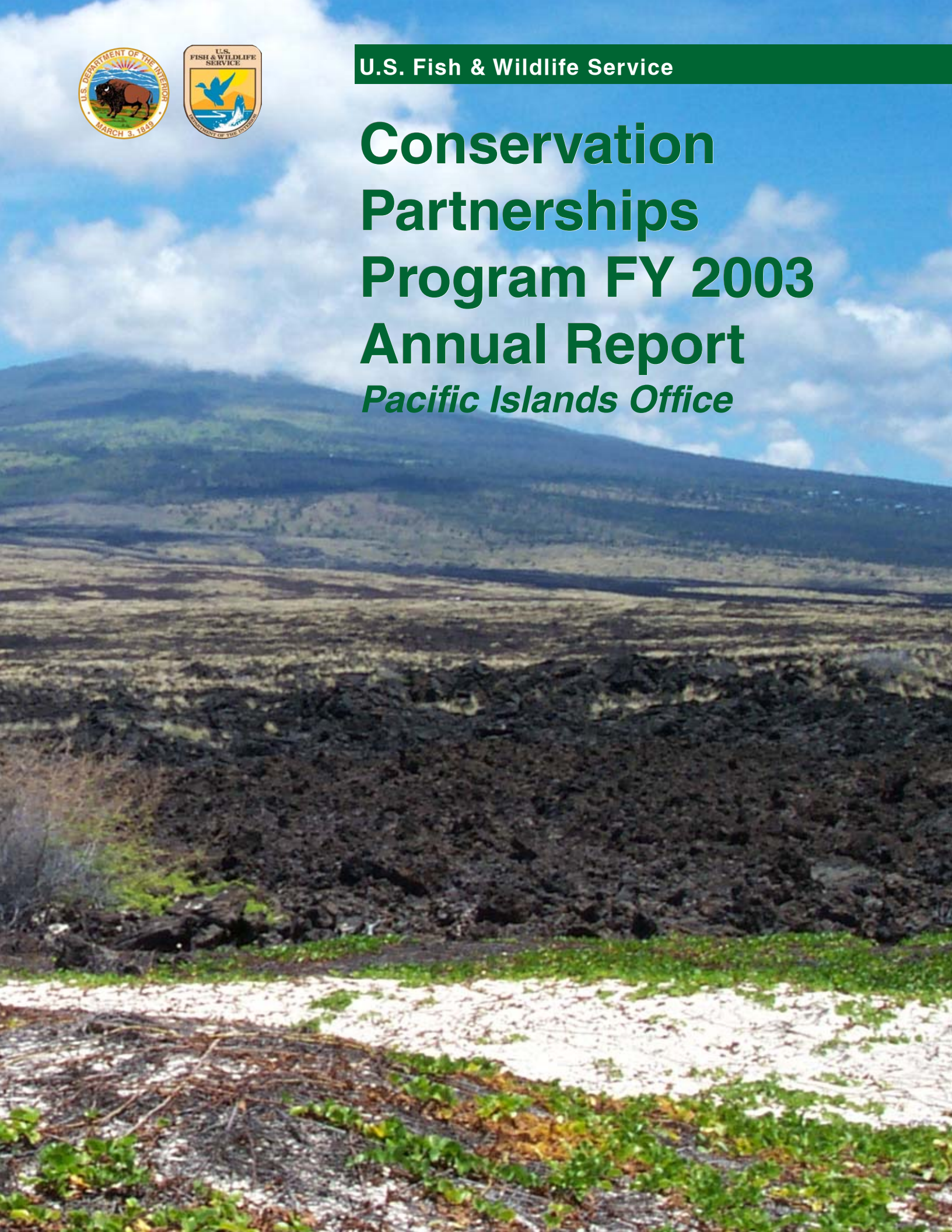
U.S. Fish & Wildlife Service

Conservation Partnerships Program FY 2003 Annual Report

Pacific Islands Office



Conservation Partnerships Program

Above: `Uko`a Marsh, O`ahu
`Uko`a Marsh on the north shore of O`ahu is one of the few remaining natural wetlands in Hawai`i supporting endangered waterbirds. Fencing will exclude non-native predators and reduce illegal dumping and trespassing for the protection of this habitat and the wildlife it supports.

Cover : `Ōpae `ula, Hawai`i
Unique ecosystems such as anchialine ponds, wetlands, and dry forest habitats create the ahupua`a or land division of `Ōpae`ula, on the island of Hawaii. Protection of important wetlands such as those at `Ōpae`ula, continue with the partnership efforts of the University of Hawai`i, Kamehameha Schools, Ducks Unlimited, Inc. and the State Department of Land and Natural Resources.

All photos and maps courtesy of the U.S. Fish and Wildlife Service except where noted.

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Current Partners

Executive Summary

Conservation Partnerships Program

Mission Statement

"To restore and protect native habitats by developing positive relationships with landowners, identifying biological resources and threats, implementing projects, monitoring results, and sharing information."

Program Description

The Conservation Partnerships Program (CPP) is a collection of voluntary habitat restoration programs in the U.S. Fish and Wildlife Service Pacific Islands Office. The goal of the CPP is to restore native habitats by providing cost-share funds, technical assistance, and coordination to community groups, private landowners, conservation organizations, and other government agencies. The CPP emphasizes the collaborative aspects of the U.S. Fish and Wildlife Service, whose mission statement is "working with others, to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people."

There are five program elements within the CPP, having different areas of emphasis, but sharing the overall goal of habitat restoration. These program elements are as follows:

- *Partners for Fish and Wildlife*
- *Coastal Program*
- *Private Stewardship Grants*
- *Hawai`i Biodiversity Joint Venture*
- *Hawai`i Community Conservation Initiative*

In addition to implementing the five funding programs, the CPP continued to work with watershed partnerships and other multi-landowner groups to assist in coordination and implementation of conservation actions over broad landscapes.

Program Staff

The Conservation Partnerships Program staff consists of the following positions:

- *Conservation Partnerships Coordinator (Craig Rowland);*
- *Pacific Islands Coastal Program Coordinator (Chris Swenson);*
- *Private Stewardship Grants Coordinator (Naomi Bentivoglio);*
- *Partners for Fish and Wildlife Coordinator (Benton Pang);*
- *Fish and Wildlife Biologists (Ron Walker, Stephanie Bennett, Donna Ball); and*
- *Technician (Bret Harper).*

Future Direction

The goals of the Conservation Partnerships Program are as follows:

- Build the capacity of the program to deliver funding and other resources to needed conservation projects;
- Continue with multi-party, landscape scale conservation efforts;
- Help partners secure sufficient funding for ongoing projects to ensure their long-term success;
- Use GIS and other information systems to focus new project implementation on ecosystems and threats that are not currently addressed; and
- Expand the program to new geographical areas of the Ecoregion (such as Guam, the Commonwealth of the Northern Mariana Islands, the Republic of the Marshall Islands, and the Federated States of Micronesia).

Executive Summary

Conservation Partnerships Program

Accomplishment Summaries

Ka`u Silversword (Argyroxiphium kauense)
Photo by Marie Bruegmann

Recently expanded to 536,000 acres, the `Ōla`a-Kilauea Partnership is working to protect and restore habitat for dozens of listed species including the endangered Ka`u Silversword (Argyroxiphium kauense).

Private Stewardship Grants Program (PSGP) is a focused effort to address high-priority habitat restoration needs of species that are endangered, threatened, candidates, or species of concern on private lands. These projects compete on regional level for funding.

PSGP Ongoing Accomplishments
This program, which began in 2003, has facilitated fencing; weeding; native plant collecting, propagating and outplanting; and the construction of a wetland for the benefit of Hawaii's listed species and habitats.

PSGP FY03 Projects
Eleven projects on private lands throughout the state were funded, totaling over $1.2 million dollars. These projects target some of the most imperiled habitat types in the Hawaiian islands: dryland forests, wetlands and coastal dunes, among others. These actions play an important role in conservation and recovery of listed species, most of which rely on private lands for recovery.

Hawai`i ESA Community Conservation Initiative (HCCI) is a unique Service program designed to engage landowners and community groups in the implementation of conservation actions to benefit listed species.

As in the previous year, the program focus for FY03 was to implement projects that help reduce the conflict between game animal and endangered species management within the counties of Hawai`i and Maui.

HCCI Ongoing Accomplishments
A number of projects funded in FY2002 were completed this year. These include a metes and bounds survey of a proposed game management area, wildland fire fuelbreaks, an annotated bibliography on feral pig impacts, and assessments of the Mauna Kea fence and the Pu`u Wa`aw`aa water system.

HCCI FY03 Projects
Over $700,000 was granted to cooperators from the islands of Lāna`i, Maui, Moloka`i and Hawai`i to fund fifteen projects that enhanced populations of threatened and endangered species, hunting opportunities, or both.

Mo`omomi, Molokai

Partnership efforts on the island of Moloka`i are protecting and enhancing endangered plants like `ohai (Sesbania tomentosa) as well as incorporating traditional Hawaiian cultural knowledge.

Hawai`i Biodiversity Joint Venture (HBJV) is a public-private conservation effort to protect and restore native biological diversity through habitat restoration, restoration technique development, and public outreach. The emphasis of HBJV is directed at supporting multi-party land management partnerships and developing techniques that address wide ranging ecological threats.

HBJV Ongoing Accomplishments
The `Ōla`a-Kilauea Partnership, which has increased to more than 500 acres in size this year, added a new member organization- The Nature Conservancy, and continued to restore native habitats and rare species.

HBJV FY03 Projects
In addition to continued financial support for six previously funded projects, three new HBJV projects were funded this year. These community-based efforts are a new watershed partnership on Maui, a restoration and environmental education project in the center of Waimea Town on the island of Hawai`i, and a rare plant protection project in the Kipahulu area of Maui.

Pacific Islands Coastal Program (PICP) is designed to identify important coastal resource problems and solutions, develop partnerships to carry out on-the-ground conservation projects, and encourage community action in high priority coastal areas.

PICP Ongoing Accomplishments
Previous projects protected coastal habitat for rare and listed species, funded biological surveys of poorly known areas and produced restoration and management plans for rare species and habitats.

