



The Natural Area Reserves System in Hawai'i

This article is an excerpt from a report prepared by Marjorie Ziegler, Resource Analyst with Earthjustice Legal Defense Fund, with support from the Hawai'i Community Foundation and Atherton Foundation. For a copy of the entire report, contact Ziegler at Earthjustice (808/599-2436).

Recognizing the importance of our unique natural heritage, Governor John Burns and the Hawai'i State Legislature established the Natural Area Reserves System (NARS) in 1970 to "preserve in perpetuity specific land and water areas which support communities, as relatively unmodified as possible, of the native flora and fauna, as well as geological sites, of Hawai'i."

The NARS is one of four major programs administered by the Hawai'i Division of Forestry and Wildlife within the Department of Land and Natural Resources. Currently, the NARS consists of 19 reserves totaling 109,164 acres of state-managed land on Kaua'i, O'ahu, Moloka'i, Maui, and Hawai'i, encompassing less than one percent of Hawai'i's entire land area. The equivalent of 27 staff positions is assigned to the NARS, and the annual budget for fiscal year 2001 is \$1.2 million.

A 13-member NARS Commission, composed of six appointed scientists, a member of a hiking organization in the state, a member of a hunting organization in the state, and five ex-officio positions, recommends suitable areas to be included in the NARS, approves management plans, and assists in determining NARS policy.

The NARS protects some of the most biologically rich and pristine areas remaining in the Hawaiian islands, and provides essential habitat for rare and endangered species. The variety of ecosystems within the NARS is astounding. There are coral reefs, anchialine pools, coastal sand dunes, sea cliffs, streams,

lava tube caves, aeolian deserts, grasslands, various kinds of forest, montane bogs, lava flows, alpine lakes, and volcanic features. All but two of the nineteen reserves are watersheds serving Hawai'i's people and the economy. At least ten additional areas have been nominated for inclusion in the NARS.

Inventories of the natural resources have been conducted for all of the Natural Area Reserves, and management plans are being developed and implemented by the NARS staff, community volunteers, hunters, and conservation partners, including private landowners. Funding and staffing are the major limiting factors in fulfilling the Legislature's mandate to protect the NARS for future generations to know and enjoy. This is the deciding generation for Hawai'i's wild places and natural resources.

Hawai'i has the greatest concentration of rare and endangered species and ecosystems in the United States. Half the birds known from the Hawaiian islands, hundreds of plants, and thousands of invertebrates are gone forever. Hawaiian ecosystems are also at risk. On O'ahu alone, nearly all of the native dry and mesic (moist) ecosystems have been replaced by large-scale agriculture and urbanization.

The NARS was established to set aside what little remains of our natural heritage on state-managed land for future generations to know and enjoy. But designating the reserves alone will not protect them in perpetuity. Nearly all the reserves have some degree of threat that is detrimental to native species and ecosystems, and active management is essential if the NARS is to succeed. Fence construction and maintenance, weed control, and predator control require a long-term commitment to adequate staffing and funding. Currently, less than 25 percent of the NARS is fenced or actively managed.

Major threats to the Natural Area

Reserves and other native ecosystems are introduced mammals, invasive weeds, and predators. Fire and human disturbance also threaten some of the reserves. Feral pigs, sheep, mouflon, goats, axis deer, and black-tailed deer were introduced to the Hawaiian islands and are now managed by the State as game. But these animals are especially destructive in Hawaiian ecosystems where native plants and animals evolved in the absence of grazing and browsing mammals and are vulnerable to their impacts. Fences currently protect small areas within the NARS from these animals.

If hunting is to continue in Hawai'i, game mammals must be contained and managed by the State in appropriate areas where they do not destroy native resources and watersheds. Aggressive introduced plants, such as miconia, banana poka, fountain grass, guava, and ginger, compete with native plants for space, sunlight, and nutrients, and eventually replace native vegetation if not controlled. Manual and chemical weed control are essential management actions in the NARS, and are time-consuming and expensive. Rats, mongooses, and cannibal snails eat native Hawaiian insects, tree snails, forest birds, and seabirds. These voracious predators must also be controlled if Hawaiian species are to survive.

