



# EMP



## Ecosystem Management Program Bulletin

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### U.S. Army Garrison - Hawai'i's Natural Resource Program on O'ahu Takes Home Award

By Candace Russo

Environmental conservation often happens "behind the scenes," in remote areas like cliff faces, mountain tops, and thick forests. Bringing this work to the forefront, the U.S. Fish and Wildlife Service (USFWS) annually recognizes exemplary contributions to environmental conservation specifically made by military installations with the "Military Conservation Partner Award."

The 2008 award recipient is the U.S. Army Garrison, Hawai'i's O'ahu Army Natural Resources Program (OANRP) at Schofield Barracks. Michelle Mansker, chief of the Natural Resources Section, and Alvin Char, chief of the Environmental Division, will represent the program and accept the award at the North American Wildlife and Natural Resources Conference in Arlington, Va., March 19.

The 53-person OANRP staff works to conserve 73 federally-listed endangered species on the Island of O'ahu. If that sounds like a lot of species, it is!

"The Army in Hawaii manages more endangered species than any other Federal agency in the state," said Mansker. Mansker added that the OANRP "is responsible for managing more endangered species than any other Department of Defense installation in the U.S."

To accomplish this, field crews are often transported by helicopter to access remote work sites. They rely on spiked boots, rappelling gear and an arsenal of hand tools to control endangered species' threats such as invasive weeds, feral pigs and rats.

Of the 73 endangered species managed by OANRP, 63 are plant species, the majority found only on the Island of O'ahu. Field crews often return to base with propagules (any part

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of a plant that can be used to grow a new plant, such as seeds or cuttings) from these plants in tow.

The OANRP horticulture staff maintains three



Kapua Kawelo, OANRP biologist, rappels into Mākua Valley to collect seeds from endangered cliff-dwelling plants. (Photo by OANRP staff)

greenhouses where these propagules are nurtured into new plants, which will be returned to the wild to help bolster population numbers, or stored to preserve genetic material.

By preserving genetic material, such as seeds, the OANRP has been able to save two endangered plants – a lobelia and a mint – from extinction. Rat and pig damage to these plants eliminated them from the wild; however, using stored seeds, both plants have been successfully re-introduced in the wild.

Fences constructed by the OANRP on the spines of narrow mountain ridges keep pigs and goats from destroying native plants.

The endangered Loulu, O'ahu's only native palm, grows along these ridgelines and is managed by the OANRP. In 1999, the Loulu was on the brink of extinction, with only one fruit and no seedlings found at the Army's Mākua Military Reservation. With the help of fence construction and management, there are now more than 600 Loulu seedlings growing on Mākua's mountain ridges.

In addition to the extreme mountain work, the OANRP collaborates with others to stabilize the 73 listed species by providing funds to partners, researchers and graduate students. These partnerships span from local to federal levels,



Matt Keir, OANRP rare plant program manager (right), and Mike Walker, OANRP natural resource management coordinator (left), visit Loulu palms in Mākua Military Reservation to monitor their health. (Photo by OANRP staff)

including the State of Hawai'i Division of Forestry and Wildlife, the University of Hawai'i, The Nature Conservancy, Lyon Arboretum, Natural Resources Conservation Service, O'ahu Fire Council, and private landowners. Through such co-operative efforts, the OANRP has helped fund and pioneer new techniques for endangered plant propagation; has rediscovered a rare tree snail thought to

be extinct for 20 years; and has helped respond when wildfire threatened endangered plant populations.



*Achatinella bulimoides*, a species of O'ahu tree snail, was thought to be extinct prior to a recent OANRP-funded survey. (Photo by OANRP staff)

Work doesn't end on the weekends, though. Outreach staff hosts weekly volunteer service trips at accessible work sites where the general public, local school groups, or clubs can give back to the land by helping weed invasive plants or out-planting native plants. Locally, OANRP shares natural resource information with the community through monthly school presentations and participation in public events.

While the USFWS's 2008 Military Conservation Partner Award brings national attention to the OANRP efforts, there's a local significance, as well.

"(We) appreciate the recognition, but more importantly we're excited to have the chance to heighten awareness about O'ahu's unique endangered species," said biologist Kapua Kawelo, summing up the sentiments of the entire OANRP staff. ■

*~Candace Russo is an environmental outreach specialist with the Research Corporation of the University of Hawai'i, Pacific Cooperative Studies Unit, working for the O'ahu Army Natural Resource Program.*





**When:** Thursday, April 23  
(the day after Earth Day)

### Activities:

- Tour the endangered plant nursery
- Tour the new interpretive garden
- Help plant some native ferns
- And more!

