

Panhandling by 'Amakihi: A Novel Feeding Behavior For A Hawaiian Honeycreeper

by H. Douglas Pratt¹

The Hawaiian honeycreepers (*Drepanidinae*) are a remarkable group of birds endemic to the Hawaiian Islands. They are often cited as the pre-eminent avian example of adaptive radiation. They are also justly famous as exemplars of other aspects of island biogeography and evolution. Sadly, one of those aspects is the vulnerability of island birds to extinction. Well over half of the named honeycreeper species are extinct (James and Olson 1991), and most of those that survive are endangered (Pratt et al. 1987; U. S. Fish and Wildlife Service 1996). These facts have been interpreted by some to indicate that island birds are less adaptable than continental ones, or that island birds are too specialized to compete with introduced species or withstand perturbations in their habitat. This report will show that at least one species of Hawaiian honeycreeper is highly adaptable and can respond in novel ways to environmental changes and opportunities.

For nearly two decades I have led birding tours in the Hawaiian Islands. One of the sites on virtually any birder's itinerary (Pratt 1995) is Hosmer Grove in Haleakala National Park on Maui. The grove is an experimental plantation of alien trees with a nature trail that leads to a ravine filled with native vegetation including 'Ohi'a (*Metrosideros polymorpha*) and Koa (*Acacia koa*). The grove is surrounded by a native subalpine dry shrubland (Wagner et al. 1990) domi-

nated by Mamane (*Sophora chrysophylla*), Pukiawe (*Syphelia tameiameae*), Pilo (*Coprosma montana*), 'Ohelo 'ai (*Vaccinium reticulatum*), and other shrubs (Pratt 1999). Four species of Hawaiian honeycreeper are common in the area: 'Apapane (*Himatione sanguinea*), 'I'iwi (*estiaria coccinea*), Maui 'Alauahio (*Paroreomyza montana*), and the Maui Nui subspecies of Common 'Amakihi (*Hemignathus virens wilsoni*).



Figure 1. Picnic and camping area at Hosmer Grove, Haleakala National Park,

[I purposely do not use the misleading English name Hawai'i 'Amakihi, adopted by the American Ornithologists' Union (1995) when the 'Amakihi of Kaua'i and O'ahu were elevated to species status, because it implies restriction to the Island of Hawai'i. The original name, Common 'Amakihi, remains appropriate for the core species on Moloka'i, Lana'i, Maui, and Hawai'i.] Adjacent to the grove is a picnic and camping area (Figure 1) with a paved parking lot. The open area and parking lot are surrounded on the side opposite the main grove by mamane and

a few large planted slash pines (*Pinus elliotti*). The pines provide convenient perches for both native and introduced birds, and I have observed both Maui 'Alauahio and Common 'Amakihi apparently foraging in them by picking at the bark of smaller branches. Picnic tables are served by garbage cans and a receptacle for recyclable aluminum cans. Originally this container was a wire mesh cylindrical structure completely open on

all sides. As early as 1990 (I did not note the exact date when I first observed the phenomenon), birders began to notice that several Common 'Amakihi were frequently drinking from the openings in soft drink cans, the sugary liquid therein apparently an acceptable substitute for nectar. By 1993, these birds had begun to forage for crumbs left on picnic tables and had become almost totally fearless of humans. They would approach closely, apparently seeking handouts, and even entered parked vehicles where

they explored the cracks and crevices for tidbits. These birds were not choosy and would even attempt to eat foods that were obviously inappropriate or impossible for them to consume including components of "trail mix" such as dried coconut (Figure 2), raisins, and peanuts. Potato chips seemed to be a favorite, and the birds had obviously learned to break them into bite-size chunks. Prior to my own observations, R. E. David (in litt.) observed an additional unusual feeding behavior: An adult male 'Amakihi fed on a small piece

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of roast chicken impaled on the barbed wire fence that borders the picnic area. The bird "repeatedly visited the offering and was seen to grasp the chicken with the proximal area of its bill and shear from left to right to remove a small portion of meat, which it flew off with."

I did not see any birds actually land on a human hand that year, but by the fall of 1994 at least two different individuals (an adult male and a juvenile aged by its pale wingbars) readily perched on the hand and fed on bread crumbs (Figure 3). Each year, at least one adult male and one adult female were involved in this behavior along with at least one younger bird each year. I noted begging by park-tame 'Amakihi on several subsequent visits, but because I was preoccupied with other tour duties I made no notes or significantly different observations. I experienced a hiatus in visits to Hosmer Grove from 1996 to 1998, but noted on a visit in March 1999 that at least 2 birds were continuing their close approach to humans and apparent begging. In an at-

tempt to discourage this behavior, as well as the human response to it, the National Park Service has recently fastened signs (Figure 4), warning that feeding wild animals in the park is illegal, to all of the picnic tables and replaced the open recycling container with one that is entirely enclosed. However, I know of no evidence that panhandling for scraps is detrimental to 'Amakihi, and the practitioners at Hosmer Grove seem to be thriving. Indeed, one might well argue that such adaptations are advantageous in a rapidly changing environment.