PICP FY03 Projects
There were fourteen projects totaling $247,794 administered through the PICP. Projects included habitat restoration, biological surveys, mapping, planning, and education in the Hawaiian Archipelago, Palmyra Atoll and the Republic of Palau.

Partners for Fish and Wildlife (PFW) is a cost-sharing and technical assistance program for long-term habitat restoration projects on private land and Hawaiian home lands.

PFW Ongoing Accomplishments
A number of projects with private landowners throughout the state are being successfully implemented though the PFW program. On-the-ground habitat restoration targets native ecosystems, imperiled rare species, and listed species.

PFW FY03 Projects
The USFWS provided over $200,000 to seven projects on private lands this fiscal year.

Executive Summary

Conservation Partnerships Program

Budget FY 2003

$ 2,680,411

Hawai`i Biodiversity Joint Venture	*$ 240,898*
Partners for Fish and Wildlife	*$ 223,635*
Pacific Islands Coastal Program	*$ 247,794*
Hawai`i Community Conservation Initiative	*$ 745,125*
Private Stewardship Grants	*$ 1,222,959*
Total Conservation Partnerships Program Budget	*$ 2,680,411*

Figure 1. Conservation Partnerships Program Funding Levels (1999-2003)

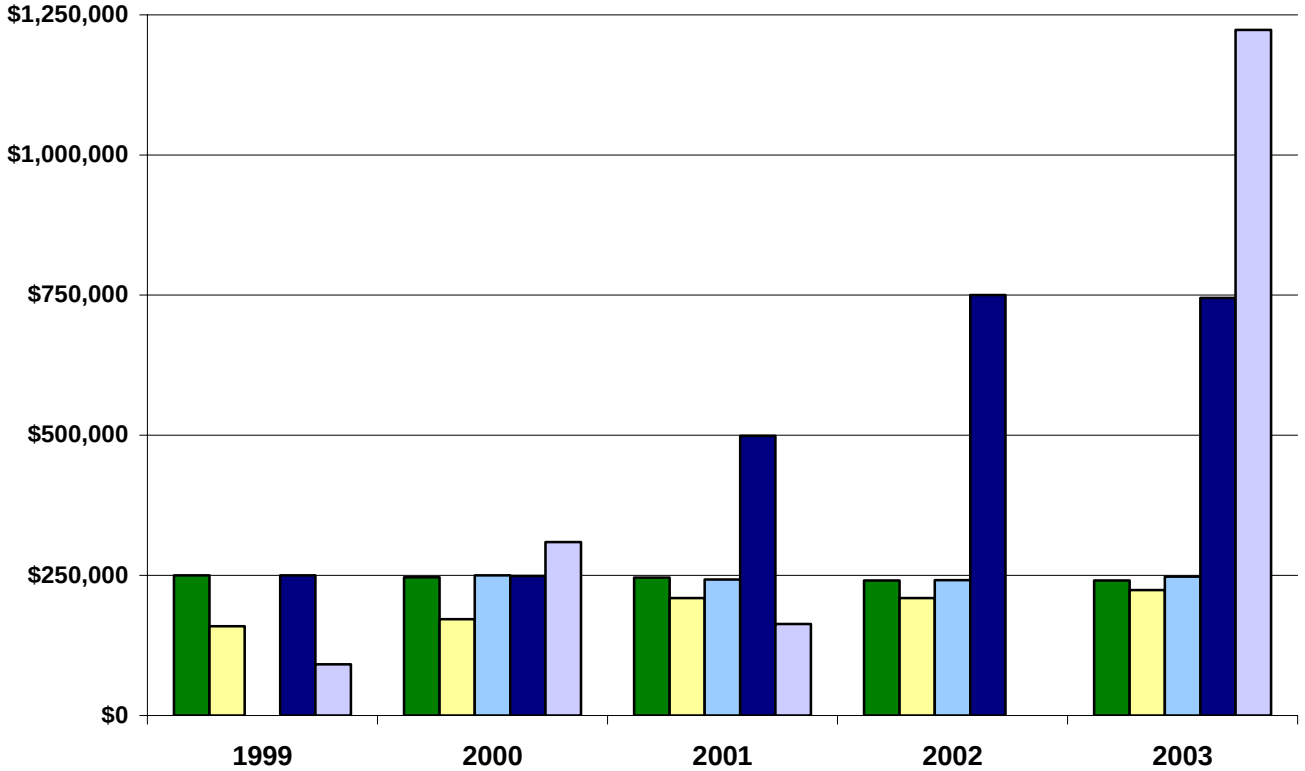
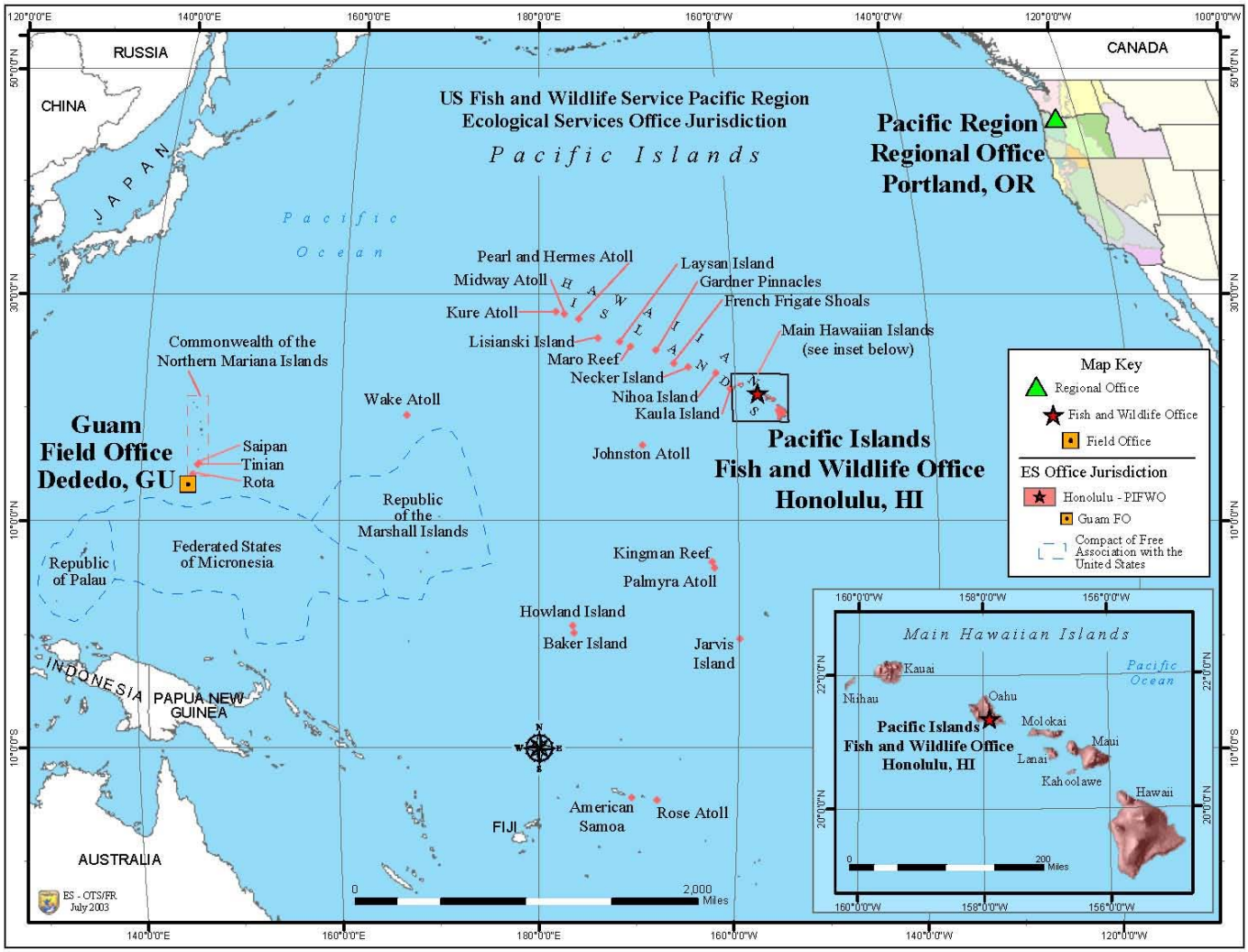
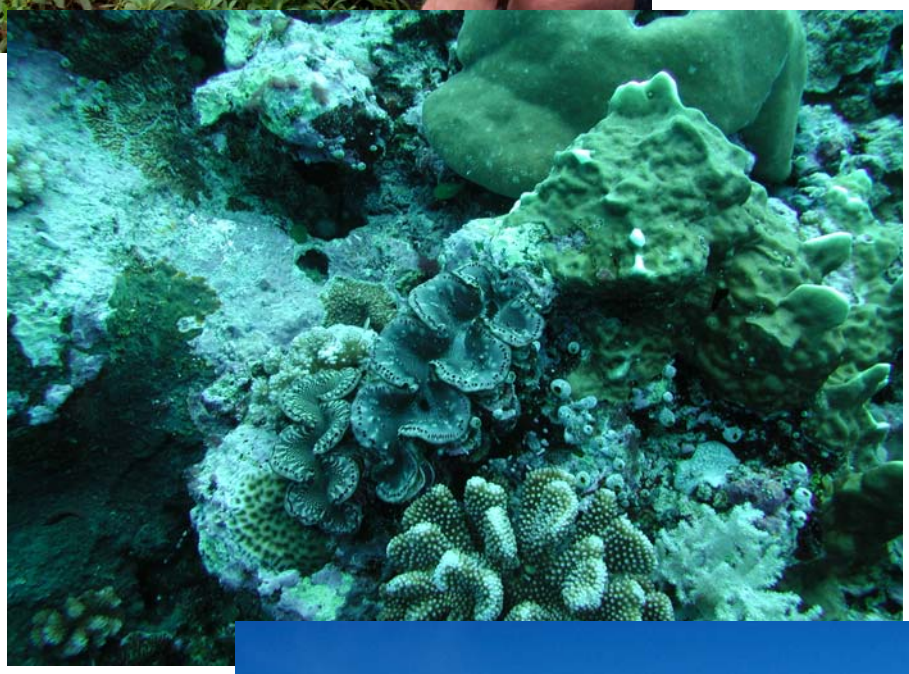


Figure 2. U.S. Fish and Wildlife Service Pacific Region

The Pacific Islands Fish and Wildlife Office covers the State of Hawai`i (including the Northwestern Hawaiian Islands), American Samoa, Guam, the Commonwealth of the Northern Marianas Islands, the Republic of Palau, the Federated States of Micronesia, the Republic of the Marshall Islands and the other atolls and islets within the US jurisdiction.





