

G. Koob



PACIFIC  
ISLANDS  
FISH &  
WILDLIFE  
OFFICE

# conservation and restoration program

ANNUAL  
REPORT  
FY2015

## *conservation and restoration program*



G. Koob

The Conservation and Restoration Program of the Pacific Islands Fish and Wildlife Office (PIFWO) is composed of the Recovery Programs (Plants and Animals), Candidate Conservation Program, Partners for Fish and Wildlife Program, Coastal Program, Fish Habitat Program, Recovery Permits Program and ESA Section 6 Program. We work closely with the island teams to achieve the office goals to recover our nearly 600 species of listed plants and animals; prevent the extinction or extirpation of the rarest of the rare; enlist the assistance of partners around the Pacific Islands (from private landowners, not-for-profit organizations, state, territorial and local governments and their agencies); and ensure the needed research and recovery actions are permitted and follow the guidelines of the Endangered Species Act (ESA).

Despite budgetary constraints, we are able to accomplish a great deal with what we are given. This report shares our on-the-ground recovery and partnering efforts during the 2015 fiscal year and offers a small window into all that is being done for the flora and fauna of the Pacific Islands. We have included feature stories to illustrate our accomplishments as well as summaries of the expenditures and obligations for new or continuing projects. But our success is defined by more than just money – it is the dedicated efforts of our staff, our partners and the people of the Pacific Islands.

J. Jeffrey



**recovery**

# animal recovery program

Working collaboratively to prevent the extinction and recovery of Pacific Island animals with the ultimate goal of removing them from the list of federally protected species

Project Expenditures	Projected End Date	Expended in FY2015
Ka'ū Invasives	09/30/18	\$7,272.38
Hawai'i Snail Conservation	09/30/16	12,326.30
Snail Extinction Prevention Program	09/30/19	483.61
Baseline Inventory of Arthropods for Endangered Plants	09/30/16	12,404.83
Captive Breeding `Akikiki & `Akeke`e	09/30/16	58,127.40
Invasives Species Program Support	09/30/15	39,998.05
Lihau Natural Area Fence	09/01/17	12,249.18
Kaluanui Fence	09/01/17	544.80
Guam Kingfisher Capacity Expansion	06/30/17	40,000.00
Hawaiian Duck (Kōloa)	09/30/15	5,868.47
Conservation Efforts in Ka'ū Forest Reserve	09/30/15	9,327.09
Palila Critical Habitat Fence(II)	08/31/16	1,384.74
Palila Critical Habitat Fence Mauna Kea	09/30/17	302.46
San Diego Zoo - Hawaii Forest Bird Captive Propagation	09/30/18	737,207.45
Mariana Fruit Bat	09/30/15	361.00
Rota Law Enforcement Supplemental Support	09/30/16	4,002.00
Mariana Crow Mortality Monitoring	09/30/16	76,574.00
Rota Feral Cat Management for Mariana Crow	09/30/16	216,672.53
Anticoagulant Rodent Baits	09/30/16	12,246.89
Auwahi III Restoration	12/31/14	66,467.36
Mariana Crow Rear and Release	09/30/16	40,000.00
ED/Rapid Response Efforts	09/30/14	13,304.50
Mariana Wandering butterfly	09/30/15	57,317.39
<b>Total</b>		<b>\$1,424,442.50</b>

Project Obligations - FY2016	Start Date	Awarded Amount
`Alalā Captive Propagation	4/14/2015	\$500,000
O`ahu Snail Extinction Prevention Program	4/29/2015	306,000
Mariana Crow Rear and Release	6/27/2015	319,762
Guam Kingfisher Population Expansion	4/14/2015	40,000
Avian Malaria Vector Control	5/21/2015	25,000
`Alalā Reintroduction	7/15/2015	100,000
Rota Feral Cat Management	9/10/2015	270,000
`Akikiki and Akeke`e Captive Propagation	6/19/2015	134,685
`Akikiki and Akeke`e Captive Propagation	6/9/2015	90,405
`Alalā Reintroduction	6/22/2015	41,577
`Alalā Reintroduction	7/24/2015	145,000
Mariana Crow Captive Care	6/24/2015	32,586
Mouse Bait Field Trials	8/10/2015	123,394
<b>Total</b>		<b>\$2,128,409.00</b>