The number of 'Amakihi involved at any one time is not large, and none of the other honeycreepers in the area, nor any of the alien species present (e. g. House Finch (*Carpodacus mexicanus*), House Sparrow (*Passer domesticus*), have so far picked up the habits of this small group. Indeed, other 'Amakihi present in the surrounding scrub seem unaware of the bonanza in handouts and continue to feed in the surrounding trees and bushes. Although I cannot prove the hypothesis, I believe this novel behavior may have originated with a single pair of 'Amakihi

who have taught it to succeeding generations of offspring. Several of the individuals involved carry bands, but I have not attempted to read the numbers on them. The acquisition of new feeding behaviors by the Common 'Amakihi is not unprecedented, although this is the first published report of their begging from humans. Henshaw (1902:44) reported similar feeding in proximity to human activity coupled with a learned foraging technique:

...[The 'amakihi] has learned...that the imported nasturtium secretes a fine quality of honey and, however close to the house the flowers may grow, it pays them regular morning and evening visits. As the amakihi has a comparatively short bill it is quite unable to reach the nectar, deep down in the long spurred corolla, and, like the iiwi, it has learned to pierce the spur with its bill just over the nectaries, and in this way easily reaches the coveted sweets.

In an experiment, van Riper (1984) found that Common 'Amakihi in Mamane

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Hawaii Audubon Society

850 Richards Street, Suite 505
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Email: hiaudsoc@pixi.com

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forests on the Island of Hawai'i readily accepted artificial nectar feeders supplied with sugar water. All of these observations show that this species of honeycreeper readily adapts to novel food sources. The Common 'Amakihi has long been regarded as an ecological generalist (Berger 1981). Its adaptation to alien flower morphology shows it to be also an opportunist, and with the addition of soft drinks, potato chips, and trail mix to its diet, one might well call it a universalist!

¹*Museum of Natural Science, Louisiana State University, Baton Rouge, LA., 70809.*

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Figure 2. Juvenile (probably male) Common 'Amakihi attempting to eat a proffered piece of dried coconut, Hosmer Grove, Haleakala National Park, Maui, November 1993. Photo by the author.



Figure 3. Common 'Amakihi accepting handout of bread crumbs. Same locality as Figure 1, October 1994. Photo by the author.

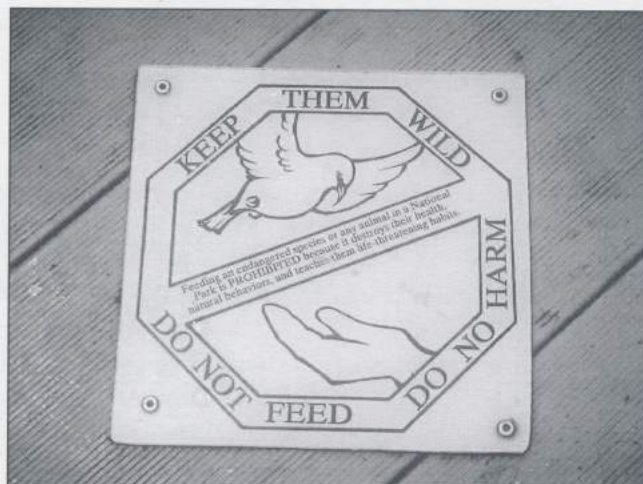


Figure 4. Cautionary sign on picnic table, Hosmer Grove Campground, Haleakala National Park, Maui, March 1999. Photo by the author.

Report On The First Statewide Aquatics Conference

by Linda Paul

On June 11-12, 1999 the Hawaii Audubon Society, with support from the Hawai'i Community Foundation, the Western Pacific Regional Fisheries Management Council, the University of Hawai'i Sea Grant College Program, and the State Division of Aquatic Resources, hosted the first statewide Aquatics Conference at Kokokahi YWCA in the ahupua'a (traditional land division defined in next paragraph) of Kane'ohe, moku (or district of island) of Ko'olaupoko, on the island of O'ahu. Over 130 people from many diverse backgrounds attended. The Conference focused on an ahupua'a approach to aquatic resource management and began the process of integrating Native Hawaiian knowledge, experiences, and skills fostered in tradition and culture with modern management, research, and conservation efforts. The goals of the planners and participants were to encourage and facilitate communication and information exchange, educate one another about traditional and modern management approaches, and foster increased cooperation among government agencies, researchers, non-governmental organizations, and users in order to restore healthy aquatic ecosystems and the responsible use of aquatic resources.

After opening ceremonies and a presentation on the 2000-year-old public trust doctrine and how it complements traditional Hawaiian resource stewardship concepts, panel presentations began. On the first day Panel A, "Applying the Past - Ahupua'a and Beyond," reviewed the importance of integrating Hawaiian management principles based on the traditional ahupua'a, a land division which extends from the top of the mountains to the outer edge of the reef and beyond, into

contemporary management practices and resource use. Charles Maxwell discussed the application of past practices used by kupuna (elders) in their everyday lives, which could eliminate certain problems created by modern living practices. Panel B, "Integrating Traditional Approaches in Aquatic Management," identified key elements of the ahupua'a management approach that allowed Hawaiians to maintain healthy watershed and coastal ecosystems while harvesting to meet the daily needs of individuals, families, and villages. Panel C, "Community-based Management Programs," described existing examples of community-based management in Hawai'i, including Miloli'i and Ho'okena and the creation of management tools such as Fisheries Replenishment Zones; the Hanalei Heritage River Program, the Limahuli Ahupua'a Management Project, and the West Maui Watershed Advisory Committee. Panel C members also addressed the opportunities and constraints that communities face when they get deeply involved and discussed the relationship between communities and the various government agencies.