**Who:** Open to the public - please e-mail Kim or Candace for more info (contacts below)



**Please stop by the OANRP's display at the following community events surrounding Earth Day:**

- K-Bay Earth Day event, April 18
- Army DPW Earth Day event, April 19
- Bishop Museum's "Grow Hawaii Festival," April 25

**For more information about any of these events, please e-mail Kim or Candace.**

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## The Land of 10,000 Snails

By Colleen Moriarty

The Kāhuli tree snail was often referred to as the "singing snail" in ancient Hawaiian chants and legends, perhaps from the sound that was heard when the wind blew across their shells. Trees of native Hawaiian forests were once decorated with more than 40 species (genus *Achatinella*) of these native tree snails when Polynesians arrived in Hawaii.

Now, 22 species are extinct, and 18 are nearing the same fate. The native tree snails' critical status is due in part to low reproductive rates and a limited dispersal, but like so many of Hawaii's endemic flora and fauna, habitat degradation and predation by invasive species are threatening the future of the remaining 18 endangered *Achatinella* species.

In the spring of 2001, during a routine survey on the Wai'eli Bench in the Wai'anae mountains of O'ahu, Matt Keir, rare plant program manager for the O'ahu Army Natural Resources Program (OANRP), and Ken Wood, National Tropical Botanical Garden botanist, decided to coin the name "Land of 10,000 Snails" for this area in the Wai'anaes that are rich with snail life.

The Wai'eli Bench is a predominately native



*Achatinella mustelina* on an 'ie'ie leaf blade in Wai'eli. (Photo by OANRP staff)

area containing patches of 'ie'ie plants known to be suitable habitat for several native tree snails: *Achatinella mustelina*, *Laminella* spp., and *Amastre* spp. Wood extrapolated that since one 'ie'ie branch had 30 native tree snails, there were 30 branches in each 'ie'ie patch, and 10 'ie'ie patches in the area, that

would total 9,000 snails. Adding a conservative estimate of 1,000 additional snails in all the surrounding vegetation, there must be at least 10,000 snails! No doubt the snails were

abundant – there were big snails, small snails, in fact snails everywhere – thus the name “Land of 10,000 Snails.”

The density of the endangered Hawaiian tree snail *Achatinella mustelina* at Wai`eli Bench is higher than that of any other area on O`ahu managed by the OANRP, making it truly unique.

Threats to the continued survival of *A. mustelina* include habitat destruction by alien pigs, and predation by rats and an introduced cannibalistic snail, *Euglandina rosea*.



*Euglandina rosea*, can move quickly (compared to other snails), making it a keen predator. (Photo by OANRP staff)

A pig-proof fence surrounds the Wai`eli Bench and a grid of rat traps surround *A. mustelina* host trees. Unfortunately, native snails remain exposed to *E. rosea*, which were brought to Hawai`i in the 1950s in an attempt to control another introduced pest, the Giant African Snail, *Acatina fulica*.

High densities of *E. rosea* remain in the Wai`eli Bench. During a recent survey, OANRP encountered 50 predatory snails over a 24-hour period.

Hope for *A. mustelina* has come from some unusual sources: Montana and New Zealand. With funding from Army Natural Resources, the Working Dogs for Conservation Foundation (WDCF) has been training dogs in Montana, (which are currently used to sniff out rare plants, noxious weeds, scat, bears, snakes etc.), to target *E. rosea*. In New Zealand, researchers are working to build a predator-proof fence that will exclude an array of potential predators from rats and mice, to habitat-altering pigs. OANRP staff has been working closely with these researchers to transfer this technology to O`ahu.

Also under investigation is the “Wog Box,”

named for its creator Frederick Reppun (aka, “Wog”), an OANRP intern who used copper mesh and a wire brush to create a barrier *E. rosea* had difficulty crossing.

OANRP, known for exploring creative solutions, is moving forward with these innovative techniques to help manage the Wai`eli Bench and increase the native snail population. ■

*~Colleen Moriarty is a natural resources field technician with the Research Corporation of the University of Hawai`i, Pacific Cooperative Studies Unit, working for the O`ahu Army Natural Resource Program.*

## Life Scouts Restore Native Forests on Path to Eagle Rank

By Kim Welch

Kahanahāiki, a forested gulch along the northwestern ridge of Mākua Valley, recently benefitted from the efforts of three Life Scouts working to complete their Eagle Projects.

