forest habitat has been cleared of invasive plants and animals.
 - Nearly 500 acres of lowland dry forest habitat on the island of Maui has been restored to benefit the endangered Blackburn's sphinxmoth and 5 rare plant species.
 - Nearly 1,200 acres of upland wet forest restoration on the island of Lanai has benefited endangered seabirds, native land snails and the endangered Hawaiian Gardenia.
 - Endangered species are being conserved on private lands with the help of private landowners.
 - Wetland habitats restoration in the Kohala mountains region on Hawaii Island have helped to conserve habitat for the endangered Hawaiian duck and nene.
 - Participation in 9 watershed partnerships has allowed cooperative conservation planning and has led to the development of new Partners projects.
 - Partner's staff have facilitated community-based conservation with local communities and hunting organizations.
- #### **Future Needs**
- Restore 200 acres of dryland forest habitat on Maui.
 - Restore 200 acres of koa forest on Leeward Haleakala, Maui.
 - Restore 500 acres of subalpine forest habitat on the islands of Maui and Hawaii.
 - Restore 1000 acres of upland wet forest on the island of Lanai.
 - Restore 100 acres of upland dry shrublands on the island of Molokai to reduce erosion into wetlands and marine ecosystems.
 - Restore 100 acres of upland mesic forest for conservation of the endangered Elepaio bird on the island of Oahu.

• Remove 100 acres of invasive species found in forested habitats.

• Restore 10 acres of coastal seabird habitat on the island of Kauai and Hawaii.

• Encourage the development of additional watershed partnerships in Hawaii and the Pacific Islands (500 acres)



Efforts to control predators like the Black Rat can aid in the restoration of native forest ecosystems.

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