IMPORTANT FACTS:

- * Half of Hawai'i's native rain forests and 90 percent of the dry forests have been destroyed.
- * One third of the nation's threatened and endangered species are from the Hawaiian islands.
- * Like the unique Hawaiian culture, native plants and animals evolved in relative isolation and are found nowhere else in the world.

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The NARS is currently funded out of the State General Fund through a direct appropriation by the Hawai'i State Legislature, which fluctuates from year to year. There is no permanent dedicated source of funding for the NARS. The Natural Area Reserve Fund receives revenues for the Natural Area Partnership, Forest Stewardship, and Watershed Partnership Programs, and does not fund the NARS.

There is a critical shortage of funding for NARS management, vehicles, equipment, and infrastructure, particularly fence construction and maintenance. The annual budget for the NARS peaked in 1991 at \$2.5 million, and has declined to \$1.2 million in 2001. The current budget amounts to approximately \$11 per acre per year to protect some of the best native ecosystems remaining on state-managed

Hawai'i's Natural Area Reserve System

Kaua'i <i>Two reserves totaling 4,786 acres</i>	
Hono O Nā Pali "Brow of the cliffs"	3,150 a
Ku`ia "Obstructed"	1,636 a
O`ahu <i>Three reserves totaling 1,770 acres</i>	
Ka`ala "The fragrant"	1,100 a
Ka`ena "The heat"	12 a
Pahole [unknown]	658 a
Moloka'i <i>Two reserves totaling 2,950 acres</i>	
Oloku`i "Tall hill"	1,620 a
Pu`u Ali`i "Royal hill"	1,330 a
Maui <i>Four reserves totaling 17,123 acres</i>	
`Ahihi-Kīna`u "Entwined" & "Flawed"	2,045 a
Hanawī [unknown]	7,500 a
Kanaio "The false sandalwood tree"	876 a
West Maui -	6,702 a
Hawai'i <i>Eight reserves totaling 82,535 acres</i>	
Kahauale`a "The hau tree (or dew) of Le`a"	16,726 a
Kipāhoehoe "Much smoothed lava"	5,583 a
Laupāhoehoe "Smooth lava flat"	7,894 a
Manukā "Blundering"	25,550 a
Mauna Kea Ice Age "White mountain"	3,894 a
Pu`u Maka`ala "Alert hill"	12,106 a
Pu`u O`Umi "Umi's hill"	10,142 a
Waiākea 1942 Lava Flow "Broad waters"	640 a
Nineteen reserves totaling 109,164 acres	

land in Hawai'i.

Fencing, weed control, and endangered species recovery efforts in the NARS are expensive and staff intensive. They require long-term commitment, well-trained staff, and adequate dedicated funding.

Currently, only one in every four acres in the NARS is fenced or actively managed, and of the 27 positions assigned to the NARS, the equivalent of 19 is assigned to actively manage the reserves on the ground. This amounts to one staff person for every 5,745 acres. Volunteers, including environmental organizations, the Youth Conservation Corps, and hunters, assist in management, but limited staff and volunteers cannot protect the NARS as envisioned by the Legislature in 1970. A doubling of the staff and an increased budget are needed to

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manage the NARS in a manner comparable to other protected areas in Hawai'i. In 2000, a task force convened to identify potential sources of permanent dedicated funding for the NARS. Concerned citizens are working together to raise public awareness and support for the NARS.

IMPORTANT FACTS

***There is no permanent dedicated source of funding for the NARS to protect and manage rare and unique ecosystems on state-managed land.**

***In the 1990s, more than 280 Hawaiian plants and animals were listed as threatened and endangered species. At the same time, the NARS annual budget declined from \$2.5 million in 1991 to \$1.2 million in 2001.**

***The DLNR receives less than one percent of the entire state budget for its programs, which include the NARS, Threatened and Endangered Species, Aquatic Resources, Water Resource Management, Hunting and Game Management, Land Management, State Parks, Historic Sites, Boating and Ocean Recreation, and Enforcement.**

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Also see the Website of the Natural Areas
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www.state.hi.us/dlnr/dofaw/nars

Suit Filed to Halt Navy Bombing of Migratory Birds on Pacific Island

On December 21, 2000 the Center for Biological Diversity, represented by Earthjustice Legal Defense Fund, filed suit in federal court in the District of Columbia to stop the U.S. Navy from continuing to use the Pacific island of Farallon de Medinilla (FDM) for live-fire training. The island is an important nesting site for more than a dozen species of migratory birds. The suit alleges that the Navy's bombing exercises violate the Migratory Bird Treaty Act.