Private Stewardship Grant Program

Achyranthes splendens

The Private Stewardship Grant Program provides incentives to private landowners to conserve threatened and endangered species on their lands.

Background
The Private Stewardship Grants Program (PSGP) provides incentives to private landowners to conserve habitat for listed species on their property.

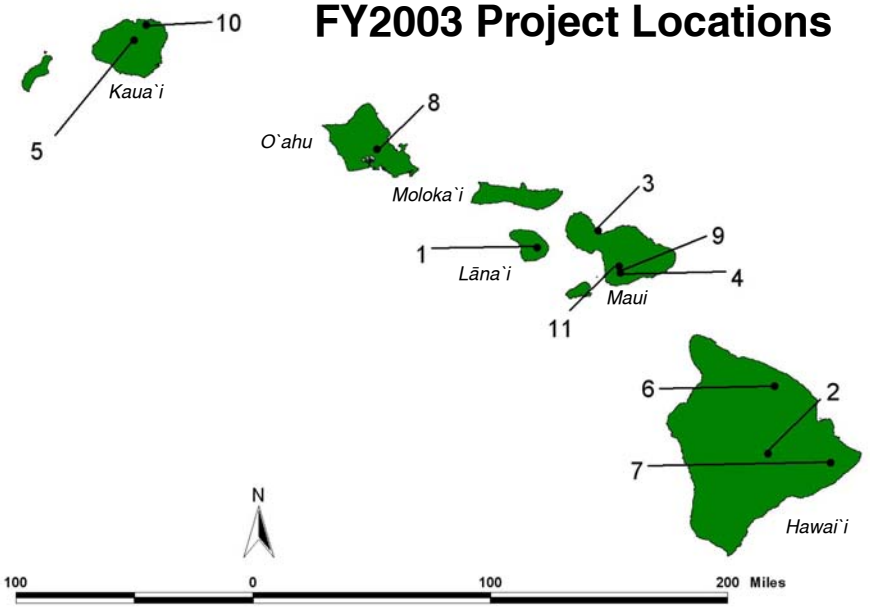
This program gives technical assistance and funds to landowners to reduce financial and regulatory hurdles they might encounter when conserving listed species and their habitats.

Funding
In Fiscal Year 2003, eleven proposals were selected for funding, providing 1.2 million dollars to private landowners in the state of Hawai`i.

FY03 PSGP Projects
1 Lāna`ihale Summit Fence, Increment II
2 Keauhou Forest Restoration
3 Waihe`e Coastal Strand Restoration
4 `Ulupalakua Koa Forest Restoration
5 Lumaha`i Valley
6 `Umikoa Wetland & Riparian Restoration
7 Ku `Ōhia Laka Rainforest
8 Mānana Valley Fire Rehabilitation
9 Auwahi Dryland Forest Restoration
10 Kaua`i Wetland Restoration
11 Wiliwili Forest Restoration at Pu`u-o-kali

Future Plans
The USFWS continues to encourage new applicants throughout the state to apply for funding for the next fiscal year. We will continue to provide technical assistance for project implementation.

FY2003 Project Locations



Private Stewardship Grant Program
FY 2003 Funded Projects

Lāna`i tree snail (Partulina variabilis)
Photo by Michael Hadfield

Lāna`ihale Summit Fence, Increment II

Partners: Lāna`i Institute for the Environment

The project will protect and restore the native forest ecosystem of the Lāna`ihale cloud forest on the island of Lāna`i and benefit 28 endangered plants and two proposed tree snails (*Partulina variabilis* and *P. semicarnata*). This restoration effort will include installation of a 490 ha area exclosure fence that will restrict feral ungulates from accessing the forest and allow restoration and natural regeneration of native plants to occur. This funding will support the construction of the 3.5 mile-long western fence line of Increment II which will eventually become a part of a larger 1,600 ha management area.

Hawaiian hoary bat (Lasiurus cinereus semotus)
Photo by Jack Jeffery

Keauhou Forest Restoration

Partners: Hawaiian Silversword Foundation

Fencing, invasive species control, reforestation, and endangered plant reintroduction will all be employed to restore 3,000 acres of forest and former ranch lands. The project area contains diverse native forest and provides habitat for three endangered forest bird species, the endangered Hawaiian hawk (*Buteo solitarius*), the endangered Hawaiian hoary bat *(Lasiurus cinereus semotus)*, and nine endangered plant species. The overall objectives of the proposed project are to protect and manage a large contiguous area of the landscape, enhance the long-term survival and integrity of native plant and animal communities and the natural processes on which they depend, and promote recovery of endangered species.

Ae`o, Endangered Hawaiian Stilt pair
(Himantopus mexicanus knudseni)
Photo by John DeMello

Waihe`e Coastal Strand Restoration

Partners: Maui Coastal Land Trust

The 250 acre Waihe`e Preserve is part of a 277 acre coastal dune and wetlands system that has been under imminent threat of development as a golf resort. The Maui Coastal Land Trust (MCLT) is purchasing the 277 acres through funding from the County of Maui, USFWS Coastal Wetlands and Endangered Species grants, and from private donations. This project will initiate long-term (10-year plus) restoration activities on the coastal dunes and wetlands of the 250-acre Waihe`e Preserve. The intent is to restore hydrology and protect and enhance native habitats for numerous coastal species including the endangered Hawaiian Stilt (*Himantopus mexicanus knudseni*), Hawaiian Coot (*Fulica alai*), Hawaiian Duck (*Anas wyvilliana*) and Hawaiian Gallinule (*Gallinula chloropus sandvicensis*), five endangered plants and two rare insects.

Private Stewardship Grant Program
FY 2003 Funded Projects

Koa in bloom (Acacia koa)

`Ulupalakua Koa Forest Restoration

Partners: `Ulupalakua Ranch

This project will likely serve as a regional model project for the restoration of this important forest type. The intent is reforestation of selected sites on `Ulupalakua Ranch that were historically koa forest and that are currently open, non-native grasslands. Funding will support labor to collect koa seeds and grow seedlings at the `Ulupalakua Ranch greenhouse. Additional volunteer labor will outplant koa and provide follow-up care and monitoring of outplanting sites. The project could eventually benefit the endangered Maui Parrotbill (*Pseudonester xanthophrys),* eight endangered plant species and two candidate plants.

Lumaha`i Valley

Lumaha`i Valley

Partners: Kamehameha Schools, University of Hawai`i

The Lumaha`i Valley Project will initiate resource management within this valley on the north shore of the island of Kauai by implementing a number of conservation actions: 1) map, eliminate, and monitor habitat-modifying weeds around existing rare and endangered plants; 2) control rats and monitor rat activity in the vicinity of rare and endangered plants; 3) collect and propagate endangered plant material; 4) out-plant and map 100 plants of each endangered species in Lumaha`i Valley; and 5) out-plant 100 plants of each endangered species in neighboring Waipā Valley. These efforts will help protect two listed seabirds, the Dark-rumped or Hawaiian Petrel (*Pterodromo phaeopygia sandwichensis*) and Newell's Shearwater (*Puffinus auricularis*) and ten endangered and rare plants (one of which was previously believed to be extinct).

`Umikoa pond for waterbirds

`Umikoa Wetland & Riparian Restoration

Partners: `Umikoa Ranch

The intent of the `Umikoa Wetland and Riparian Restoration Project is to enhance forest, wetland and riparian habitat and establish protected sites for recovery of endangered plant, bird and insect populations on `Umikoa Ranch. So far, the ranch has begun the construction of a pond, measuring 250′ x 250′, to benefit endangered waterbirds. They have also installed an ungulate exclusion fence that protects 50 acres to benefit endangered plants and enhance native habitats, which in turn will also support endangered wildlife. The project is expected to benefit 14 endangered species (three forest birds, the Hawaiian Hawk (*Buteo solitarius*), the Hawaiian Duck (*Anas wyvilliana*), the Hawaiian Goose (*Branta sandvicensis*), and eight plants) and another 15 species that are candidates or species of concern.

Private Stewardship Grant Program
FY 2003 Funded Projects

`Ōhia lehua (Metrosideros polymorpha)

Ku `Ōhia Laka Rainforest

Partners: Laura Brezinsky

The Ku `Ōhia Laka Hawaiian Forest Restoration Project goal is to protect and enhance a parcel of existing native lowland forest ecosystems on the island of Hawaii to benefit native endangered plants and plant communities, endangered birds like the Hawaiian Hawk (*Buteo solitarius*), endangered Hawaiian hoary bats (*Lasiurus cinereus semotus*) and invertebrates that may inhabit this land. The landowners are using this land as an example and educational resource for community members, school children and college students to come and learn how to protect their own forests. Actions include, surveying and fencing 20 acres of the project site, constructing a greenhouse and irrigation system, and propagating and outplanting of native plant species.

Young koa seedlings (Acacia koa)

Mānana Valley Fire Rehabilitation

Partners: Mānana Valley Farm, LLC

The objective of this project is to understand natural post-fire regeneration patterns, control post-fire invasive weeds, enhance natural native koa *(Acacia koa)* recruitment, and augment forest rehabilitation with koa outplantings. This project seeks to create habitat for the natural succession and recovery of rare and endangered species, secure the regrowth of a vibrant mixed koa forest for future rare species outplanting and formulate a template from which to conduct similar restoration and/or fire rehabilitation projects in the future.

Auwahi volunteers

Auwahi Dryland Forest Restoration

Partners: `Ulupalakua Ranch, `Olino

In 2003, the focus for the Auwahi Project was on continuing community based restoration efforts of selected diverse dryland forest tracts on the ranch by coordinating, transporting, and equipping volunteer restoration teams. Funds have also been set aside to maintain the greenhouse and build a specially constructed water system at the Auwahi field site. This effort will benefit the endangered Blackburn's sphinx moth (*Manduca blackburni*) and eight endangered plants (some of which on Maui are reduced to a handful of specimens in the wild). In addition, two candidate plant species, and populations of many other depleted plant and animal species that occur in this very rare habitat type will benefit from this ecosystem restoration.