On the second day Panel D, "Stream Ecosystems," discussed native stream ecosystems and the relationship between streams, estuaries, and near-shore waters, and between communities and their streams. Panel E, "Nearshore Ecosystems," focused on management and sustainable uses of nearshore ecosystems, including major resource threats, scientific information needs, management issues, potential solutions, and how an integrated approach could protect and enhance nearshore aquatic resources. Timothy Johns, Chairman of the Hawai'i State Board of Land & Natural Resources, wrapped up the second morning session with a luncheon address on the State's view of the issues being discussed. The

three breakout groups that met at the end of the second day identified the current gaps in the application of an ahupua'a approach to resource management, how those gaps might be bridged, and offered suggestions and recommendations for innovative management approaches. All three breakout groups identified the need for trust, education, and community-based management decisions. Other recommendations included the need to set up ahupua'a or moku-based regional management councils with legal capacity or authority, determine the ecological carrying capacity of each ahupua'a, develop kapu (restriction or prohibition) for certain areas at certain times, develop community-generated responsible codes of practice, and utilize the vast knowledge of the kupuna. Bill Devick emphasized that Hawai'i's resource managers could benefit from traditional Hawaiian knowledge, but that this knowledge may die with the kupuna unless much better communication and connections with them can be established and their extensive knowledge can be used to radically improve the management of our aquatic resources.

Everyone was in universal agreement that one of the great strengths of this first statewide Aquatics Conference was the diversity of its participants and the coming together of cultures to communicate their concerns. There was also a lot of useful networking among people who hadn't had a chance to talk with one another in years and an optimistic belief that a new management approach combining the best of both worlds can work. A steering committee has been formed to carry forward the effort begun at the Conference and the recommendations of the breakout groups will be published on the Western Pacific Fisheries Coalition website: www.westpacfisheries.net

Plans For Hawaii Audubon Society's Annual Awards Dinner and 60th Anniversary Celebration

The Hawaii Audubon Society will be holding the annual awards dinner for members and guests in November at the Ilikai Hotel. At this time we will unveil an open edition art print commemorating the 60th anniversary of the Society. Both the print and the original art work, created by world-renowned artist Richard Pettit, will be available for purchase and Mr. Pettit will be on hand to sign the prints. Please check the October 'Elepaio for further details.

Maui Gearing Up For Another Hawksbill Turtle Nesting Season

The 1999 hawksbill sea turtle nesting season is about to begin, the volunteers from Maui poised to protect any turtles that may venture ashore. Last season, a single nesting female was responsible for five nests that averaged about 154 eggs per nest. Another season—stretching from June to November—is now underway.

Volunteers making up the south Maui beach team called the "Dawn Patrol" will be looking for turtle tracks to monitor individual turtles and successful emergence of hatchlings. According to local biologists, their commitment to this project has been exemplary and of great assistance to the government and private agencies tracking the nesting females.

Since last summer, many beach areas have been cleaned of weeds and debris. Native plants have been planted to add stability to the dune ecosystem, which in turn protects and maintains the sand beach. The role of these plants is important.

"A lot of community effort has been put into the dune restoration project in south Maui," said Glynnis Nakai, Refuge Manager of the adjacent Kealia Pond National Wildlife Refuge. "We want to ensure these areas are protected for the

endangered hawksbill sea turtles as well as for future human generations."

A drift fence installed in 1997 to restore Kealia Beach's sand dunes has been buried by sand in some locations. According to Rob Mullane of University of Hawai'i's Sea Grant Extension Service, "This fence has proven to be extremely effective in providing a structure on which the sand can build up, and with proper dune planting of native vegetation, we can achieve even more dune stability."

Maintenance of the fence takes a lot of time and effort, and many individuals have contributed long, hot hours to repairing broken sections. Last season, Hawai'i Wildlife Fund provided volunteers to assist with continuous repairs, particularly during the nesting season.

"It was our pleasure to participate in this popular community project, and we look forward to continued success working with the Department of Land and Natural Resources, U.S. Fish and Wildlife Service, and the many volunteers who help protect the endangered hawksbill and its habitat," said Hannah Bernard of Hawai'i Wildlife Fund.

"Please help take care of this fence by

keeping it intact. The potential death of turtles and possible human injury along well-traveled North Kihei Road is of utmost importance—the fence eliminates this potential hazard," said Bernard.

According to Skippy Hau of the Department of Land and Natural Resources' Division of Aquatic Resources, nesting females trying to come ashore will avoid lighted areas and turtle hatchlings could be distracted from crawling to the ocean. "If you live along the coast, please check your lights to make sure they are not pointing towards the ocean," he said.

All of the individuals involved in the sea turtle project ask the public to help them. "If you happen to see a turtle on the beach or their tracks in the sand, please don't disturb them," said Nakai. She asks that observers note the time, mark the location, and notify the Hawai'i Division of Aquatic Resources at 243-5294 or the U.S. Fish and Wildlife Service at 875-1582.

*source: U.S. Fish and Wildlife Service News Release dated June 11, 1999
Contact: Glynnis Nakai, 808-875-1582*

A First: Endangered Puaiohi Birds Fledge Four Chicks In The Wild

A highly endangered native Hawaiian bird species has taken a small but significant step back from the brink of extinction. USGS biologists monitoring 14 captive-reared Puaiohi released into the wild earlier this year by The Peregrine Fund say the birds are nesting and have already fledged four young.