Located 45 nautical miles north of Saipan in the Commonwealth of the Northern Mariana Islands, the 200-acre island is a long and narrow with dramatic ocean cliffs. Uninhabited by humans, FDM hosts breeding colonies of great frigatebirds; masked, red-footed, and brown boobys; red and white-tailed tropicbirds; white and sooty terns; brown and black noddys; and other species of migratory seabirds. Nesting occurs on FDM all year around. FDM has one of the two small breeding colonies of the great frigatebird in the Mariana chain. It is also the largest known nesting site for masked boobies in the Mariana and Caroline islands. The nonmigratory Micronesian megapode and the Mariana fruit bat, both listed as endangered under the Endangered Species Act, also inhabit the island.

The Navy, together with other branches of the U.S. military, use Farallon de Medinilla throughout the year for target practice. Exercises include air-to-surface gunnery with missiles and rockets; bombing runs with 500-, 750-, and 2000-pound bombs, precision-guided munitions, and mines; target practice with deck-mounted guns; and firing grenades, machine guns, and shoulder-launched missiles at the island from inflatable

vessels. Not surprisingly, birds are killed as a result.

The Migratory Bird Treaty Act (MBTA), one of the oldest conservation statutes in existence, since 1918 has flatly prohibited harm to migratory birds absent a permit from the U.S. Fish and Wildlife Service. The Fish and Wildlife Service refused to issue such a permit to the Navy in 1996. The Navy has continued to bomb FDM anyway, claiming that the MBTA doesn't apply to federal agencies. The Center for Biological Diversity is asking the court to declare that the statute does indeed apply, and to issue an injunction halting all live-fire exercises at FDM unless and until the Navy complies fully with the MBTA.

Peter Galvin, Conservation Biologist for CBD, stated, "The continued bombing and destruction of rare and migratory birds on FDM is an ecological travesty and is an embarrassment to our nation. We urge the court to uphold the law and halt the bombing."

Earthjustice attorney Paul Achitoff commented, "Eighty years ago, Supreme Court Justice Oliver Wendell Holmes, Jr. called the preservation of migratory birds a 'national interest of very nearly the first magnitude.' Congress enacted the Migratory Bird Treaty Act to protect that national interest, and we expect all federal agencies, including the Navy, to comply with it."

Source: Earthjustice Legal Defense Fund press release dated December 21, 2000.

Contacts: Paul Achitoff, Earthjustice, 808-599-2436 x12

Peter Galvin, Center for Biological Diversity, 510-841-0812 x2

The Northwest Hawaiian Islands (NWHI) Compiled by the Western Pacific Fisheries Coalition

Facts:

- * NWHI National Wildlife Refuge (NWR) was established by President Teddy Roosevelt in 1908
- * The NWHI encompasses the most remote large-scale reef system in the world
- * It is the most northern large-scale reef system in the world: extremely low net productivity
- * The NWHI are likely to be the last reefs heavily impacted by global warming
- * They comprise 69% of all the coral reefs in the United States (81% of all the reefs in Hawai'i)
- * The NWHI NWR includes thousands of square miles of island, atoll, and submerged reefs
- * It is home to a complex interdependent association of vertebrates (reef and bottom fish, monk seals, turtles, sharks), invertebrates (corals, anemones, jellyfishes, mollusks, shrimps, crabs, lobsters, sea urchins, sea stars, sea cucumbers), and algae (limu)
- * It is home to 14 million nesting seabirds, including 19 breeding species
- * It is the major nesting area of the green sea turtle. 99% of all green sea turtles found in the main Hawaiian islands nest only in the NWHI NWR
- * It is the primary habitat of the monk seal - the most endangered of all marine mammals. 99% of all breeding/pupping occurs in the NWHI NWR. Monk seals continue to dwindle in numbers; only mammal completely dependent on coral reefs for existence
- * It is home to numerous species found no where else on earth
- * NWHI larval reef fish provide food for offshore tuna and billfish
- * At present there are only two fisheries inside 50 miles in the NWHI: a lobster fishery that has been shut down because of overfishing and a 17-boat bottom fishery
- * One half of all fresh bottomfish landed in Hawaii are caught in the NWHI
- * Impacted by an estimated 4,000 tons of marine debris; 35 tons have been cleaned up
- * Four groundings of Western Pacific Fisheries Management Council (WESTPAC) -permitted vessels in Hawaiian waters in last two years. Vessel grounded at Kure Atoll two years ago still grinding away the reef. Vessel grounded on top of a coral reef at Pearl & Hermes costing Federal government \$1.5 million to remove