Private Stewardship Grant Program
FY 2003 Funded Projects

Kapa`a wetland

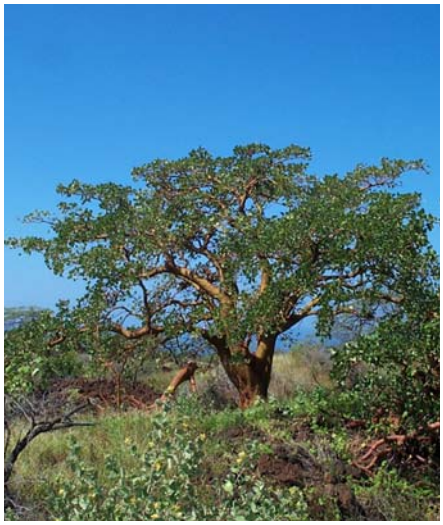
Kalihiwai pond

Kaua`i Wetland Restoration

Partners: Ducks Unlimited, Inc.

The objectives of the Kaua`i Wetland Restoration Project are to complete the restoration of approximately 255 acres of wetland and associated upland and riverine habitat and establish long-term conservation easements for the project areas. This project will restore approximately 40 acres of freshwater, 100 acres of brackish water wetlands and 115 acres of associated upland and riverine habitat on two private properties on the island of Kaua`i. Restoration efforts will include resculpting wetland basins to encourage natural plant growth, installing predator proof fencing, controlling noxious weeds and implementing a wetland and native plant restoration program. These accomplishments will assist in the recovery of five endangered waterbirds and provide secure habitat for other protected species: the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian damselflies, Hawaiian gobies, and many species of migratory birds (e.g. waterfowl, shorebirds, and seabirds).

Another broad objective of the Ducks Unlimited's private lands program is to develop effective incentives to encourage private landowner participation in future wetland restoration activities. This is accomplished by providing technical assistance to private landowners to develop conservation plans for their properties and Safe Harbor Agreements related to their efforts to conserve endangered waterbirds.



Wiliwili (Erythrina sandwicensis) at Pu`u-o-kali

Wiliwili Forest Restoration at Pu`u-o-kali

Partners: University of Hawai`i

The intent of this project is to conduct endangered and rare species outplantings and control selected invasive plant species throughout a 236 acre area which has been fenced to exclude ungulates. This will benefit eight rare plant species, five of which are endangered. One of the endangered plants is the Hawaii State Flower (*Hibiscus brackenridgei*), one of the rarest species of *Hibiscus* in the world. Dryland forests and shrublands are among the most endangered of all Hawaiian plant communities and Pu`u-o-kali represents an outstanding example of low elevation dryland forest habitat on Maui. Endemism in this area is extremely high. Prior to the 1950's, Pu`u-o-kali had been spared a century or more of ungulate pressure because of its extremely rough a`a lava substrate. However, in the 1950's, the introduction of the axis deer to the island marked the beginning of increased degradation to this site. Axis deer are able to enter into areas where cattle, pigs and horses are not easily able or willing to go.

Hawai`i Community Conservation Initiative

Arboral `ohai (Sesbania tomentosa) growing in the Kawela watershed is threatened by feral ungulate browsing.

Background
The Hawai`i Community Conservation Initiative (HCCI) is a unique USFWS program designed to engage landowners and community groups in the implementation of conservation actions to benefit listed species.

FY03 Focus
The program's focus for FY03 was to implement projects that reduce the conflict between game mammal management and endangered species management in the counties of Maui and Hawai`i.

The conflict between the public hunting and the environmental communities exacts a significant economic, social and environmental cost to all of Hawai`i residents. The major cause is the difficulty of managing game mammal populations in areas that harbor vulnerable plant, bird and invertebrate species.

Increasing the quality of hunting opportunities should result in reduced interest in maintaining game populations in areas important to endangered species.

Making new areas available to hunters through access agreements, easements or other means, is an important part of this strategy. Likewise, increasing populations of certain endangered species in appropriate areas should result in a reduced level of conflict between endangered species and programs that support game mammal populations.

Depending on the species, the benefit of reduced endangered species conflict could also extend to non-hunting activities such as agriculture, ranching, housing, tourism and military training.

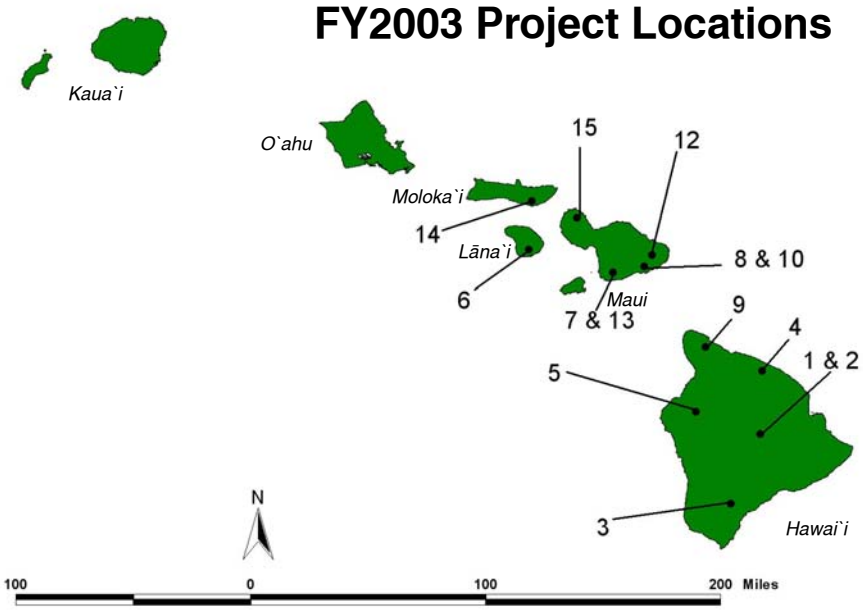
Accomplishments
A number of projects funded in FY2002 were completed this year. These include a metes and bounds survey of a proposed game management area, wildland fire fuelbreaks, an annotated bibliography on feral pig impacts, and assessments of the Mauna Kea fence and the Pu`u Wa`aw`aa water system.

Funding
The USFWS received $745,000 for implementation of the HCCI program in FY2003.

FY03 HCCI Projects
1 Mauna Kea Feral Ungulate Removal
2 Mauna Kea Fence Repair Project
3 Ka`ū Forest Reserve Project
4 Humu`ula Trail Repair
5 Pu`u-wa`awa`a Coordinator
6 East Lāna`i Hunting Initiative
7 Kahikinui Forest Reserve Project
8 Waiho`i Valley Reconnaissance
9 Hunter Education/ Loulu Preservation Project
10 Kaupō Road Improvement
11 Axis Deer Control on Maui
12 East Maui Partnership
13 Kahikinui Restoration Coordinator
14 Kawela Plantation Project
15 Kahakuloa NAR-GMA Project

Future Plans
Based on the success of the past two years, the USFWS plans to expand this initiative to all of the main Hawaiian islands fiscal year 2004.

FY2003 Project Locations



Hawai`i Community Conservation Initiative
FY 2003 Funded Projects

Mauna Kea: a view from Saddle Road

Mauna Kea Fence Repair Project

Partners: Hawai`i Division of Forestry and Wildlife (DOFAW)

The Hawai`i Division of Forestry and Wildlife will contract the repair of a section of the ungulate exclusion fence to protect the Mauna Kea Forest Reserve which is critical habitat for the endangered palila (*Loxioides bailleui*), a native Hawaiian honeycreeper.

Mouflon sheep on the move

Mauna Kea Feral Ungulate Removal

Partners: Hawai`i Division of Forestry and Wildlife (DOFAW)

The Hawai`i Division of Forestry and Wildlife will remove feral ungulates (sheep, goats, and mouflon sheep) from the Mauna Kea Forest Reserve, the 5,143 acre Pu`u Mālī and the 1,399 acre Ka`ohe conservation easement areas.

`Oha wai (Clermontia lindseyana)

Ka`u Forest Reserve Project

Partners: Hawai`i Division of Forestry and Wildlife

The 56,805 acre Ka`ū Forest Reserve is largely inaccessible for public hunting. To improve the hunting access, the Ka`ū Forest Reserve Project will survey and improve five routes that lead into the reserve: Makino Road, Wood Valley, Hā`ao Springs, Ka`ū-Kahuku and Galimba. Signs and fences will be posted to ensure that hunters and their dogs do not inadvertently trespass onto adjacent private property.

Hawai`i Community Conservation Initiative
FY 2003 Funded Projects

Lāna`ihale in the foreground, West Maui mountains in the background

East Lāna`i Hunting Initiative

Partners: Lāna`i Institute for the Environment

The East Lāna`i Hunting Initiative is intended to protect and restore the native forest ecosystem of Lāna`ihale for the benefit of endangered, threatened and candidate species on the island of Lāna`i and to provide access for hunting opportunities on a temporary basis. This project will provide greater access to East Lāna`i for hunters and land managers thereby facilitating natural resources management in the area between Kapoho/Naha and Kehewai Ridges. Phase I of this Initiative will fund road repair (`Āwehi Road, Keomuku and Pu`unēnē trail) to facilitate access to East Lāna`i. It is anticipated that increasing hunting of feral ungulates will benefit the native species in East Lāna`i.

Pu`u Wa`awa`a wildlife area

Pu`u Wa`awa`a Coordinator

Partners: Hawai`i Division of Forestry and Wildlife

The coordinator will implement the management plan for Pu`u Wa`awa`a ahupua`a, including organizing restoration activities in the forest, improving hunting opportunities in designated areas, implementing wildfire fuels and feral animal control to achieve objectives of the management plan. This position is crucial to the protection and management of this conservation area in North Kona, Hawai`i.