# Mariana Crow Rear and Release



The Mariana crow (*Corvus kubaryi*, aga) is endemic to the islands of Rota and Guam in the Mariana Islands. The Guam population is extinct and the Rota population has declined to an estimated 130 birds and is projected to go extinct in less than 75 years. Predation by feral cats, nest disturbance by humans, nest loss from typhoons, habitat degradation, inbreeding and disease are considered threats. Current management activities for the aga include a cat control program, injured bird rehabilitation, nest monitoring, pair surveys, an incentive program for landowners to address human threats, and radio telemetry of adult birds. The aga continues to decline in spite of these management efforts.

In 2014, the Service held an

internal workshop to identify and prioritize additional management actions needed to prevent extinction and begin recovery.

Considered options included a cat control program, captive propagation (build a captive population by collecting eggs or chicks from the wild for release at some time in the future), and rear and release (collect eggs or chicks from the wild and release as 2-year-olds). Considered constraints included cost, feasibility, startup time, public support, and the time it would take for the action to benefit the population. We selected a rear and release program in combination with a cat control program.

In August 2015 the Service partnered with the San Diego Zoo to acquire, build, and maintain facilities on Rota, hire staff to care for aga, develop new aviaries and infrastructure, collect wild aga eggs and transfer them to the



facility, artificially incubate eggs and hand-rear nestlings and fledglings, utilize Zoo veterinary and pathology expertise, obtain necessary permits, and publicize the program goals and accomplishments. To date, facilities were rented, staff hired, and new infrastructure installed. In April 2016, the Zoo will release two birds that were brought into captivity due to injuries, and egg collection will begin during the 2016 breeding season.

# plant recovery program

Working with partners to protect and restore native habitats on which threatened and endangered Pacific Islands plant species depend, with the ultimate goal of removing them from the list of federally protected species

Project Expenditures	Projected End Date	Expended in FY2015
Laupāhoehoe Nui Watershed	08/31/17	\$14,104.19
Pu'uwa'awa'a Forest Reserve	09/30/18	110,698.97
Volcano Rare Plant Facility	06/30/15	12,224.52
Plant Extinction Prevention Program	12/31/16	684,761.76
Plant Extinction Prevention Program	09/30/19	156,568.54
<i>Kanaloa kahoowawensis</i> ex situ Propagation	09/30/19	11,000.00
Seed Storage Research	09/30/18	54,677.61
Seed Storage Research	09/30/18	49,504.08
Plant Habitat	08/31/15	10,000.00
Southeast Alaka'i Conservation	08/31/16	19,599.01
CGAPS Projects Support	03/31/16	1,107.56
Seed Collection and Storage	09/30/16	63,046.06
Reintroduction Endangered Lobeliads	09/30/19	8,717.64
O'ahu Invasive Species Committee	09/30/14	2,336.61
Kaua'i Invasive Species Committee	09/30/14	3,538.23
Plant Recovery	12/31/16	678.09
Big Island Invasive Species Committee Surveys	09/30/14	13,096.14
	<b>Total</b>	<b>\$2,555,660.08</b>

Project Obligations - FY2016	Start Date	Awarded Amount
Plant Extinction Prevention Program	3/18/2015	\$850,000
Marianas Plant Extinction Prevention Program	7/10/2015	200,000
	<b>Total</b>	<b>\$1,050,000.00</b>