Threats to NWHI NWR Coral Reef Ecosystem & Protected Species:

- * Vessel groundings: physical, chemical, and biological damage
- * Damage by active fishing gear: traps, nets, lines
- * Damage by derelict fishing gear and other marine debris
- * Ghost fishing by lost traps and other gear
- * Overfishing, especially lobster, which may be affecting food supply of monk seal pups and lobster recruitment in the main Hawaiian islands
- * Unmitigated seabird, turtle, and shark bycatch

NWHI NWR Coral Reef Ecosystem Management Needs:

- * The NWHI National Wildlife Refuge is an oceanic refuge in need of seaward boundaries that include a healthy amount of foraging grounds for millions of seabirds, thousands of green sea turtles and **hundreds** of endangered monk seals (12 miles at a minimum)
- * Shared management and permitting authority between FWS and the State in State waters
- * Commercial and recreational fishing and other activities only in zoned areas designated as non-sensitive by the FWS
- * Food chain-level, not species-level management
- * Integrated coral reef ecosystem monitoring and assessment
- * Reef fish distribution, assessment and nursery habitat
- * Monk seal and green sea turtle movement, foraging and habitat use
- * Seabird monitoring, including interaction with fishing vessels and gear
- * Assessment of impacts of fishing and fishing gear, marine debris, vessel groundings, oil and chemical spills
- * Burden of proof for research sampling must be on the permit applicants to establish that such sampling will not damage a public trust resource
- * Mandatory VMS monitored 24 hours a day by computer (automated) with notification sent to appropriate Federal and State agencies if vessel enters an off-limits zone
- * Creation of buffer zones around sensitive areas to serve as an early warning zone
- * 100% observer coverage on all commercial vessels fishing 50 miles or less from the NWHI National Wildlife Refuge (Will not adversely affect longline fleet fishing outside 50 miles)
- * Harvest (species, number, size, sex, location, gear) reporting by all takers; no privileged information from managed NWHI coral reef areas
- * Prohibition on all non-selective gear, pre-reproductive-sized fish and Invertebrates (lobster)
- * \$2 million vessel grounding bond
- * Joint Federal/State Coral Reef Emergency Response Team

Mahalo a nui loa to Our Annual Appeal Donors

The Board of Directors and the Staff of the Society wishes to thank those who responded between November 2000 and January 5, 2001 to the Fall 2000 Annual Appeal. These contributions will be used to continue and expand our many programs that benefit Hawai'i's native wildlife. Many thanks to:

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Research Grants in Hawaiian or Pacific Natural History Available

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 \$500.00. 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 'Elepaio within 6 months of the project termination date specified. 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. Deadlines are April 1 for summer/fall grants and October 1 for winter/spring grants. Application guidelines are available by calling (528-1432) faxing (537-5294) or emailing (hiaudsoc@pixi.com) the HAS office.

Midge Research Planned at Kealia Pond National Wildlife Refuge

In an effort to find an appropriate method to control midges at Kealia Pond National Wildlife Refuge without harming the endangered waterbirds that live there, the U.S. Fish and Wildlife Service will be conducting experiments in January and February to test the effectiveness of two products, *Bacillus thuringiensis* and methoprene, on spotted-winged midges.

"We have received approval to apply these larvicides on a limited basis on the main pond so we can evaluate their effectiveness on the nonnative midges that have become such a nuisance," said Glynnis Nakai, Refuge Manager. We need these tests to ensure that they target the nuisance species, but not all the invertebrates that provide most of the diet for the Hawaiian stilt and Hawaiian coot."