Axis deer (Axis axis)

Axis Deer Control on Maui

Partners: Hawai`i Division of Forestry and Wildlife

Axis deer (*Axis axis*) were introduced to Maui in the late 1960s for hunting and subsistence opportunities, however increased concern about property damage, ecosystem damage and disease and crop damage have prompted managers to address the situation. The coordinator will assist land managers with control plans for axis deer throughout the island of Maui.

Hawai`i Community Conservation Initiative
FY 2003 Funded Projects

Kawela watershed `ohai (Sesbania tomentosa) in the foreground

Kawela Plantation Project

Partners: Hawai`i Division of Forestry and Wildlife

The main objective of the Kawela Plantation project is to protect the native species of the Kawela Plantation middle and upper common lands through fencing and ungulate control using methods and guidelines established on lands to the east at Kamalō and Kapualei, Moloka`i. Reducing ungulate pressure in this watershed will improve native shrubland, reduce erosion and encourage recovery of endangered plant species.

West Maui

Kahakuloa Natural Area Reserve/ Game Management Area Fence

Partners: Hawai`i Division of Forestry and Wildlife, West Maui Watershed Partnership

The West Maui Mountains Watershed Partnership will fence a portion of the boundary between the Kahakuloa Natural Area Reserve (KNAR) and the Kahakuloa Game Management Area (KGMA) to prevent ungulates from entering KNAR and to provide improved hunting opportunities within the bordering KGMA. The KGMA is the only Game Management Area on Maui specifically managed for sustainable pig hunting. Reducing ingress of pigs into KNAR would help protect listed plants.

Endangered nohoanu (Geranium multiflorum)
Photo courtesy of Barbara Maxfield

East Maui Feral Ungulate Control Project

Partners: Hawai`i Division of Forestry and Wildlife

The objective of the East Maui Feral Ungulate Control Project is to reduce ungulate numbers in high priority areas of the East Maui Watershed Partnership. Feral ungulates are a threat to listed and other native and rare species.

Hawai`i Community Conservation Initiative
FY 2003 Funded Projects

A`e (Zanthoxylum hawaiiensis)
Photo by Marie Bruegmann

Kahikinui Forest Reserve Restoration Project

Partners: Kahikinui Game and Land Management Ohana

The purpose of the Kahikinui Forest Reserve Restoration Project is to enhance the koa forest of Kahikinui through ungulate fencing and native plant propagation. Rare and endangered plants like the A`e (*Zanthoxylum hawaiiensis)* can be protected with exclosure sites and monitoring. This project will be conducted with the assistance of the Kahikinui Game and Land Management Ohana (KGLMO) and Ka `Ohana o Kahikinui.

Blackburn's Spinx Moth (Manduca balckburni)
Photo by Betsy Gagne | Hawai`i DLNR

Kahikinui Restoration Coordinator

Partners: Living Indigenous Forest Ecosystems

To restore native habitats through fencing and hunting in the Kahikinui Forest Reserve, island of Maui. To accomplish this task, groups of volunteers will complete approximately 7 miles of fence construction for management within the Kahikinui Forest Reserve.

Koa blooms (Acacia koa)

Humu`ula Trail Project

Partners: Hawai`i Division of Forestry and Wildlife

This project includes repair of the Humu`ula access trail, improving hunter and hiker access to the Manowai`alae and Hilo Forest Reserves. Currently, a washout has made the trail inaccessible to hunters and hikers. Hunting pressure on the pig population in the area will help minimize adverse effects of feral pigs on the listed and other native species within the reserves.

Hawai`i Community Conservation Initiative
FY 2003 Funded Projects

Haleakalā National Park

Kaupō Road Improvememt

Partners: Haleakalā National Park , Kaupō Ranch

National Park Service personnel will improve access on Kaupō Road leading up to Haleakalā National Park and adjacent privately owned lands. The road is used by park biologists to conduct endangered species management activities, and private landowners and land managers to conduct natural resource management activities.

Prichardia palm

Hunter Education / Loulu Preservation Project

Partners: Laupahoehoe Nui LLC

Laupāhoehoe Nui LLC, a private landowner of the ahupua`a of Laupāhoehoe Nui, on the island of Hawai`i proposes to provide hunting opportunities to reduce ungulate populations within the Kohala Forest and provide long-term protection of rare and endangered species. The restoration project would include helicopter transport of community hunters to this remote area to reduce pig populations, and fencing of the rare loulu (*Pritchardia lanigera*) and its associated habitat.

Wikstroemia oahuensis

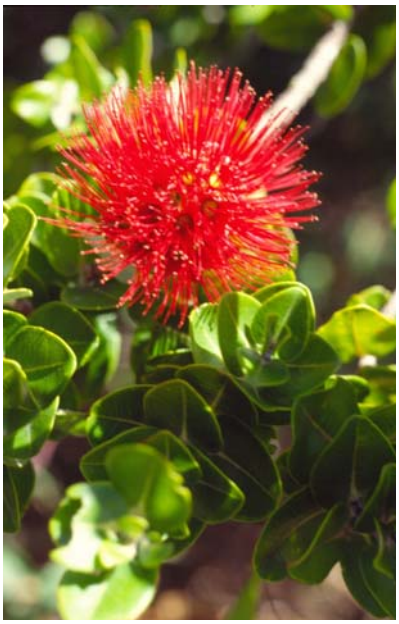
Waiho`i Valley Reconnaissance

Partners: Hānā Ranch

Hānā Ranch, USFWS and hunting organization representatives participated in the reconnaissance of the Waiho`i Valley to assess its value as a pig hunting area. This valley area is remote and the access is limited. The reconnaissance team used a helicopter to make aerial observations and to gain access for ground observations.

The project has been completed. The survey included a USFWS botanist, Hānā Ranch land managers and a representative from the Ko`olau Volunteer Hunting Organization. The team determined the presence of feral pigs to be fairly low and that increasing access for hunters would not benefit the hunting community.

Hawai`i Biodiversity Joint Venture



`Ōhia lehua blossom (Metrosideros polymorpha)

Landscape-scale conservation efforts to restore of native Hawaiian habitats.

Background and Justification
The Hawai`i Biodiversity Joint Venture (HBJV) is a public-private effort to protect, maintain, restore, and improve the native biodiversity of the Hawaiian Islands.

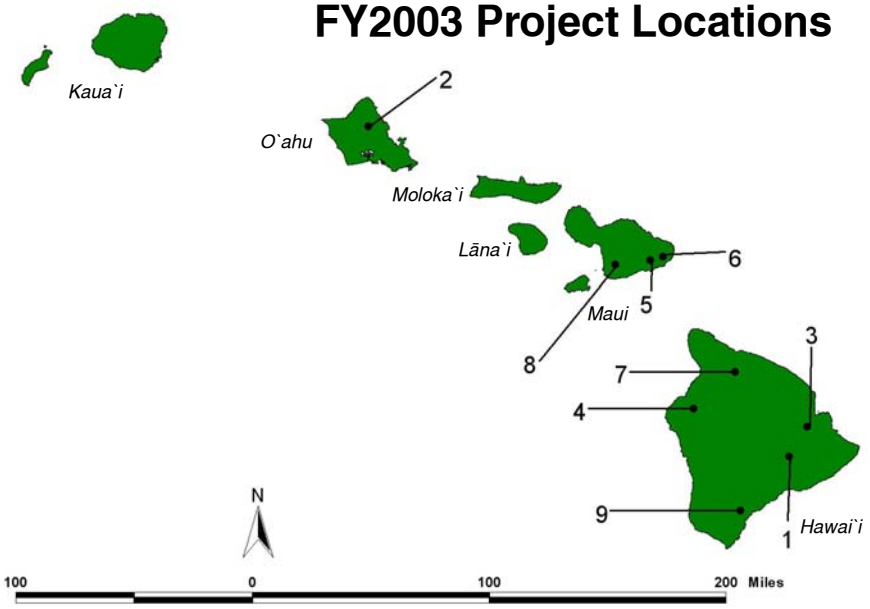
The HBJV was established in 1992 with the following goals:
-To maintain natural communities and habitats for native species;
-To support efforts to cooperatively manage significant native ecosystems on public and private land;
-To develop natural resource management techniques that address widespread threats to Hawai`i's native ecosystems (such as feral ungulates, introduced predators, and alien plants); and
-To restore former wetlands, native forests and other natural communities on public and private lands.

Funding
The USFWS was awarded $250,000 in FY2003 for the HBJV program.

FY03 HBJV Projects
1 `Ōla`a-Kīlauea Partnership
2 O`ahu Forest Restoration
3 `Imi Pono no ka `Āina: A Partnership for Environmental Education
4 Kona Dryland Forest Restoration
5 Cable Ridge Project
6 Hānā Ranch Miconia Control
7 Waimea Arboretum
8 Leeward Haleakalā Watershed Restoration Partnership
9 Hawai`i Hawksbill Sea Turtle Project

Future Plans
The HBJV will continue to work with watershed partnerships and other landscape-scale land management efforts. Additionally, the program will continue funding the development of restoration techniques for Hawaiian ecosystems.

FY2003 Project Locations



Hawai`i Biodiversity Joint Venture
FY 2003 Funded Projects

Hawai`i koa forest
Photo by `Ōla`a-Kīlauea Partnership

`Ōla`a-Kīlauea Partnership

Partners: Kamehameha Schools, Kūlani Correctional Facility, Pu`u Maka`ala Natural Area Reserve, Hawai`i Volcanoes National Park, U.S. Geological Survey-Biological Resources Division, U.S. Forest Service, University of Hawai`i, The Nature Conservancy

The `Ōla`a-Kīlauea Partnership, on the island of Hawai`i, is a cooperative land management effort involving 531,000 acres of State, Federal and private land. The area of current management contains some of the best quality forest remaining in Hawai`i and is important habitat for four species of endangered forest birds, the Hawaiian goose, the Hawaiian hoary bat and 22 rare plant species including 7 endangered species.

Management and research are currently focused on removing or reducing impacts from feral animals, alien plants and non-native predators; documenting the response of native and alien species to management; restoring native habitat of rare and endangered species; and providing work training and education to Kūlani inmates. Funds were provided to support the Partnership Coordinator and Inmate Field Crew Supervisor. This year, 116,000 acres of land were added with the Park's purchase of Kahuku Ranch and The Nature Conservancy joined the partnership.