# Plant Extinction Prevention Program



H

awai'i has 238 native plant species with 50 or less individuals remaining in the wild. The Plant Extinction Prevention (PEP) Program, partially funded by the Pacific Islands Fish and Wildlife Service, ensures these unique plants are part of Hawai'i's ecosystems for generations to come. Administered by the University of Hawai'i at Mānoa, Pacific Cooperative Studies Unit, the PEP Program strives to meet the "Interim Criteria" identified in federally listed species' recovery plans, as well as the endangered plant protection actions outlined in the State of Hawai'i's 2005 Comprehensive Wildlife Conservation Strategy. In FY15, the PEP Program implemented protection actions for 197 federally

listed Endangered and Threatened plant species, and recovery actions for 148 PEPP species. Of the 148 PEPP species, the program implemented population monitoring for 107 species, placing 87 of these into *ex situ* (off-site) cultivation at a cooperating rare plant nursery, botanical garden, or tissue culture facility. To protect the founders in the wild, the program also managed non-native animal and plant threats for 82 PEPP species. Noteworthy projects include the outplanting of 35 PEPP species and 13 other rare species, totaling 1,480 plants reintroduced to protected natural habitats throughout Hawai'i. There are currently 14 PEP staff, including program management staff, employed across Kaua'i, O'ahu, Maui, Lāna'i, Kaho'olawe, Moloka'i, and Hawai'i Island.



During FY15, the PEP Program surveyed 60 PEPP species and 56 additional rare species. The discovery of additional founder plants can greatly increase the species' chances of recovery and are therefore, considered high priority actions. On the island of Kaua'i, Steve Perlman, Statewide PEPP Specialist, and Ken Wood, National Tropical Botanical Garden, and others focus their survey efforts with the sole purpose of discovering more plants of PEPP and possibly extinct species. Statewide, these surveys have resulted in the discovery of new individuals and/or populations of 31 PEPP species.

## *collaboration*



G. Koob

The Recovery Program works collaboratively with our partners to implement actions needed to recover the species and their habitats.

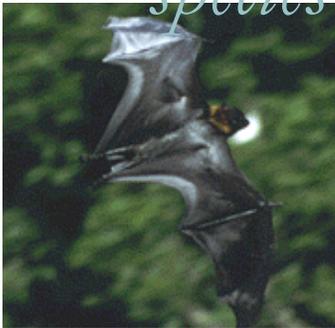
## *technical expertise*

Megan Laut, Animal Recovery Program Coordinator, works with biologists to identify, prioritize, and implement actions needed to recover listed species. Recovery actions can take many forms and our program has many aspects to reflect the diverse nature of threatened and endangered species recovery.



S. Plentovich

## *species protection*



D. Worthington

A species is recovered once it is secure in its environment and becomes a thriving and self-sustaining member of the ecosystem. Steps to achieving recovery are outlined in recovery plans.

## *unlimited restoration opportunities*



L. Mehrhoff

There are nearly 600 listed species in the Pacific Islands. We work with our partners to protect and recover these species and their ecosystems.



S. Plentovich

# COASTAL

# coastal program

To work with partners to achieve voluntary habitat restoration in coastal ecosystems, marine habitats, and watersheds, through financial and technical assistance for the benefit of federal and trust species

Project Expenditures	Projected End Date	Expended in FY2015
Kaloko-Honokōhau National Park Coastal Restoration	8/31/2018	\$6,875.00
Hanalei Watershed Community Project	12/31/2015	5,922.88
Mo`omomi Cat and Deer Fence	8/31/2018	3,674.64
Rota Feral Cat Control for Mariana Crows	9/30/2016	23,294.00
Pohnpei Watershed Alliance	8/31/2016	522.14
<i>Hylaeus</i> (Yellow-face bees) Nest Site Enhancement	8/31/2018	27,835.42
Nīhoa Millerbird Translocation Monitoring	9/30/2015	20,508.00
Nīhoa Rare Plant Survey and Invasive Species Control	9/30/2015	75,000.00
	<b>Total</b>	<b>\$163,632.08</b>

Project Obligations - FY2016	Start Date	Awarded Amount
James Campbell NWR Predator-proof Fence	8/7/2015	\$160,580.00
Nīhoa Finch Molecular Analysis	6/2/2015	15,000.00
Green Sea Turtle Outreach	7/31/2015	20,000.00
Kahuku Point Coastal Restoration	8/21/2015	40,000.00
	<b>Total</b>	<b>\$235,580.00</b>

# Nīhoa Millerbird Translocation Monitoring



R. Kohley

The Laysan Millerbird (*Acrocephalus familiaris familiaris*) went extinct in the 1920s after introduced rabbits and other livestock denuded the island, destroying almost all suitable habitat. A second Millerbird subspecies, *A. f. kingi*, persists as a single-island endemic on Nīhoa and is listed as Endangered. The goal of this effort was to establish a second population of Nīhoa Millerbirds on Laysan by translocating 50 Millerbirds 1,037 km (644 mi) by sea from Nīhoa to Laysan in September 2011 and 2012. The creation of this second population reduces extinction risk for the Nīhoa Millerbird and has the ancillary benefit of re-establishing an insectivorous passerine bird to Laysan.