Kealia Pond National Wildlife Refuge was established specifically for these endangered Hawaiian waterbirds, which rely on the invertebrate food chain throughout the year. "Of course we're also concerned about providing adequate food sources for migratory waterfowl

and shorebirds that winter on the Refuge as well," said Nakai.

Bacillus thuringiensis (Bt) is frequently considered for pest management because its various strains are each toxic to particular types of insects and because it is not toxic to humans or natural predators of many crop pests. Bt is a naturally occurring soil bacterium that produces poisons which cause death in insects.

Methoprene is a chemical compound that mimics an insect growth regulating hormone and interferes with the normal maturation process. In a normal life cycle, an insect goes from egg to larvae, to pupae, and to adult. Methoprene artificially stunts the insect's development, making it impossible for larvae to mature to the adult stages, thus preventing them from reproducing.

These two larvicides will be applied by entomologists experienced with the products and will include pre- and post-treatment data collection and analyses to evaluate the impact on midges and on nontarget invertebrate species. The Fish and Wildlife Service is particularly con-

cerned about the long-term impact to the food chain upon which birds depend, and data gathered this year hopefully will answer such questions, according to Nakai.

"Although we recognize the community would have preferred absolute control of the swarming midges this year, we must first gather the required information to ensure we will not harm the endangered waterbirds we are charged to protect," said Nakai. "We sincerely hope that the results of these tests will allow us to better control this nuisance species in the future."

Anyone with questions regarding the midge control experiments may call Refuge Manager Glynnis Nakai at 875-1582 or stop by the Refuge office.

*From US Fish and Wildlife Service news release dated December 21, 2000
Contact: Glynnis Nakai at 808-875-1582 or Barbara Maxfield at 808-541-2749 or 342-5600*

Santa Brings Hawai'i a New National Wildlife Refuge

Santa came to Hawai'i a few days early this year and brought us all a special present: The O'ahu Forest National Wildlife Refuge. The new refuge is the 17th National Wildlife Refuge to be established in the Pacific and will protect some of the last remaining native forest in the Ko'olau Mountains.

"We have been working with The Nature Conservancy and Castle & Cooke, Inc., for many years on this project," said Jerry Leinecke, Project Leader for the Hawaiian and Pacific Islands National Wildlife Refuge Complex. "Without their assistance, we would never have been able to create this new Refuge, and we offer our sincere thanks to everyone who worked so hard to protect this area within the National Wildlife Refuge System."

The 4,525-acre refuge was purchased by the U.S. Fish and Wildlife Service from Castle & Cooke, with the deed transferred today. "Castle & Cooke has been a major landowner in Hawai'i for

more than 150 years. Through the generations, we have tried to be good stewards of the land, and the transfer of this significant piece of native forest to the U.S. Fish and Wildlife Service will ensure that these lands will be protected for the benefit of the public for generations to come," said Harry Saunders, Executive Vice President of Castle & Cooke Homes Hawai'i.

The Nature Conservancy helped conduct the biological surveys of the property, obtain funding, and negotiate the purchase. Rex Johnson, Executive Director of the Hawai'i chapter, said, "We appreciate Castle & Cooke's commitment to protect this special natural area and are pleased to have facilitated this transaction."

The refuge is located in the northern Ko'olau Mountains and provides habitat for the endangered O'ahu 'elepaio and other native Hawaiian forest birds, many native plant species (including 17 endan-

gered species), four species of endangered O'ahu tree snails, and native stream fishes. At least nine native natural communities have been identified in the project area, including a rare lo'ulu or fan palm community.

"We look forward to working with the U.S. Army and the State of Hawai'i's Department of Land and Natural Resources to protect a larger area of the northern Ko'olau through the Ko'olau Forest Watershed Partnership," said Leinecke. "This biologically rich area includes some of the last remnants of O'ahu's native plants and animals, and we are delighted to have the opportunity to help protect them for future generations."