Michael McCaffrey, Matthew Greene and Daniel Gum each approached the O`ahu Army Natural Resource Program (OANRP) to offer their assistance to protect and restore native forests on Army land. The OANRP welcomed the support and worked with each Scout individually to design a volunteer service trip that would meet the requirements of an Eagle Scout Project and also help support resource management goals.

Prior to their service date, each Scout gathered background information on the project and the natural resources of Kahanahāiki. Their research included site visits to the forests of Kahanahāiki to survey and photograph project locations, and interviews with OANRP staff.



Colleen Moriarty, OANRP staff, helps scouts plant koa seedlings. (Photo by Kim Welch, OANRP)



The Scouts were also responsible for recruiting friends and family to volunteer for each project, and they made certain that their volunteers were well-informed by distributing project descriptions, a list of "What to Bring," and other essential paperwork.

McCaffrey and Greene elected to transplant native koa (*Acacia koa*) seedlings for their projects. On two different days in January, each Scout (along with their group of volunteers), hiked the one-hour trail into Kahanahāiki, carrying tools for planting.

At the planting sites, the Life Scouts took the lead and assigned jobs to each volunteer.

Some folks dug up the three-inch tall koa seedlings from foot trails and crowded growing areas – locations that would not support healthy, mature koa trees. Others helped to transport and re-plant the koa seedlings in areas deemed more desirable. A few volunteers even helped gather water from rain-catchment systems and gave each seedling a drenching shower with specially designed backpack sprayers.

During these two very full days, the Life Scouts and their volunteers succeeded in planting 300 koa trees in Kahanahāiki!

The third Life Scout, Daniel Gum, selected to help restore the native forest through a planting project, as well. However, instead of seedlings, he chose seeds, 7,000 seeds to be exact, from the native plant, Ko'oko'olau (*Bidens torta*).

OANRP staff collected the seeds from Kahanahāiki forest in the fall. The seeds were cleaned, counted and weighed. At the end of February, Gum completed the cycle by getting the seeds back to the soil of Kahanahāiki. Gum led his group of volunteers in measuring out and marking fourteen 1 x 1 m. sq. plots in the forest.

The OANRP staff truly appreciates the hard work and dedication demonstrated by these three Life Scouts and the many benefits of their Eagle Projects.

The numerous koa and Ko'oko'olau plants will help to shade out the growth of many invasive weeds in the project sites, helping to restore a healthier structure to the forest.

Everyone that participated - family, fellow Scouts, friends – all have a greater understanding of Oahu's native forests and are committed to caring for these resources through their day of service.

McCaffrey, Greene and Gum have grown from the many challenges faced while planning for and managing a service project in a remote forest location. They learned valuable lessons in project management, wilderness and hiking safety, natural resource management, and leadership skills. They are well on their way to earning their Eagle Scout honor.■

*~Kim Welch is an environmental outreach specialist with the Research Corporation of the University of Hawai'i, Pacific Cooperative Studies Unit, working for the O'ahu Army Natural Resource Program.*



Seedlings from the Ko'oko'olau plant (*Bidens torta*) sprouting in plots established by the Life Scouts (left); eventually to grow into mature Ko'oko'olau plants (right). (Photos by OANRP staff)

## Local Archaeologists Visit Cultural Sites at PTA

By Chicpaul Becerra

Pōhakuloa Training Area (PTA), on the Big Island, provides an exceptional opportunity to view geologic, archaeological and natural resources, and what better way to showcase these resources than to have archaeologists see it first-hand?

Members of the Society for Hawaiian Archaeology (SHA), who were on the Big Island for the 2008 SHA Conference, visited PTA's Pu'u Koli and its adjacent landscape during one of three field trips. The other two field trips were conducted at Hawai'i Volcanoes National Park and North Hilo.

"The visit is significant since this is the first time that the Society for Hawaiian Archaeology has included PTA as a tour location," said Bill Godby, PTA's archaeologist and tour lead. "This gives archaeologists an opportunity to see archaeological features within a tremendous cultural landscape."



Members of the Society for Hawaiian Archaeology view an ancient rock pile at Pu'u Koli which was built by Native Hawaiians many centuries ago. (Photo by Bill Godby, PTA)

Sites at PTA are unique to the higher elevations of the Saddle Road area, according to Godby. PTA's cultural and natural resources programs are well supported by the U.S. Army and a great effort is made in identifying and protecting resources by its more than 50 cultural and natural resources program employees.

"The archaeologists were able to see archaeological features that included rock shrines, a lithic quarry, petroglyphs, cave habitation sites and lava excavation areas - possibly used for capturing nesting birds," said Godby.