As of September 2014, the new Millerbird population was estimated to be 164 birds (including 37 of the original 50 founders). High survival rates and high nest success make continued population growth likely. This translocation provides a model that can inform progressive endangered species and restoration programs seeking novel methods for conserving populations of endangered species and considering the use of ecological analogues to replace extinct, but closely related, species. In an effort to recover this and other single-island endemic passerines in the Northwestern Hawaiian Islands, species will need to be translocated to higher elevation locations in the main Hawaiian Islands. Avian malaria will need to be eradicated at these locations prior to translocation.



R. Kohley



M. Dalton



S. Plentovich

**Partners:** American Bird Conservancy, U.S. Fish and Wildlife Services Refuges Division, Papahānaumokuākea Marine National Monument and World Heritage Site, NOAA Monk Seal Research Program, Office of Hawaiian Affairs, Honolulu Zoo, U.S. Geological Survey National Wildlife Health Center (Honolulu Field Station), University of Hawai`i, Mānoa

Details of the Nīhoa Millerbird translocation effort can be seen at: <https://vimeo.com/71003810>  
*A Story of Hope: the Millerbirds' Journey*

## *collaboration*



S. Plentovich

The Coastal Program fosters collaborative and voluntary partnerships to develop novel methods of restoring habitat and recovering populations of rare species on oceanic islands.

## *technical expertise*

Coastal Program staff are significantly involved with financial and technical assistance projects. Cooperators have trained, technically proficient personnel with whom they collaborate, increasing the likelihood of success. Sheldon Plentovich, Coastal Program Coordinator, works closely with other staff biologists and technical experts from around the world, providing our partners the best possible assistance.



R. Rounds

## *species protection*



S. Plentovich

A new study found that the world's seabird populations have plummeted by almost 70% in just 60 years. The Coastal Program has funded and worked on several projects that restore, enhance and protect important seabird breeding habitat.

## *unlimited restoration opportunities*



S. Plentovich

The main Hawaiian Islands alone, have 750 miles of coastline. Combined, the coastlines of the Marianas, American Samoa and all independent Pacific nations with Compacts of Free Association with the U.S. (Palau, Federated States of Micronesia, and the Marshall Islands), rival much larger states and regions.

M. Clark



**partners**

# partners program

To efficiently achieve voluntary habitat restoration on private lands, through financial and technical assistance for the benefit of Federal Trust Species

Project Expenditures	Projected End Date	Expended in FY2015
The Nature Conservancy Maka`alia Fence Unit	09/30/19	\$131,053.59
Kanaele Bog Plant Restoration	08/31/15	9,830.39
Limahuli Preserve	09/30/18	136,988.71
Rota Rare Plants Recovery	09/30/16	14,060.75
Protective Fence Haleakalā, Maui	09/01/15	88,000.00
Īao Valley Fence	09/30/17	37,930.42
Waikamoi Fence	09/30/19	111,647.13
`Elepaio Restoration	09/30/18	8,710.49
Nauhi Gulch	06/01/15	10,697.00
Alien Pest Species Outreach	09/30/14	11,351.66
East Alaka`i Fence	12/31/14	63,953.00
<b>Ungulate Fence Wainiha Valley, Kaua`i</b>	<b>12/31/15</b>	<b>26,258.08</b>
	<b>Total</b>	<b>\$650,481.22</b>

Project Obligations - FY2016	Start Date	Awarded Amount
Kaupō Ranch	8/21/2015	\$162,106.00
Rota Rare Plant Recovery	8/12/2015	18,500.00
Waipāhoehoe Management Unit	7/27/2015	110,000.00
	<b>Total</b>	<b>\$290,606.00</b>