The endangered O`ahu `elepaio (Chasiempis sandwichensis ibidis)
Photo by Eric VanderWerf

O`ahu Forest Restoration

Partners: O`ahu Forest National Wildlife Refuge, Ko`olau Mountains Watershed Partnership (KMWP)

Funds were provided to continue biological resource surveys and restoration of endangered species habitats. These activities will take place primarily at O`ahu Forest National Wildlife Refuge, but also on other lands as part of the USFWS's participation in the Ko`olau Mountains Watershed Partnership. The wet montane forest area of the Ko`olau mountains contain some of the last intact native forests of `ōhi`a lehua (*Metrosideros polymorpha)* and koa (*Acacia koa*) on the island of O`ahu.

Student interns

Imi Pono no Ka Āina

Partners: Hawai`i Volcanoes National Park, U.S. Army, and the Hawai`i Department of Education

Funds were provided to conduct environmental education programs in public schools in the Hilo, Puna, and Hāmākua areas on the island of Hawai`i The program is directed at raising the awareness of the public regarding the detrimental effect alien species are having on native rainforest habitats. Project venues include teacher workshops, summer intern programs, and radio and television presentations.

Hawai`i Biodiversity Joint Venture
FY 2003 Funded Projects

Koki`o (Kokia drynarioides)

Ka`ūpūlehu dryland forest volunteers

Kona Dryland Forest Working Group

Partners: Hawai`i Forest Industry Association, Kamehameha Schools, Potomac Investment Associates Kona Partnership, National Tropical Botanical Garden, The Nature Conservancy, Hawai`i Division of Forestry and Wildlife, USDA-Forest Service, U.S. Army, University of Hawai`i

The Kona Dryland Forest Working Group is a cooperative effort to develop, demonstrate and implement techniques to restore Hawaiian dryland forest habitat (Hawaii's most imperiled community type). One of the goals is to demonstrate cost-effective techniques that can be used on a large scale by landowners in dryland areas throughout the state. The group is developing techniques to exclude ungulates, remove alien plants, control rats, out-plant native species and produce outreach materials to promote those techniques with other landowners.

The partnership has established a restoration site on Kamehameha Schools land at Ka`ūpūlehu where various techniques have been employed to benefit endangered species like kauila(*Colubrina oppositifolia)*, uhiuhi (*Caesalpinia kavaiensis)*, `aiea *(Nothocestrum breviflorum)*, koki`o (*Kokia drynarioides)* and hala pepe (*Pleomele hawaiiensis).* A brochure and website were developed to disseminate information on the restoration.

Haha (Cyanea asplenifolia)

Cable Ridge Restoration

Partners: Kīpahulu Ohana, Haleakalā National Park, USGS -Biological Resources Division, Hawai`i Division of Forestry and Wildlife

Funds were provided for emergency fence construction around two plant species, the rare *Cyanea asplenifolia* and the endangered *Melicope ovalis*. The fencing will protect these species from feral pigs and goats which have girdled many of the plants and degraded the forest understory. Reforestation work includes koa and other native plants within the area.

Miconia calvescens Photo by Hawai`i DLNR

Hānā Ranch Miconia Control Project

Partners: Hānā Ranch

This project focuses on controlling the spread of the invasive alien plant *Miconia calvescens* by removing alien trees from overgrown pastures in Hānā, Maui. This "miconia break" will help to contain miconia to the lower elevations where eradication is more feasible and protect the upper forest from infestation. Miconia is recognized as the most ecosystem-modifying of all tropical weed species. There seems little doubt that without control of miconia on Maui, all native windward forests below 5000 feet will be invaded to the degree that all restoration and species protection efforts will be abandoned.

Hawai`i Biodiversity Joint Venture
FY 2003 Funded Projects

Outplanting native species near the stream

Waimea Nature Park

Partners: Waimea Outdoor Circle

The Waimea Nature Park is a 10 acre parcel of State land leased by Waimea Outdoor Circle (WOC) for environmental research, education and restoration. WOC is developing the moist-mesic area along the Waikoloa stream to support native aquatic and terrestrial species. WOC will remove invasive/noxious plant species, install a temporary fence and irrigation system to support endangered and threatened plant species, and monitor results. WOC will also provide long-term maintenance of these plants, keep a written and photographic record, and provide an opportunity for environmental education for local school groups and the general public.

Hawaiian cultural practitioners open the Leeward Haleakalā Watershed Restoration Partnership (LHWRP) signing ceremony

Leeward Haleakalā Watershed Restoration Partnership

Partners: Haleakalā Ranch, Haleakalā National Park, USGS -Biological Resources Division, Hawai`i Division of Forestry and Wildlife, Hawai`i Dept. of Hawaiian Home Lands, James Campbell Estate, Kaonoulu Ranch, Nu`u Makua Ranch, `Ulupalakua Ranch, John Zwaanstra

The Leeward Haleakalā Watershed Restoration Partnership (LHWRP) is an emergent watershed partnership working toward the restoration of native koa (*Acacia koa*) forests on Haleakalā including Makawao, `Ulupalakua and Kaupō between 3500 and 6500 feet elevation. HBJV financial support will aid in the facilitation of partnership meetings, compilation and dissemination of information for initial partnership activities, and a planning effort to develop a 60-year master plan.

`Ea, Hawksbill sea turtle hatching, (Eretmochelys imbricata) measurements

Hawai`i Hawksbill Sea Turtle Volunteer Program

Partners: University of Hawai`i, National Park Service

The purpose of this project is to protect and monitor nesting `ea or hawksbill sea turtles (*Eretmochelys imbricata*) on the beaches of the island of Hawai`i. Hatchling survival will be increased by controlling non-native nest predators and human activities on nesting beaches. Life history information and tagging data will be collected. In Hawai`i, the endangered hawksbill sea turtle nests primarily on the southern shores of the island of Hawai`i, but occasionally on the islands of Moloka`i and Maui. This project helps to increase the reproductive output of a species that may have only 50 nesting females in the Hawaiian population.

Pacific Islands Coastal Program

The Pacific Islands have the greatest number of species at risk in the nation:
> 333 Threatened and Endangered species;
> 135 Candidate species; and
> 1,000 Species of Concern.

Background
The Pacific Islands Coastal Program (PICP) is one of 16 such programs around the nation. Established in Fiscal Year 2000, the PICP funds landowners, non-profit groups, government agencies and others to conduct habitat restoration, biological surveys, GIS mapping, applied restoration research and environmental education.

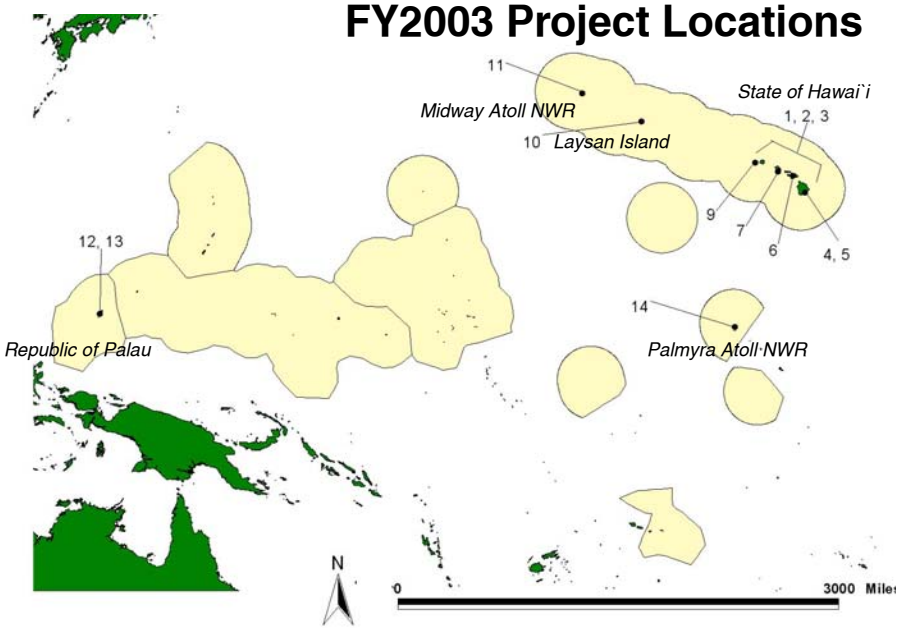
Unlike other Coastal Programs, the PICP covers hundreds of islands scattered over thousands of square miles of ocean. Pacific Island coasts and near-shore environments include over 90% of the U.S. coral reefs and a range of unique, tropical habitat types that support many endemic species, hundreds of which are listed as threatened or endangered species.

Funding
The PICP administered over $247,794 for FY2003 across fourteen projects in the Pacific region.

FY03 PICP Projects
1 Marine Gap Analysis
2 State Coastal Vegetation Survey
3 Curriculum Packet for `Ōhia Productions Plays
4 Hawksbill Turtle Nesting Beach Protection
5 Kamilo Coast Boundary Survey
6 Kanahā Beach Dune & Coastal Strand Restoration
7 Campbell High School Limu Research Project
8 Hawaii Coastal Resource Atlas
9 Lehua Island Alien Species Control
10 Laysan Island Ant Control & Seabird Protection Project
11 Midway Atoll Insect Survey
12 Palau Sea Turtle and Saltwater Crocodile Surveys
13 Palau Watershed Conservation Advisor
14 Palmyra Atoll Insect Surveys

Future Plans
The program is working to add projects in Guam, the Federated States of Micronesia, the Republic of the Marshall Islands and the Commonwealth of the Northern Mariana Islands.

FY2003 Project Locations



Pacific Islands Coastal Program
FY 2003 Funded Projects

Honu, Hawaiian green sea turtle (Chelonia mydas)
Photo by George Balaz/NOAA Fisheries

Marine GAP Analysis

Partners: The Nature Conservancy, Hawai`i Natural Heritage Program, Hawai`i Division of Aquatic Resources, University of Hawai`i, National Oceanic & Atmospheric Administration

Funding was continued for a second year to create an electronic database and GIS system that covers important marine and coastal species and ecosystems in Maui County. A GIS data layer of nearshore marine and coastal resources around the islands of Maui, Moloka`i, Lāna`i and Kaho`olawe will include data on species locations, habitat types, traditional Hawaiian knowledge of species and habitats, land ownership, and threats to species and habitats. This data management tool will be used to identify areas where conservation projects are needed and to assist the State of Hawai`i to identify potential areas for establishing new marine protected areas.