"At the 7,000 feet altitude summit of Pu'u Koli, a pyroclastic cinder cone, archaeologists experienced breathtaking views of Mauna Kea, Mauna Loa, and Hualālai, in addition to the many different lava that have originated from Mauna Loa as recently as 73 years ago," he added. "There is also a large lava tube system that begins at Pu'u Koli and can be followed from its summit down its slopes."

SHA members, from private contracting

firms, universities, federal and state agencies, and people with an interest in Hawaiian archaeology, were impressed on what they learned at PTA.

"The tour was a great way to interpret what is going on at PTA," said Rob Pacheco, owner, Hawaii Forests and Trails Tour Company. "The cultural and natural resources management here is really impressive. If we could be doing what you do here at a statewide level, it would solve a lot of our problems."

"I learned a lot about the landscape and was able to recognize sites that I would have just walked by and never seen before," Pacheco added. "I was really impressed how much the Army has done for the cultural and natural resources here."

Additional comments were made by two SHA members.

"I take note that the Army is doing what is right with all these resource management work," said Randy Groza, archaeologist, Cultural Surveys Hawaii. "This work is pretty well received by us, and I'm glad that it is working here at PTA."

"I've developed a better appreciation of the land from this tour and getting answers to a lot of questions about land management," said John Holson, archaeologist, Pacific Legacy, Inc.

Although the field trip ended, it was an important one for all who came to PTA.

"It was good to be at a place you've never been before, such as PTA," said Rick Rogers, a maritime consultant. "It is fascinating for me to see 20 different forms of lava from an archaeological and geological standpoint, and seeing the great panoramic cultural and natural sites at PTA." ■

*~Chicpaul Becerra is a public affairs liaison officer for the U.S. Army Garrison - Pōhakuloa.*



# VOLUNTEER OPPORTUNITIES

## MAY 2009

- ▶ **Event:** Volunteer Service Project, Kahanahāiki (O`ahu)  
**Date:** Friday, May 29  
**Purpose:** To remove invasive weeds from the maile flats area.  
**Terrain:** 2 hours hiking time; moderately difficult; some steep terrain  
**Participants:** Open to the public

## JUNE 2009

- ▶ **Event:** Volunteer Service Project, location TBA (O`ahu)  
**Date:** Saturday, June 6  
**Participants:** Open to the public
- ▶ **Event:** Volunteer Service Project, location TBA (O`ahu)  
**Date:** Friday, June 19  
**Participants:** Open to the public

For more information about O`ahu Army Natural Resource Program volunteer opportunities, or to be added to our monthly e-mail posting of all public events, please contact  
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Forest at Ka'ala (Photo by OANRP staff)



# S *Tis the Season...*

P For 'Elepaio sightings!  
O'ahu 'Elepaio (*Chasiempis sandwichensis ibidis*) are small, endangered fly-catcher birds. They can often be identified by the way they perch on a branch with their tails pointing upward.

R Late winter and early spring is the breeding season for these curious birds. Because they are territorial, they may fly close to approaching hikers, announcing their presence with a squeaky chirp or a loud whistle.

N  
G Rats are one of the biggest threats to 'Elepaio; they can attack nests, often while the females are incubating their eggs, feeding on both the female 'Elepaio and her eggs.

The O'ahu Army Natural Resource Program monitors and protects O'ahu 'Elepaio from rats in mesic forests throughout the Island.



Two O'ahu 'Elepaio and their nest. (Photo courtesy of Eric VanderWerf)

In Hawaiian legend, 'Elepaio helped canoe-makers judge the quality of koa logs to make canoes. Since the 'Elepaio is an insect-eater, its ability to identify insect-infested wood made it a valuable resource to early Hawaiians. If the bird pecked at the tree, the wood was considered poor quality. If it simply landed and sang, the wood was considered sound.

*Ua 'elepaio 'ia ka wa'a*  
"The canoe is marked by the 'elepaio"

~'Olelo no 'eau, Mary Kawena Pukui



# EMP *Bulletin*

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*The success of this newsletter depends on article contributions from the staff of the O'ahu Army Natural Resources Program, O'ahu Army Cultural Resources Program, PTA Army Natural Resources Program, and PTA Army Cultural Resources Program. Mahalo to all staff who have contributed to this issue.*

*If you wish to contribute an article or have an idea for an article you'd like featured in the next EMP Bulletin, please feel free to contact us! The deadline to submit articles for the next issue is **May 27, 2009**.*



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