# Ungulate Fence Wainiha Valley, Kaua`i



The objective of this project was to protect and preserve approximately 7,050 acres of irreplaceable watershed and unique native ecosystem, as well as the rare and endangered species it supports. It is located in the privately owned Wainiha Preserve on the windward side of Kaua`i and managed by the private-public resource management organization called the Kaua`i Watershed Alliance. The project involves building a protective 489-meter-long fence (0.3 mi or 1,604 ft) across the lower reaches of Wainiha stream to prevent ungulates from accessing the upper reaches of the watershed. In addition to the fence, ungulate and invasive plant control efforts ensure the valley can remain in a natural and native state for future generations.

In nearly all predicted climate change scenarios, the Wainiha project area will become even more critical to the survival of species reliant on montane wet forest habitat. It provides protected habitat along a continuous elevation gradient, from lowland wet forest at 1,300 ft to the montane bogs found at the 5,000-ft summit of Kaua`i. The landscape connectivity will enable native species to adapt to changing climate conditions by shifting their ranges as their suitable habitat is altered.

This project also includes continued ungulate control efforts in the valley using six traps and game cameras. Design and methodologies to capture ungulates is ongoing. M.I.N.E.™ (Manually Initiated



Nuisance Elimination) trapping, using larger corral traps and wide gates appears to be the most effective. Additionally, the project removed nearly 1,431 acres of the invasive Australian tree fern, which once covered the valley floor, utilizing innovative high definition vegetation mapping and precise aerial application technologies. Field crews have also eliminated more than 40,000 mature and 8,500 immature Kāhili ginger in the five acre core infestation and surrounding outlier clumps.

## *collaboration*



J. Higashino

The mission of the Partners for Fish and Wildlife Program is to efficiently achieve voluntary habitat restoration on private lands, through financial and technical assistance for the benefit of Federal Trust Species.

## *technical expertise*

Partners staff work with private landowners to provide both financial and technical assistance. Benton Pang, Partners for Fish and Wildlife State Coordinator, encourages all staff biologists to consider private lands in achieving habitat conservation goals throughout Hawai`i and the Pacific Islands.



M. Clark

## *species protection*



B. Pang

The Partners program has aided in the conservation of single species in Rota (Commonwealth of the Northern Mariana Islands), the removal of invasive trees in American Samoa, and the restoration of dry forest habitats on the southern slopes of Haleakalā (Island of Maui).

## *unlimited restoration opportunities*



B. Pang

Partners program opportunities are guided by “focus areas” found in the new revision to the Partners Strategic Plan. This plan is due to be completed by 2017.

G. Smith



# fisheries

# fisheries

To cooperatively develop and implement aquatic conservation projects in Hawaiian streams and estuaries through the support and participation of government agencies, non-governmental organizations, and the private sector

Project Expenditures	Projected End Date	Expended in FY2015
Stream and Estuary Habitat	9/30/2012	\$999.43
Waipā Stream Phase II	9/30/2017	42,403.38
Kīholo Estuary	9/30/2017	9,128.27
Kāwā Estuary Riparian Restoration	9/30/2017	8,439.94
Halulu Fishpond Estuary Restoration	9/30/2017	5,651.78
Loko Ea Estuary/Fishpond Restoration	9/30/2016	15,855.77
He`eia Wetland Vegetation Control	12/31/2014	733.20
	<b>Total</b>	<b>\$82,211.77</b>

Project Obligations - FY2016	Start Date	Awarded Amount
Fish Passage Engineering Support	8/25/2015	\$125,000.00
Īao Stream Fish Passage	8/26/2015	25,000.00
He`eia Stream Restoration	7/30/2015	45,500.00
The Nature Conservancy Kiholo Bay	8/26/2015	49,237.00
Halulu Fishpond Estuary Restoration	8/27/2015	20.000
	<b>Total</b>	<b>\$264,737.00</b>

# Loko Ea Estuary/Fishpond Restoration



In 2014, Alu Like, Inc., a native Hawaiian nonprofit organization, initiated a project to restore Hawaiian estuarine biodiversity in the Loko Ea Fishpond, located on the North Shore of O`ahu.