Coastal view of Moloka`i

Statewide Coastal Vegetation Surveys

Partners: US Geological Survey-Biological Resources Division

Funding was continued for a statewide coastal vegetation survey. The survey will identify the best remaining coastal plant communities in the main Hawaiian Islands and identify restoration and protection measures. Survey results will help identify high priority coastal habitats for project funding and other conservation initiatives.

`Ōhia Productions players

Curriculum Packet for `Ōhia Productions Plays

Partners: `Ōhia Productions

`Ōhia Productions writes and performs plays with environmental themes for school age children throughout Hawai`i. `Ōhia Productions is funded to hire an educational consultant to produce a curriculum that school teachers can use to reinforce the conservation themes introduced after the plays are performed for the schools.

Pacific Islands Coastal Program
FY 2003 Funded Projects

`Ea, Hawksbill sea turtle hatchlings run across the beach to the sea (Eretmochelys imbricata)

Hawksbill Sea Turtle Nesting Beach Protection

Partners: The National Park Service, The Nature Conservancy

The project covers half a dozen sandy beaches along the remote southern coasts of the island of Hawai`i. Trained and closely supervised volunteer crews camp out at these beaches and humanely control alien mongoose and feral pigs, known predators of turtle eggs. Volunteers also collect nesting data and explain turtle conservation issues to the public. The project also includes outreach and community education components. The project area includes Kamehame Beach, the single most productive hawksbill nesting beach in the United States. Hawksbill sea turtles are a critically endangered species and much of their nesting habitat has either been destroyed or invaded by alien predators. Alien species eradication at these nesting beaches is the most beneficial management action for hawksbills in the state.

Kamilo Coast

Kamilo Coastal Parcel Boundary Survey

Partners: State of Hawai`i, the Hawai`i Wildlife Fund

The Hawaii Wildlife Fund will use these funds to survey State of Hawai`i land at Kamilo on the island of Hawai`i. This area is rich in biological resources, including one of the most diverse coastal plant communities in the state, anchialine pools and monk seal habitat. The survey will subdivide the coastal portion of the land (1,500 acres) and allow the State Land Division to transfer this portion to the State Division of Forestry and Wildlife (DOFAW). The land will then be managed for conservation purposes through an agreement between DOFAW and Hawai`i Wildlife Fund. The Hawai`i Wildlife Fund will apply for various grants to institute a community-based management system for the area, following the subdivision and land transfer.

Kanahā Beach fence

Kanahā Beach Dune & Coastal Plant Restoration

Partners: Maui County, Community Workday Program

The 12-acre coastal dune area at Maui's Kanahā Beach will be fenced to prevent off-road vehicles from destroying the dunes. Kanahā Beach is one of the last dune ecosystems remaining on Maui and in the State. Two listed and two SOC plants, endemic insects, migratory shorebirds and a rare coastal plant community will be protected from off-road vehicle traffic. Community support of protection of this area is high and community volunteers will provide free labor for fence construction and subsequent habitat management after the fence is complete.

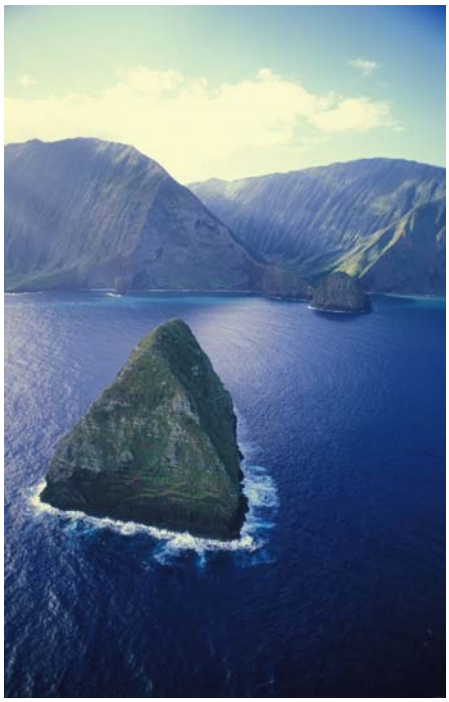
Pacific Islands Coastal Program
FY 2003 Funded Projects

Limu is the Hawaiian word for marine algae
Photo by Kevin Foster

Campbell High School Limu Research Project

Partners: State of Hawai`i Department of Education, Ewa Limu Project, University of Hawai`i, Hawaii Community Foundation

This project will provide high school students with applied research and monitoring opportunities in a shallow water marine area traditionally used for harvest of edible seaweeds (limu). A variety of fish and invertebrates, as well as sea turtles also utilize this habit. Students will learn to conduct simple water quality sampling and analysis, to understand the impacts of overharvesting and also how to document and communicate this information in a format useful to community members. They will also work with and learn from a community group engaged in efforts to conserve this area for traditional Hawaiian seaweed harvesting.



Islets offshore of the island of Moloka`i
Photo by Maya Legrand and Ken Wood

Hawai`i Coastal Resource Atlas

Partners: Trust for Public Land, Hawai`i Community Foundation

This project will produce an attractively formatted, easily usable atlas of Hawai`i's coastal natural and cultural resources and will raise awareness of coastal conservation needs. The atlas will be distributed to policy makers and agency managers to provide them information useful in decision-making. Information will be presented in a factual, non-controversial manner and will clearly highlight pressing management issues in addition to hot-spots of biological and cultural resource diversity. The atlas will cover all coastal areas in Hawaii and will highlight accounts of coastal management issues and areas with particularly valuable coastal resources. Maps, photographs, and illustrations will be used throughout the document.

Pacific Islands Coastal Program
FY 2003 Funded Projects

Lehua Island's rugged coastline

Lehua Island Alien Species Control

Partners: Hawai`i Chapter of the Wildlife Society, State of Hawai`i, U.S. Department of Agriculture, U.S. Coast Guard, Pelea Pacifica

Lehua Island has one of the largest seabird colonies in the main Hawaiian Islands and has excellent potential for restoration of plant and seabird habitat. The project will start with remval of introduced rats, rabbits and cattle egrets that are negatively impacting the fragile island ecosystem. Alien species control should be relatively non-controversial since Lehua is a designated State Seabird Sanctuary and is uninhabited. The first step is to complete permitting and National Environmental Policy Act requirements. As a result of alien species control, extirpated seabird species are expected to re-colonize naturally and native plants will be re-introduced by researchers as part of a separate restoration project. Once alien species are eradicated or suppressed, Lehua will serve as a natural refuge for many native species that have vanished from the main islands.

Tristram's Storm Petrel by ground burrow (Oceanodroma tristrami)
Photo by Beth Flint/USFWS

Laysan Island Ant Control & Seabird Protection Project

Partners: Hawai`i Chapter of the Wildlife Society, Hawaiian Islands National Wildlife Refuge, Memorial University of Newfoundland

Natural resource managers throughout Hawai`i and the Pacific Islands are looking for solutions to problems caused by invasions of alien ants, especially in small island ecosystems where there are no native ants and indigenous species did not evolve to cope with ant predation. The project will provide important information to resource managers and will also benefit the Laysan population of rare Tristram's storm petrels (*Oceanodroma tristrami*). Study plots will be established and effectiveness of granular ant bait in tamper-proof bait stations will be evaluated. Effects of ant control on Tristram's storm petrel reproductive success will be quantified.

Volunteer on Spit Island, Midway Atoll NWR

Midway Atoll Insect Survey

Partners: Bishop Museum, Midway Atoll National Wildlife Refuge

The project funds were used for identification of insects collected at Midway Atoll National Wildlife Refuge. Ants have been threatening colonies of ground-nesting and burrowing seabirds. Proper identification of the insect species and population estimates are important to develop management strategies for pest eradication.

Pacific Islands Coastal Program
FY 2003 Funded Projects

Green sea turtles (Chelonia mydas) basking
Photo by David Ledig/USFWS

Palau Sea Turtle & Saltwater Crocodile Surveys

Partners: Palau Bureau of Marine Resources, Palau Conservation Society, National Marine Fisheries Service, Community Conservation Network

Project components include beach surveys, turtle tagging, attachment of satellite transmitters, public education, a display at the national aquarium and a survey of existing harvest levels of sea turtles (many aspects of which are currently legal in Palau). This project came about because Palau's green and hawksbill sea turtles are currently listed under the United States Endangered Species Act and the Palau government made a special request to USFWS and NMFS for financial and technical assistance, in keeping with the U.S.- Palau Compact of Free Association. The project will build in-country agency capacity to create and maintain a sea turtle monitoring program and will also increase public awareness of sea turtle conservation needs. Nesting beaches identified in surveys will receive a higher level of protection by Palau enforcement agencies.

Palauan lagoon

Palau Watershed Conservation Advisor

Partners: The Nature Conservancy

In accordance with the U.S.- Palau Compact of Free Association, the Palau government requested support of this project for a second year, citing the importance of the project to Palau's conservation efforts. The first year of the project was very successful in organizing watershed conservation efforts and was much appreciated by Palauan government agencies and conservation groups. Watershed conservation is the key to conserving Palau's spectacular forests, streams, wetlands and nearshore coral reefs. Conservation of fisheries and marine habitat is also best achieved in Palau by controlling land-based problems such as sedimentation and poor water quality. The watershed advisor will continue to supply technical expertise to Palauan agencies as they develop their own network of protected terrestrial and marine areas, enact environmental legislation, develop management plans and create an ecoregional planning strategy.

Entomologists survey Palmyra Atoll

Palmyra Atoll Insect Surveys & Identification

Partners: Bishop Museum, USFWS Hawaiian and Pacific/Remote Islands National Wildlife Refuge Complex, University of Hawai`i

This project funded insect identification and collection at Palmyra Atoll National Wildlife Refuge. Palmyra's insect fauna was virtually unknown before this survey. In addition to providing baseline information on the Refuge's insect fauna, survey results will also be used to help Refuge staff and others determine the causes of and solutions to recent insect damage to Palmyra's rare *Pisonia* forest.