The young Puaiohi are the first endangered Hawaiian forest birds to be raised in the wild by birds raised in captivity. This year's successful nesting makes biologists optimistic that a recovery program for the Puaiohi will ultimately succeed.

"We are all excited that at least seven of the birds have nested this year," said USGS field biologist Erik Tweed of the USGS Pacific Island Ecosystems Research Center. "The release effort at this time looks promising, in terms of re-establishing a self-sustaining population of Puaiohi in their former range."

Tweed says that released birds have built 14 nests to date in the Alaka'i Wilderness Preserve on the island of Kaua'i.

Some nests remain active or have already produced fledglings—chicks capable of leaving the nest.

Apart from the released birds, only 200-300 individuals of this small unique Hawaiian bird species survive in the wild. Biologists fear that at such low numbers, the population cannot sustain itself. In addition to the remnant wild population, a captive flock of 16 Puaiohi is maintained at the Keauhou Bird Conservation Center near Volcanoes National Park by The Peregrine Fund, a private conservation organization.

The Peregrine Fund reared 23 Puaiohi in 1998, and in January and February of this year brought 14 of the young birds to Kaua'i. The birds were held in a hacking tower—a release cage—for one week and then released into their new home in the rain forest. The Alaka'i site was chosen because it offered suitable habitat and already supported a small Puaiohi population. One benefit has been that some of the captive-bred birds are interbreeding with wild birds as well as each other.

USGS researchers who have been monitoring the birds say the released Puaiohi are showing some surprising characteristics. "The exciting news has been the propensity of these birds to re-nest time after time, regardless of whether their nests have been successful or not," says USGS field biologist Jeffrey Foster.

While many songbirds initiate more than one nest during a single breeding season, Foster says some Puaiohi are taking this to an unusual extreme. "At least one of the females was building her new nest even before the young had fledged out of her first nest," he said. In another case, a single male is paired with two different females and is assisting both with nest duties—a breeding arrangement not previously known for this species.

In addition to monitoring the released birds, the USGS biologists are conducting ecological research on the wild Puaiohi population and are

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removing non-native predators that prey upon the birds and their eggs. Unfortunately, said researchers, two nestlings were taken by rats.

The Puaiohi project is a cooperative effort involving the USGS, The Peregrine Fund, the U.S. Fish and Wildlife Service, and the State of Hawai'i Department of Land and Natural Resources. In addition, the Hawai'i Division of Forestry and Wildlife administers and manages the habitat in which the recovery project is being conducted.

This research and conservation partnership began in Hawai'i in 1993, as part of the 'Alala (Hawaiian Crow) recovery program. The Peregrine Fund, working in close collaboration with partner agencies, has hatched and reared 12 different species of native Hawaiian forest birds from three different islands. Researchers hope that successful reintroductions can eventually be carried out for these other species as well. "The rapid adjustment and pairing of these captive-reared Puaiohi gives us all a great sense of satisfaction and accomplishment," says Alan Lieberman, director of The Per-

egrine Fund's Hawai'i Program. "To close the circle from wild eggs, to captive rearing and breeding, to release of offspring that go on to breed, is a conservation home run."

Source: News Release dated July 9, 1999 by U.S. Department of the Interior, U.S. Geological Survey Honolulu, Hawai'i

*Contacts: Erik Tweed, USGS 808-335-5084 Erik_tweed@usgs.gov
Alan Lieberman, The Peregrine Fund 808-985-7218*

Your Use Of Electricity Contributes To Global Warming

Automobile emissions and deforestation are not the only culprits when it comes to global warming. Your use of electricity is also a major contributor. Most electricity in Hawai'i's generated by burning coal and oil. At Barbers Point coal burning provides about 180 megawatts of electricity per year. The electric company bills you for kilowatts, or 1,000-watt units of electric power. If you leave a 100-watt light bulb on for 10 hours, you use one kilowatt hour (KWH) of electricity. Each KWH you use requires burning an average of 1.28 pounds of coal. The burning of coal releases carbon dioxide and other pollutants. Coal is as much as 84 percent carbon and since carbon dioxide is made up of one carbon atom and two oxygen atoms, the total emission of carbon dioxide is about 1.8 times the weight of the coal. At sea level and at room temperature, every pound of carbon dioxide occupies 8.75 cubic feet. If you leave that 100-watt light bulb on for 10 hours every day 365 days of the year, this single light bulb creates emissions of about 6,000 cubic feet of carbon dioxide every year. If you use 1,000 KWH a month, you add 28,062 pounds of carbon dioxide-or 245,540 cubic feet (one football field 5 feet deep)-to the atmosphere each year. The chart below indicates how electrical appliances also contribute to the problem.

<u>Electrical Appliances</u>	<u>Pounds of Carbon Dioxide Added To Atmosphere</u>
Toaster per use	.12
Microwave oven per 5-min use	.25
Coffee maker per brew	.50
Dishwasher per load	2.60
Clothes dryer per load	10.00
Color television per hour	.64
Steam iron per hour	.85
Vacuum cleaner per hour	1.70
Air conditioner, room per hour	4.00
Toaster oven per hour	12.80
Ceiling fan per day	4.00
Refrigerator, frostless per day	12.80

What you can do: check your electric bill, turn off your lights, screw in fluorescent bulbs, put your hot coffee in a thermos to keep it warm, hang your clothes out to dry, turn off the fan and air conditioner and open the windows, install solar heating, sweep your floors, wash your dishes by hand, run the washing machine only when full, line your oven with foil so you don't have to use the oven clean cycle or caustic chemicals (recycle the foil), turn off your TV and read a good book, and get rid of that garage refrigerator! Now check your electric bill again and see how much money you saved. (Sources: National Wildlife, 28:2 (February-March 1990), p. 53; Rogene A. Buchholz, Principles of Environmental Management Second Edition, Prentice Hall, New Jersey, 1998, pp.120-121.)