*From US Fish and Wildlife Service news release dated December 21, 2000
Contact: Barbara Maxfield at 808-541-2749 or 342-5600*

Citizens Sue to Protect Critical Habitat for 17 Forest Birds

On January 3, Earthjustice Legal Defense Fund filed suit in federal district court on behalf of Conservation Council for Hawai'i (CCH) seeking to compel Secretary of the Interior Bruce Babbitt and United States Fish and Wildlife Service (FWS) Director Jamie Clark to take action on CCH's 1992 petition to designate critical habitat for 17 species of severely imperiled Hawaiian forest birds. The following forest birds on the islands of Kaua'i, Maui, Moloka'i and Hawai'i were listed as endangered between 1967 and 1975:

Kaua'i 'Akialoa,
'O'o 'a'a or Kaua'i 'O'o,
Kaua'i Nuku Pu'u,
Kama'o or Large Kaua'i Thrush,
Puaiohi or Small Kaua'i Thrush,
'O'u (Kaua'i or Hawai'i),
Maui Parrotbill,
Maui Nuku Pu'u,
Maui 'Akepa,
'Akohekohe or Crested Honeycreeper,
Po'ouli,
Oloma'o or Moloka'i Thrush,
Kakawahie or Moloka'i Creeper,
Hawai'i Creeper,
Hawai'i 'Akepa,
'Akiapola'au, and
'Alala or Hawaiian Crow.

Tragically, some of these species may have already gone extinct in recent decades and all of them remain in peril from low population numbers and dramatic loss or degradation of their habitat.

"We are dismayed that these birds continue to be lost, contributing to Hawai'i's dubious distinction of being the extinction capital of the world," said Karen Blue, Executive Director of CCH, the Hawai'i affiliate of the National Wildlife Federation. "The FWS warned in 1982 that 'immediate and heroic' efforts to save these species were needed. While for some it may already be too late, for those that remain, critical habitat designation is a vital legal protection to which these species are entitled."

Critical habitat designation under the Endangered Species Act protects areas essential to a species' conservation and recovery from being destroyed or adversely modified by federal agency actions, including actions taken by private parties which require federal permits. FWS is required under its own regulations to "promptly" take action on petitions to designate critical habitat. Yet, FWS has failed to take action on CCH's petition for over eight years, having already identified the "essential" or "critical" habitat for each of the species in four

different recovery plans developed between 1982 and 1984.

Since all the work necessary to identify critical habitat was done years ago, all FWS now needs to do is publish a proposed rule in the Federal Register formally proposing as critical habitat those areas previously determined to be essential to the survival and recovery of these forest birds. Then the public, including biologists and other experts, will be able to provide input which FWS could use to finalize the designation.

"There is no excuse for FWS's refusal to take the simple, but vital, step of immediately issuing a proposed rule to designate critical habitat for these forest birds, and allow the public the opportunity to comment," said Earthjustice attorney John Fritschie. "If FWS delays an answer on the petition much longer, the only possible response for most of the species soon will be that it is too late because none are left."

Source: Earthjustice Legal Defense Fund press release dated 01/03/01
Contact: John Fritschie, Earthjustice (808)599-2436
Karen Blue, CCH (808)968-6360

Results of 2000 Society Elections:

No Recounts Necessary!

The following individuals were elected in December to serve as Hawaii Audubon Society directors and officers for one and two-year terms beginning January 2001. President Wendy Johnson was re-elected for another two year term. Incumbent Directors at Large re-elected for two year terms are Marlee Breese and Trae Menard. Two members new to the Board, Chad Castle and Alice Roberts, were elected as Directors at Large for one year terms, as was past Board member John Harrison.

Continuing officers and directors are First Vice President Liz Kumabe, Second Vice President Dan Sailer, and Recording Secretary Tonnie Casey. A warm welcome to our new Board members, and welcome back to John Harrison!

Other results: the proposed changes to our Bylaws all were approved. Our membership also voted to have our Annual Awards Dinner in 2001 catered and held at a community facility such as Queen Emma's Summer Palace. Suggestions for locations are welcome (808-528-1432).