In fiscal year 2015, the organization achieved many objectives. They conducted aquatic species inventories and identified 21 species of fish, four invertebrates and five waterbirds. Using students from Leilehua High School's Environmental Studies department, Alu Like conducted water quality baselines and monitoring and removed at least eight tons of invasive flora that impeded water flow and

circulation. These activities were accomplished through community workdays in which 901 volunteers donated more than 3,600 hours of work.

Alu Like also removed sand accumulations to allow unimpeded flow of the `auwai kai – the channel that connects the fishpond to the ocean. They accomplished this effort with the help of nearly 4,300 volunteers, working an estimated 17,000+ hours. In addition to removing invasive plants and sand accumulations, the organization removed about 1,000 pounds of invasive fish. They also reintroduced 43 species of native plants to the ecosystem – both wetland and upland species.



Implementing an innovative idea to increase wetland plant habitat, waterbird nesting sites, and cover for young fish, Alu Like constructed eight floating habitats (called pu`uhonua, or "refuge" in Hawaiian) and placed them in various locations around Loko Ea. The floating habitats are simple designs using readily available materials. A floating plastic hoop is laid out, covered in netting and coconut matting, and attached to the hoop with pull ties. Native wetland plants are secured between the netting and the coconut matting. A rope and cinder block anchor secure it in place. The organization also created a "How-To" manual to share the technology with others.

## *collaboration*



D. Shively

With 17 partners from federal, state, and non-governmental organizations, the Hawai'i Fisheries Partnership is in place to prioritize and implement stream restoration throughout Hawai'i.

## *technical expertise*

The combined knowledge of the Hawai'i Fisheries Partnership is made available to land managers to better address the threats to aquatic, near-shore, estuarine and anchialine pool sites. Gordon Smith, Hawai'i Fisheries Partnership Coordinator has significant involvement with on-the-ground projects and also supports projects that increase Hawai'i's technical resources.



D. Shively

## *species protection*



G. Smith

Because all of Hawai'i's nine stream-dwelling species are diadromous – requiring downstream dispersal of larvae to the sea. The removal of barriers to migration is crucial to maintain healthy populations and allow native species to thrive.

## *unlimited restoration opportunities*



G. Smith

There are approximately 365 perennial streams located on the five largest Hawaiian Islands (Kaua'i, O'ahu, Maui, Moloka'i and Hawai'i). These streams support remarkable native communities of fish and invertebrates. However, many of these streams have been altered, affecting their structure and function.



# section 6

# section 6

The Cooperative Endangered Species Conservation Fund (Section 6 of the Endangered Species Act) provides funding to States, Territories, and Commonwealths for species and habitat conservation actions on non-federal lands

Project	Effect Determination	Funds Requested	Funds Awarded
Captive Propagation of Endangered Birds	LAA	\$470,500	\$470,500
Snail Extinction Prevention Program	LAA – BO 2014-F-0086	100,000	100,000
Plant Restoration and Enhancement - Plant Extinction Prevention Program	NLAA	215,801	215,801
Kaua`i Endangered Forest Bird Recovery	LAA – BO 2013-F-0426	150,600	150,600
Insectary Facility - Captive Propagation and Entomologist	NLAA	100,000	100,000
Plant Restoration and Enhancement - Mid-elevation Rare Plant Facilities Statewide	NLAA	400,000	400,000
`Alalā Recovery	NLAA	67,700	67,700
Picture-wing Fly Rearing (at U.H.)	NLAA	35,000	35,000
Plant Restoration and Enhancement, T&E, C, and SOC Outplanting, Hawai`i	NLAA	75,000	75,000
Palila Habitat Management	NLAA	52,000	52,000
Plant Restoration and Enhancement - Natural Area Reserves, Hawai`i	NLAA	100,000	100,000
Kaua`i Seabird Habitat Conservation Plan	NE	559,990	TBD
<b>Pua`ahala Watershed Acquisition</b>	<b>NLAA</b>	<b>1,566,875</b>	<b>TBD</b>
Avicultural Management of Guam Rail (Ko'ko) and Micronesian Kingfisher (Sihek)	LAA	309,000	309,000
Establishment of a Population of Guam Rail on Rota, CNMI	LAA	11,000	11,000
Monitoring of Guam Rail on Rota, CNMI	LAA	12,319	12,319
Population Viability Analysis Modeling to Support Reintroduction of the Micronesian Kingfisher	NE	21,000	21,000
Mariana Crow (Aga) Population Monitoring	LAA – BO 2014-F-0213	272,870	272,870
Endangered Species Conservation Program Manager	NE	80,449	80,449