The Wildlife Connection: Wild Bird Rescue And Rehabilitation

The Wildlife Connection is a newly formed nonprofit organization permitted by the State Department of Land and Natural Resources to handle wildlife (bird) rehabilitation on the Island of O'ahu. The main goal of Wildlife Connection is the rehabilitation and release of wildlife back into its natural habitat. Trained volunteer members work in their homes with all species of injured and orphaned birdlife using specialized diets and techniques to facilitate their recovery and success when restored to their natural habitat. Referrals are received

from local veterinarians, local, State and Federal agencies as well as the Hawaiian Humane Society and Hawaii Audubon Society. Many calls also come from individuals statewide who have come upon wild creatures in distress.

If you have found a bird in need of help, call Wildlife Connection's HOTLINE at 487-3135. Because the number of referrals grows steadily, volunteers who would like to work with wildlife in their homes are needed, as well as folks who prefer to volunteer using other special skills such as trans-

porting animals to rehabilitators, feeding, fundraising, cleaning, carpentry, etc.

The need for donations to cover expenses for food, housing, gasoline, supplies and veterinary care is constant. Donations can be mailed to the Wildlife Connection at 98-504 Pono Street, 'Aiea, HI 96701. The following is a list of some of the supplies that are always needed. If you would like to donate any of the following, they can be dropped off at the Hawaii Audubon Society office or call Wildlife Connection's hotline at 487-3135. Mahalo! Cindi Georges, Director

(*, **, *** most used items)

Dry Dog Food (yes, for wild birds - Science Diet or Nutro preferred)
Wild bird seed/scratch
Kwik-Stop
* Kaytee Exact (baby bird formula)
* Mynah Pellets
* Softbill food
Baby food jars (fruits)
Ivomec for internal & external parasites (cattle & swine) (sealed)
* Pedialite (sealed)
* Mineral Oil (sealed)
Baby Aspirin (sealed)
Neosporin (sealed in box)
100% cotton - cotton balls
Q-Tips
** Vet Wrap
* Scales (English or Metric)
Microscopes
Incubators
* Electric heating pads

Vita-Lite Lamps
* Clean Towels & Rags
** Paper towels
* Kleenex - unscented
* Antibacterial Hand Soap
** Kennel Sol/Germicide/Nolvesan
Dawn Dish soap (great for removing oil/tar from bird plumage)
Old Sheets/Blankets
Welding Gloves (or thicker)
Wire cutters
* Cages (all sizes)
* Flights (all sizes)
* Feeding Dishes (plastic or stainless)
Window Screen
* Plastic Containers with hinged tops
Small Glass Water Tubes
* Quick Cooking Oats (sealed)
* Printer Ink (Epson Stylus 600)
Computer Paper
Hawai'i Wildlife Literature

Vet supplies

* Lactated Ringers
Dextrose 5%
* Needles (20, 22, 25, 27 gauge)
** Rubber Catheters
** Syringes (1, 3, 10, 20, 60 cc)
Gauze
Suturing Sets
* Antibiotic Topical Creams
*** Baytril
** Cipro
*** Vet Wrap
Betadine Solution
* Thumb Forceps
Surgical Scissors
* Medical Tape
* Propylene Glycol
* Ophthalmic Ointment

Join Sierra Club For Miconia Removal Projects and Ala Wai Boat Harbor Cleanup!

Saturday, August 7 and Saturday, September 11:

Help remove invasive plants in Upper Manoa or Kalihi Uka! Bring insect repellent, rain gear. Work areas are off the trail and surrounded by thick brush - recommend long pants/shirt and clear lens eye protection. Bring a machete IF you are handy with one. Free! Call Thomas Yoza at 239-6362.

Saturday, September 11:

Help make the harbor a point of pride and encourage the return of sealife to the area. We will work from the docks, using scoopers and nets to gather up flotsam and jetsam (now when was the last time you came into contact with flotsam and jetsam??). Meet at 8:00am at the Harbor Master's Office, between the 3rd and 4th row of boats behind the Ilikai Hotel. Wear sturdy shoes with gripping soles and bring a hat, thick gloves, sunscreen and water. Free! Leaders: Sharon Moran 955-4194, Peter Klein 732-6764.

Many thanks to those who contributed to this issue:

Chad Castle, Beth Flint, Mary Gaber, Cindi Georges, Wendy Johnson, Linda Paul, Douglas H. Pratt, Dan Sailer, Linda Shapin, and Jackie Zablackas.

Second International Conference On The Biology and Conservation Of Albatross To Be Held May 8, 2000 At Ilikai Hotel

This conference follows the First International Albatross Conference held in Hobart, Tasmania in 1995 and will provide an opportunity to present scientific papers on all aspects of the biology or conservation of Procellariiform birds.