Partners for Fish and Wildlife

Working with private landowners to restore thousands of acres for native Hawaiian species.

Background and Justification
The Partners for Fish and Wildlife (PFW) Program was established to offer technical and financial assistance to landowners who wish to restore wildlife habitat (native ecosystems) on their property.

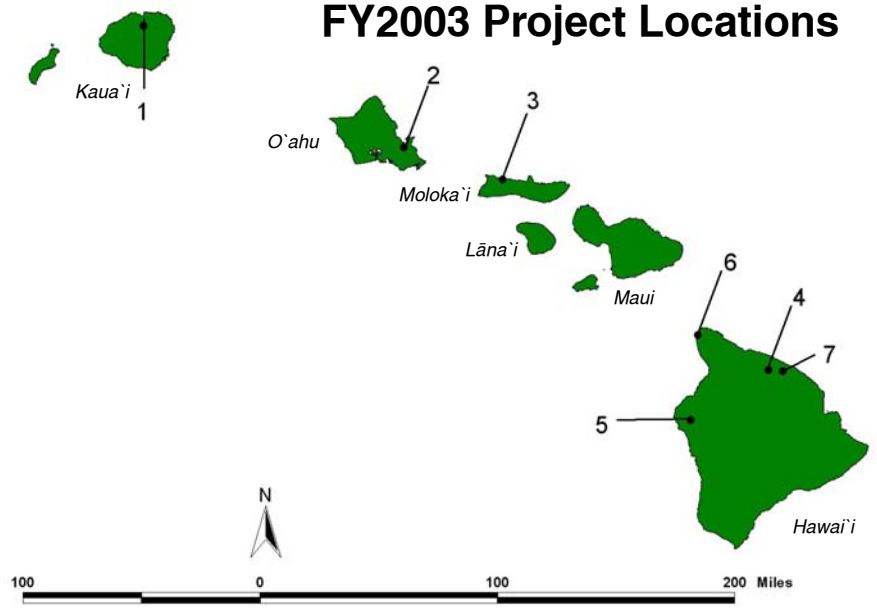
Since 1994, the PFW program in Hawai`i has contributed over $800,000 to restoration projects targeting unique ecosystems: caves that provide habitat for listed invertebrates; bogs that contain diverse and rare plant species; dryland forests that have disappeared from most of the islands; wetlands that are home to endangered waterfowl; and island watersheds that connect rainforests with coral reefs.

Funding
The PFW Program received $202,542 during FY2003 to provide funding for restoration projects on private lands.

FY03 PFW Projects
1 - Limahuli Valley Restoration
2 - Waikalua Fishpond Restoration
3 - Mo`omomi Coastal Habitat Restoration
4 - Pa`auilo Koa/`Ōhia Forest Restoration
5 - Keahuolū Plant Restoration
6 - Kohala Mountains Restoration
7 - Humu`ula Koa Buffer Fence

Future Plans
Depending on future funding, the PFW Program will expand its range of restored habitat types and work with additional landowners to restore a greater amount of native habitat.

FY2003 Project Locations



Partners for Fish and Wildlife
FY 2003 Funded Projects

Limahuli Valley

Limahuli Valley Restoration

Partners: Limahuli Gardens, National Tropical Botantical Gardens

The project funds will support restoration activities including removal of alien species, fence construction, plant propagation and outplanting. Reducing the ingress of pigs into the valley will slow the invasion of alien plants into the most intact areas of Limahuli Preserve. Soil erosion and the dispersal of alien plant seeds will be reduced largely throughout the preserve. Habitat for wild populations of 13 threatened and endangered species will be protected from rampant digging and trampling by feral pigs.

Waikalua fishpond

Waikalua Fishpond Restoration

Partners: Waikalua Loko Fishpond Preservation Society

Funds were provided to restore the wetland habitat around the historic Waikalua Fishpond, Oahu. The fishpond, located on the shoreline between Kāne`ohe and Kāwā Streams, is 11.6 acres. Introduced mangrove trees and other invasive plant species have degraded the fishpond. Project actions include: removing invasive species, restoring native wetland vegetation and identifying additional wetland plant and coastal plant restoration areas.

Mo`omomi access road

Mo`omomi Coastal Habitat Restoration

Partners: Pacific American Foundation, State Department of Hawaiian Homelands

The purpose of this project is to continue protection and restoration the native coastal strand habitat at Moʻomomi (along the northern shore of the island of Moloka`i) to benefit native plants, birds, and coastal invertebrate resources. This restoration effort will entail the installation of a barrier to protect rare coastal plant habitats from human and vehicular impacts and allow natural regeneration of native plants to occur. The project will also monitor the success of the barriers and the effects of ungulates on these rare plants.

Partners for Fish and Wildlife
FY 2003 Funded Projects

Water storage tank for habitat restoration efforts

Pa`auilo Koa / `Ōhia Forest Restoration

Partners: Lauren Kaye

The project goal is to restore native Hawaiian forest habitat suitable for the long-term maintenance of populations of several rare or endangered understory plant species endemic to lowland mesic and wet forests of the island of Hawai`i. Plant populations include: *Clermontia peleana ssp. peleana* (‘oha wai), *Cyanea platyphylla* (haha), *Cyrtandra tintinabula* (ha’iwale), *Gardenia brighamii* (nanu), *Phyllostegia* spp., *Vicia menziesii* (Hawaiian vetch) and *Pritchardia ssp*. (loulu).

Isodendrion pyrifolium

Keahuolū Plant Restoration

Partners: Queen Lili`uokalani Trust (QLT)

The Keahuolū Plant Project will propagate two endangered species, *Isodendrion pyrifolium* and *Neraudia ovata*, that occur on the island of Hawai`i. The collection of seed and cuttings from these two species for propagation purposes will contribute directly to recovery actions identified in their respective recovery plans. It is anticipated that the propagation efforts will provide material for outplanting into suitable habitat on conservation lands, some of which may be 53 acres set aside by QLT, in order to establish recovery populations of these species.

Bond Estate mesic lowland forest

Kohala Mountains Restoration

Partners: Nā Huapala O Hawai`i

Two restoration sites- Bond Estate (mesic lowland forest) and Kaname`e (lowland dry/coastal community)- include establishment of a native plant greenhouse, collection of native seeds from the area, propagation and outplanting, construction of a fence to protect outplanted species from feral ungulates and eradication of alien plants.

Humu`ula koa buffer fence

Humu`ula Koa Buffer Fence

Partners: Nā Huapala O Hawai`i

On the northeast coast of the island of Hawai`i is the Humu`ula area where protection of the koa forests continues with support from the PFW program. Community involvement has facilitated a fence building project to help the outplanted koa seedlings survive.

Appendix A

Current Partners

Alexander & Baldwin

Bishop Museum

Laura Brezinsky

Castle & Cooke Resorts, LLC

City & County of Honolulu
-Board of Water Supply

Coevolution, LCC

Community Conservation Network

County of Maui
-Board of Water Supply

Dunbar Ranch

Ducks Unlimited, Inc.

Ewa Limu Project

Friends of He`eia State Park

Haleakalā Ranch

Hānā Ranch

Hui Mālama Pono O Lāna`i

Hui Mālama Pono O Mo`omomi

Hawai`i Community Foundation

Hawai`i Forestry Institute Association

Hawai`i Nature Center

Hawai`i Natural Heritage Program

Hawai`i Wildlife Fund

Hawaiian Silversword Foundation

International Archaeological Research Institute Inc.

James Campbell Estate

Ka`ala Farms, Inc.

Kahikinui Game & Land Management Ohana

Kamehameha Schools

Kaonoulu Ranch

Kaupō Ranch

Lauren Kaye

Kipahulu Ohana

Ko`olau Mountains Watershed Partnership

Kū `Ōhia Laka

Kukui`ula Development Corp.

Laupāhoehoe Nui, LLC.

Lāna`i Institute for the Environment

Living Indigenous Forest Ecosystems

Lyon Arboretum Association

Mānana Valley Farms, Inc.

Maui Coastal Land Trust

Maui Pineapple Company

Memorial University of Newfoundland

Nā Hualapa O Hawai`i

National Oceanic & Atmospheric Administration
-NOAA Fisheries

National Park Service
-Haleakalā National Park
-Hawai`i Volcanoes National Park

National Tropical Botanical Gardens

National Wildlife Refuge
-Hakalau Forest NWR
-Hawaiian Islands NWR
-Midway Atoll NWR
-Oahu Complex (Pearl Harbor NWR, O`ahu Forest NWR, James Campbell NWR)
-Pacific/Remote Islands NWR

Native Hawaiian Plant Society

Nu`u Makua Ranch

`Ōhia Productions

Pacific American Foundation

Palau Bureau of Marine Resources

Palau Conservation Society

Parker Ranch, Inc.

Pelea Pacifica

Pisces Pacifica

Potomac Investment Associates

Queen Emma Foundation

Queen Lili`uokalani Trust

San Diego Zoo Keauhou Bird Facility

Sea Life Park

State of Hawai`i
- Dept of Education
- Dept of Hawaiian Homelands
- Dept of Land and Natural Resources
- Dept of Public Safety

The Nature Conservancy

The Wildlife Society –Hawaii Chapter

Tri-Isle Resource Conservation & Development

Trust for Public Land

`Ulupalakua Ranch

`Umikoa Ranch

University of Hawai`i
-Hawaii Stream Restoration Institute
-Pacific Cooperative Studies Unit

U.S. Army

U.S. Coast Guard

U.S. Dept of Agriculture
- Natural Resource Conservation Service
- Forest Service

U.S. Geological Survey
-Biological Resources Division

Waikalua Loko Fishpond Preservation Society

Waimānalo Health Center

Waimea Outdoor Circle

Waipā Foundation

John Zwaanstra

U.S. Fish and Wildlife Service
Pacific Islands Office
300 Ala Moana Blvd., Room 3-122
Honolulu, Hawaii 96850
Phone: 808/792 9400
Fax: 808/ 792 9580

http://pacificislands.fws.gov

Hawaii Relay
TTY 1 800/643 8833
Voice 1 800/ 546 2565

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