# Pua`ahala Watershed Acquisition



The Pua`ahala Watershed Acquisition supports the protection and management of some of the highest quality native forest habitat on Moloka`i. The acquisition also protects a coastal wetland, Paialoa, which contains the island's largest freshwater pond, and is inhabited by endangered Hawaiian waterbirds, including A`eo (*Himantopus mexicanus knudseni*, Hawaiian Stilt) and `Alae Ke`oke`o (*Fulica americana alai*, Hawaiian Coot). Pua`ahala is approximately five miles east of the Kakahai`a National Wildlife Refuge wetland, and provides a new link in Moloka`i's chain of secured coastal wetland systems. The State of Hawai`i will own and manage the 800 acres of acquired property as a combination of wetland Wildlife Sanctuary and upland Forest

Reserve. This strategic acquisition directly benefits the protection of a much larger area on the south slope of Moloka`i, and is essential for access by the East Moloka`i Watershed Partnership to control invasive species, prevent and control wildfires, and enhance watershed health. In particular, State ownership of this land will close a gap in the fencing needed to protect the larger 1,300-acre Pāku`i unit. The Pua`ahala Watershed Acquisition preserves the rural character of Moloka`i and prevents development of a scenic wilderness area. In addition, this parcel contains critical habitat for a number of plant species.



This project would not be possible without our partners and cooperators. DLNR/DOFAW took the lead on the acquisition process and provided a 25% match. The East Moloka`i Watershed Partnership (EMoWP), comprised of 25 partners and coordinated by the Nature Conservancy's Moloka`i Program, will assist DOFAW with coordinating management efforts. The Moloka`i Plant Extinction Prevention Program conducts rare plant surveys to document location and health of rare plant species on the property, and initiate rare species protection, reintroduction, and recovery activities. The Moloka`i Maui Invasive Species Committee identifies future invasive species, likely pathways of introduction, and viable control efforts for the property.

## *collaboration*



A. Marshall

PIFWO biologists coordinate with our agency counterparts, private landowners and groups to ensure Section 6 funds are used strategically on common conservation goals.

## *technical expertise*

Section 6 coordinator, Annie Marshall, and other PIFWO staff consult with local and regional biologists to assist our counterparts with project development. This collaboration allows pooling various areas of expertise to work on complex conservation issues that range from invasive species to restoration and climate change.



J. Browning

## *species protection*



E. VanderWerf

A wide range of listed species are found in Hawai'i and the Mariana Islands. Half of all listed species spend at least part of their life cycle on privately owned lands, so working cooperatively with landowners and communities is imperative in achieving success in conserving species.

## *unlimited restoration opportunities*



A. Dibben-Young

The variety of species that occur in Hawai'i and the Marianas is echoed in the variety of habitats that occur in these places. Focusing efforts on ecosystems can benefit the conservation of many species that use that ecosystem. Working with a large numbers of partners also allows us to work on ecosystem-level projects.