Papers are being solicited for four symposia including:

- 1) Fishery interaction with albatrosses and other petrels with particular emphasis on measuring efficacy of current bird catch reduction measures and compliance with regulatory requirements.
- 2) Effects of human disturbance and habitat alterations on albatrosses and other petrels.
- 3) Alien predators in petrel colonies: effects and solutions to the problem.
- 4) Contaminants in the marine environment and their ramifications for albatrosses and other petrels.

Immediately after the general confer-

ence there will be a Second International Workshop on Albatross-Fisheries Interactions at which biologists, fisheries experts, wildlife managers, and fishing industry representatives will present and discuss developments in the ongoing efforts to resolve conflicts between seabirds and fishing activities worldwide. There will also be a workshop on Predator Removal and Island Restoration that will serve as a forum for discussing international conservation strategies for the world's remaining petrel colonies.

Meeting in Honolulu will encourage interchange between petrel biologists of the northern and southern hemispheres. It will also allow focus on seabird-longline interaction in the fisheries of the north Pacific. The organizers will arrange field trips which will provide opportunities to view a variety of central Pacific seabirds including the world's largest Laysan Albatross and second largest Black-footed

Albatross breeding colonies at Midway Atoll.

The organizing committee is also seeking volunteers to join the local committee. Volunteers at all levels of participation will be welcome, as help is needed with mailings, accounting, announcement and program design, field trip organization, and staffing the desk during the meeting. Committee members will have the opportunity to attend the meeting and meet ornithologists from all over the world. If you are interested in joining this exciting endeavor, please call Beth Flint at the numbers listed below.

Those interested in being included on the mailing list for subsequent announcements about this conference should send their name and address by e-mail or conventional mail to Beth Flint, U.S. Fish and Wildlife Service, P.O. Box 50167, Honolulu, Hawai'i 96850. E-mail Beth_Flint@fws.gov. Phone, 808-541-1201, Fax 808-541-1216.

Proposed O'ahu Forest National Wildlife Refuge

A proposal to protect approximately 7,000 acres of native forest on the leeward slopes of O'ahu's northern Ko'olau Mountains was released for public review today by the U.S. Fish & Wildlife Service. The proposal would create an O'ahu Forest National Wildlife Refuge to protect threatened and endangered species as well as some of the highest quality native forest remaining on O'ahu.

"We've been discussing this proposal with the private landowners and the U.S. Army for many years, and we are now seeking public involvement as well," said Robert P. Smith, manager for the Fish & Wildlife Service's Pacific Islands Ecoregion. "We believe the native biodiversity found in the northern Ko'olau Mountains is important to protect for future generations, and are pleased both the private landowner and the Army are willing to consider this proposal."

The proposed Refuge would include up to 7,119 acres located above the 1,400 foot elevation and extending to the summit. The native forests of the project are support endangered tree snails and plants, rare forest birds, and a diversity of other native plants and animals. At least nine distinctive natural communities are found

within the area, including koa forests, 'ohi'a rain forests, high elevation cloud forests, and a rare native fan palm (*loulu hiwa*) community found only in the Ko'olau Mountains.

The forests of the proposed Refuge support up to four species of endangered O'ahu tree snails, 15 endangered plants, one candidate plant species, and one plant species of concern. Native birds on the proposed Refuge include the proposed endangered O'ahu 'Elepaio, the Pueo or Hawaiian owl, and native honeycreepers (O'ahu 'Amakihi and 'Apapane).

The Fish & Wildlife Services preferred alternative is to establish the Refuge on 4,780 acres at upper Waipi'o, and an overlay Refuge on approximately 2,339 acres of land at upper Wai'anae Uka. Castle and Cooke Land Company is willing to consider an offer from the Service to acquire a portion of the Waipi'o parcel for the Refuge at fair market value.

The Service has been working with the U.S. Army on a proposal to include approximately 2,339 acres of land at Wai'anae Uka in an overlay Refuge, which would include upper elevations of the Ko'olau Mountains within the Schofield Barracks East Range. A coop-

erative agreement between the Service and the Army would recognize that the military will maintain primary use of the lands, while at the same time allowing the Service to assist the Army with its ongoing natural resource management within the training area.

Limited use of the Refuge for guided hikes, photography, environmental education, and nature interpretation is also proposed. If established, the Refuge would be the first designated ecosystem preserve in the Ko'olau Mountains, and would compliment ongoing State, private, and Army conservation initiatives.

Although the deadline for public comment on the Draft Environmental Assessment has already passed, copies of it and its appendices are available at the Hawai'i State Library in Honolulu and the Mililani Public Library, or by calling the Fish and Wildlife Service at 808-541-2749.

Source: U.S. Fish and Wildlife Service News Release, June 10, 1999.

Contact: Barbara Maxfield, U.S. Fish & Wildlife Service, 808-541-2749 or 342-5600

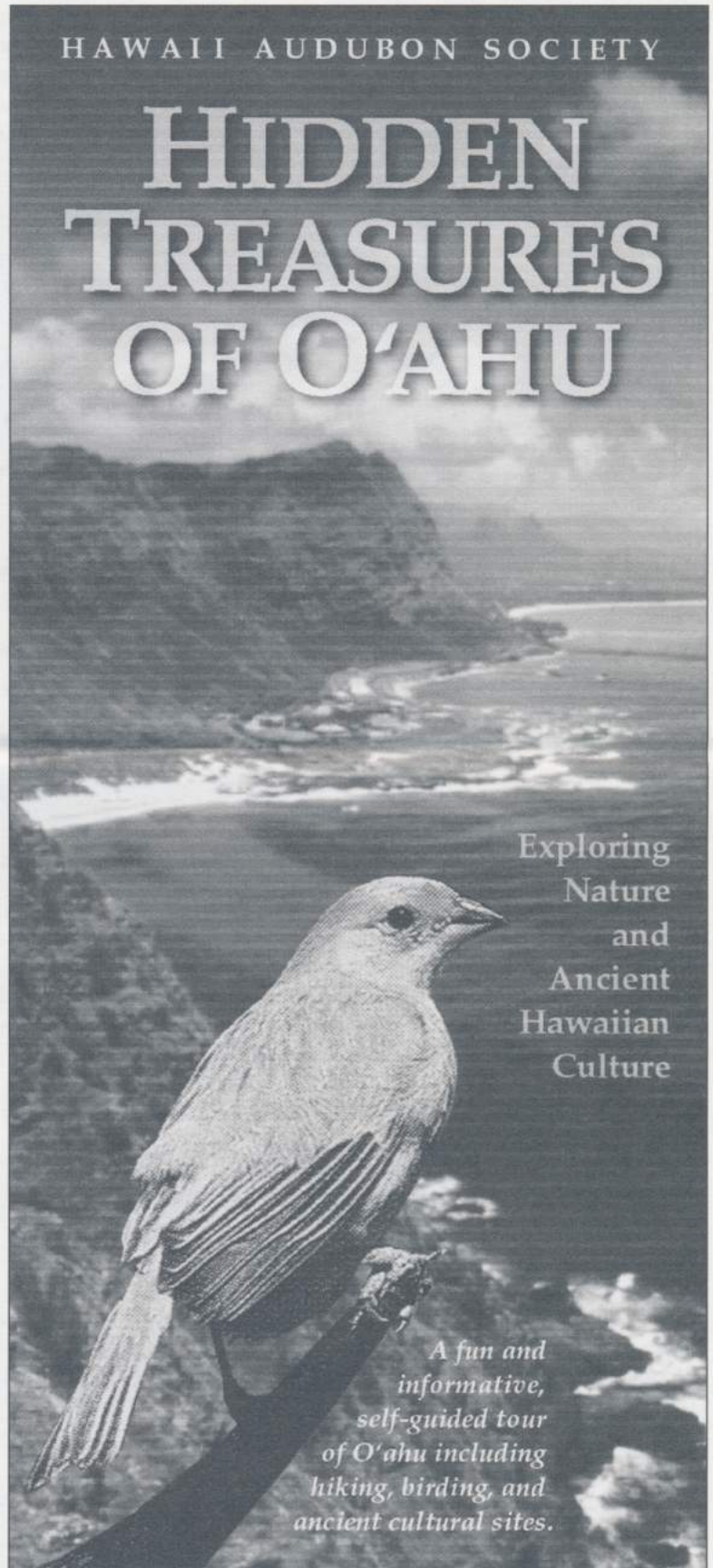
Announcing "Hidden Treasures Of O'ahu"

The Hawaii Audubon Society is pleased to announce the publication of its first map, the Hidden Treasures of O'ahu. A fun and informative self-guided tour of O'ahu, the beautiful full color map identifies hiking, birding and ancient cultural sites with symbols and numbers. A detailed description of each site is printed on the back.

Map features include:

- where to see native birds
- where to see native plants
- where to see ancient sites and temples
- hiking trails, very easy to more advanced
- locations with children's nature activities
- points of interest and historic importance
- Hawaiian legends and history
- large-scale insert of the Honolulu area and a portion of the Windward side.

Many members of the Society have put in countless hours on the production of this much-needed map and we are grateful for their efforts. Proceeds from the sale of the map will go to support the wildlife conservation and environmental education activities the Society. The map will be ready for purchase in September and will be available at local book stores and the HAS office. It is expected to sell for \$3.95.



Nominating Committee Seeks Candidates for Board of Directors

The Nominating Committee is looking for Society members who are willing to serve on the Board of Directors. The bylaws call for fifteen directors to serve two-year terms; five of the fifteen directors are elected by the membership to officer positions. Normally eight directors are elected in even years and seven elected in odd years. This varies, however, as a result of resignations and Board members being appointed to fill unexpired officer terms.

The following positions are now open for nominations: First Vice President, Treasurer, and eight Directors. Incumbents continuing to serve until December 2000 are President Wendy Johnson, Second Vice President Elizabeth Kumabe,

Recording Secretary Sharon Reilly, and Director Mary Gaber. Incumbents whose terms will end this December are First Vice President John Harrison and Directors Dan Sailer, Kris Matsumoto, Luisa Castro, Tonnie Casey, and Larry Kimmel.

The HAS Board is a dynamic group of committed individuals whose energy and expertise involve many aspects of environmental protection in Hawai'i from fund raising to education, and from birding to habitat cleanup.

All members of the Board are expected to attend two-hour monthly meetings and a Leaders Retreat in January. Directors are also expected to be active on one of the Society's two standing committees: Conservation and Educa-

tion. Persons interested in serving on the Board are encouraged to attend a Board meeting; the next one is listed in the Calendar section on the back page.