S. Waddington

permits

# permits

Recovery Permits are provided to qualified individuals and organizations to achieve recovery goals of listed species, including research, on-the-ground activities, controlled propagation, and establishing and maintaining experimental populations

Species	Permittee	Location	Tails Number
Sea Turtles	Tammy Summers	Saipan, CNMI	2015-F-0087
Hawaiian Coot (`Alae ke`oke`o) and Hawaiian Stilt (Ae`o)	PIERC - BRD	O`ahu, HI	2015-F-0132
Mariana Common Moorhen (Pulattat)	CNMI Division of Fish and Wildlife	CNMI	2015-F-0153
12 Newly-listed Plants	Haleakalā National Park	Maui, HI	2015-F-0186
Mariana Common Moorhen (Pulattat)	US Navy - Guam	Guam	2015-F-0189
Least Terns	Dr. Patricia Baird	Hawai`i, HI	2015-F-0260
Hawaiian Petrel (`Ua`u) Relocation	Pacific Rim Conservation	Kaua`i, HI	2015-F-0348
Hawaiian Duck (Koloa)	Kaua`i National Wildlife Refuge	Kaua`i, HI	2015-F-0354
Sea Turtles	Hawai`i Wildlife Fund	Maui Nui (Maui, Moloka`i, Lāna`i, and Kaho`olawe), HI	2015-F-0390
Sea Turtles	American Museum of Natural History	Palmyra Atoll NWR	2015-F-0427
Mariana Crow (Aga)	ZSSD	Rota, CNMI	2015-F-0434

# Hawaiian Petrel (ʻUaʻu) Relocation



This permit will allow the translocation of the endangered ʻuaʻu (*Pterodroma sandwichensis*) from unprotected colonies on Kauaʻi, to an accessible and protected (fenced) site at Nihoku on the Kauaʻi National Wildlife Refuge.

Preparation at the Nihoku translocation site consisted of three phases: fence construction, predator removal, and habitat restoration. Fence construction took three months and immediately thereafter, all remaining invasive mammalian predators were removed using a combination of bait boxes to eradicate rats and live traps to remove cats. In the summer of 2015, approximately 0.45 ha (15%) of the project area was cleared of invasive alien plants. Suitable native

species will be out-planted in year one of the project. This area can comfortably fit over 100 artificial burrows at a density typical of *Pterodroma* colonies and still provide adequate open space for optimal take-off and landing zones. In subsequent years, more habitat will be restored with the ultimate goal of more than 50% of the area being dominated by native plant communities. Artificial burrows will only be installed in restored areas.

All work was conducted in close collaboration with staff from the Kauaʻi Endangered Seabird Recovery Project, Kīlauea Point National Wildlife Refuge, American Bird Conservancy, Hawaiʻi Department of Land and Natural Resources' Division of Forestry and Wildlife



(DOFAW), Pacific Rim Conservation, and the U.S. Fish and Wildlife Service. The Kauaʻi Island Utility Cooperative provided critical support for predator control, in collaboration with DOFAW, at montane nesting areas within the Hono O Na Pali Natural Area Reserve. The National Tropical Botanical Garden provided important assistance with vegetation restoration at the translocation site on Nihoku and the National Fish and Wildlife Foundation provided critical funding support. The first year is considered very successful with 9 of 10 translocated chicks fledging.

## *collaboration*



A. Bell

Recovery permits enable organizations and the public to conduct research activities ranging from species monitoring, range-wide surveys, captive breeding and release, and translocations. Many projects require close coordination between the researcher, local agencies, private landowners, and other federal agencies.

## *technical expertise*

Recovery permits are issued for projects that may affect any species listed as endangered or threatened under the ESA. Annie Marshall, permit coordinator, works closely with local and regional species experts to develop permit terms and conditions, and ensure projects are properly permitted.



NRAG

## *species protection*



P. Hannon

There are nearly 600 species listed in Hawai`i, Guam, and the Commonwealth of the Northern Mariana Islands, many of which are not well studied. Research permitted under this program may allow us to understand new threats to a species, notice changes in numbers, or track movements and dispersal. Permits may also allow us to monitor activities to determine how they affect protected wildlife and plant populations.

## *unlimited restoration opportunities*



A. Bell

Research on the ecology and distribution of listed species can benefit our ability to manage or restore habitat to help species recovery. Projects can also be crucial in preventing species extinction, including translocation and rear and release projects.



Pacific Islands Fish & Wildlife Office  
300 Ala Moana Boulevard, 3-122  
Honolulu, Hawai'i 96813  
(808) 792-9400

<http://www.fws.gov/pacificislands>