If you want to be a candidate, please submit a letter of interest and brief resume of your background and activities (in and outside of HAS) to the attention of the Nominating Committee at the Society's address by November 10, 1999. For an information sheet giving more specific information regarding responsibilities of officers and directors, please call the office at 528-1432. Nominating Committee members may be contacted as follows: John Harrison, Chair, 956-7361, Linda Paul, 262-6859, Ellyn Tong, 739-1782.

Apply by October 1 for Research Grants in Hawaiian or Pacific Natural History

The Hawaii Audubon Society offers grants for research in Hawaiian or Pacific natural history. Awards are oriented toward small-scale projects and generally do not exceed \$500. Special considerations are given to those applicants studying dryland forests or aeolian systems in Hawai'i. Applicants are encouraged to solicit grants from other organizations to fund research which cannot be funded entirely by the Society.

Grant recipients are expected to submit a 2-3 paragraph progress report, suitable for publication in the Society's journal 'Elepaio, within 6 months of the termination date specified for the project. The recipients are also encouraged to draft a more detailed 2-3 page report which would be considered for publication in 'Elepaio.

Grants are reviewed semiannually. Deadline is October 1 for winter/spring grants. Call, write, fax or email the HAS office (see page 46) for application guidelines.

Mahalo Nui Loa To Our Recent Donors!

Many thanks those who made donations to us between April and June, 1999: Chad Castle, Charles and Hazel Cook, Joe Fuchino, Lillian Fujii, Mary Gavagan, Mrs. Lucy L. Grimm, John T. Harrison, David A. Hazen, Charley Ice, Mr. Kamal Islam, Mark Jacobs, Steven Kim, Eric Mais, Mrs. H. Marsh, Paul M. Okada, Jenni Parkes, Joan C. Pratt, David J. Schwing, Max Templeman, and Mr. and Mrs. Eric Walters.

Your donations enable us to continue our conservation and education programs related to the protection of Hawai'i's native wildlife and habitat.

Almost 20 people turned out for May's field trip into Pia Valley, despite the day's gray and wet beginning. Our leader was Eric Vanderwerf, a graduate student who has studied the 'Elepaio for years. Pia Valley in Niu, O'ahu is home to one of the last remaining populations of O'ahu 'Elepaio. There are 14 distinct 'Elepaio territories along the trail. We visited 7 of them, pausing at each one to listen to Eric's wisdom.

The 'Elepaio were shy on this day, though, and we went through several territories without a sighting. We heard Shama Thrush, various doves and even a Melodious Laughing Thrush, according to Eric. It sounded similar to a Shama, but louder and stronger.

After awhile, we began hearing 'Elepaio in the distance, but it wasn't until we got to the last territory we visited that an 'Elepaio finally came into view!



*O'ahu 'Elepaio in Pia Valley
Photo by Chad Castle, participant in May 16 field trip.*



*Albatross fledgling at Ka'ena Point on May 30, 1999
Photo by Jackie Zablackas, hiker at Ka'ena Point.*

On July 11, 6 people participated in a hike to Ka'ena Point's Natural Area Reserve. It is a long walk out there! Fortunately we were blessed with a wonderful breeze the whole way out and back. We saw many shoreline plants including 'ilima papa, naio (false sandalwood), pa'u Hi'iaka, ma'o (Hawaiian cotton), nehe, and hinahina. Most of the 'ohai that were planted at HAS' service trip in January were alive and doing well! Birds were scarce.

We saw a White-tailed Tropicbird, and possible some shearwaters. We saw no albatross—the baby you see pictured had fledged and hopefully is somewhere over the ocean catching fish.



AUGUST/SEPTEMBER 1999

'ELEPAIO

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Calendar of Events

Thursdays, August 5 and September 2: Education Committee monthly meeting, 7 p.m. at BaLe Sandwich Shop in Manoa Marketplace (near Safeway). For more information, call chairperson Wendy Johnson, 261-5957.

Mondays, August 9 and September 13: Conservation Committee monthly meeting at the HAS office at 5:45 p.m. For more information, call chairperson Dan Sailer, 455-2311.

Mondays, August 9 and September 13: HAS Board meeting, always open to all members, 6:30 to 8:30 p.m. at the HAS office.

Saturday, August 7 and Saturday, September 11: Sierra Club service trips - see page 51 for details

Monday, August 16: Program Meeting on The Hawaiian Bat - Ope'ape'a: Dr. Ben Okimoto, a veterinarian at the Honolulu Zoo, will give a lecture and slide show on the Ope'ape'a. The start of a new bat conservation project will be announced that evening. The meeting is from 7:30-9:30 p.m. at Bishop Museum, Paki Hall Conference Room. Refreshments provided. HAS publications, tapes, patches and T-shirts available for purchase. See you there!

Saturday, August 28: A Service Trip to Mt. Ka'ala Natural Area Reserve. This is a real work trip to the "top" of O'ahu, so wear sturdy boots, tough, long pants, and bring work gloves. You will also need sunscreen, hat, raingear (just in case) drinking water, and lunch; tools will be provided. Binoculars and camera would also be useful. Limited to 10 people, so call Mary Gaber at 247-0104 to reserve a spot and get details about the meeting place and time.

September ??: This will be an educational tour through Kawai Nui Marsh in Kailua to learn more about the historic sites, geological features, and ecological problems that are currently being addressed. No definite date has yet been set— call Mary Gaber at 247-0104 early in September to get further details (which will also be on our HAS office answering machine - 528-1432).

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