Mahalo to Annual Mailout Volunteers

Marlee Breese, Linda Fujiki
Norma Hamamoto, Suzan Harada
Wendy Johnson, Ana Lokelani
Caroline Mee, Trae Menard
Susan Elliot Miller, Barbara Porteus

This year's mailout was made easier by Susan Miller's hard work on the e-list of addresses sent to us by National Audubon. Her work made it possible to print joint members' addresses on the envelopes without having to use labels.

We started at 10 a.m. and finished by about 2:30 p.m., after enjoying delicious pizza and each others' delightful company. Thanks again, folks, for your kokua.

Undergraduate Scholarships Available for 2001-2002

Through a trust set up in memory of Rose Schuster Taylor, Hawaii Audubon Society is offering a full tuition scholarship to an undergraduate student in the University of Hawai'i system for the 2001-2002 school year.

Students must be or plan to be majoring in a field related to Hawaiian or Pacific natural history. Applications are available by calling (528-1432) faxing (537-5294) or emailing (hiaudsoc@pixi.com) the HAS office. Completed applications must be received

by May 1, 2001.

Besides providing transcript(s) and three letters of recommendation, applicants are asked to respond to the following questions:

How does your academic major relate to Hawaiian or Pacific natural history?

How do you plan to apply your academic degree to further study or work experience in Hawaiian or Pacific natural history (for example, graduate study, career plans)?

How might your course of study enable you to contribute to the better protection of native Hawaiian or Pacific wildlife (a major purpose of the Rose Schuster Taylor Trust)?

Have you already made contributions to the study of Hawaiian or Pacific natural history, especially anything that might contribute to the protection of native wildlife?

Scholarships will be administered through the University of Hawai'i Financial Aid offices.

Field Trips for 2001

All trips with an * are still in the process of being planned. Details will be provided as the scheduled dates get closer. A donation of \$2 per participant on all field trips is appreciated.

January 21: Our trip to Hilton Hawaiian Village has been rescheduled because baby penguins are due to hatch and staff will be too busy feeding them for a few months to give us a tour until March. Come instead to Makapu'u Point Lighthouse in Waimanalo to watch whales and look for seabirds, Tiger sharks, and sea turtles. We will meet at the gate to the Lighthouse road at 9:30 a.m. Bring water, snacks, sun screen, good walking shoes, rain gear just in case, and binoculars. Please call HAS office to register: 528-1432.

February 17: Go behind the scenes at Sea Life Park and learn about the Seabird Rehabilitation program. Meet convalescent and non-releasable seabirds face to face (beak to face, actually!). The \$12.50 (including HAS \$2) per person price of this field trip also includes admission to Sea Life Park for the rest of the day. Please call the HAS office to register: 528-1432.

***March 17 or 18:** A different sort of field trip to Waikiki's Hilton Hawaiian Village. Tour the exotic bird collection with a guide from Hilton's Wildlife Department. There is an extensive variety of birds from all over the world including swans, penguins, flamingos, cranes, ibises, Mandarin ducks, cockatoos and parrots.

Mauritius Kestrel to be Featured at February 26 Program Meeting

In 1974 the Mauritius Kestrel was regarded as the rarest bird in the world, with only 4 known individuals. Today, the restored population stands at about 600 birds in the wild. The recovery of this species has involved captive-breeding and release, as well as intensive hands-on management of wild birds. Dr. Groombridge will give an overview of the species' conservation history, as well as details on equally successful work on the endangered pink pigeon and echo parakeet of Mauritius, all of which has been the work of the Mauritius Wildlife Foundation.

He will also give some of insight into a recent genetic study investigating the bottleneck of the Mauritius Kestrel, through the genetic analysis of museum skins up to 170 years old.

Dr. Groombridge was involved with the conservation activities on Mauritius from 1991 to 1998. In July of 2000, he accepted the position of Project Coordinator of the Maui Forest Bird Recovery Project.

Program meetings are held at Henry Hall Room 109 on the Chaminade University campus. Meetings are from 7:30 to 9:30pm. Refreshments are served, and HAS publications, T-shirts, and maps are available for purchase.

Research Grants Awarded

by Dr. Phil Bruner, Chair, Grants and Scholarships Committee

Hawaii Audubon Society is once again pleased to announce the awarding of research grant funds to support two exciting projects. Eldridge Naboa, a student at University of Hawai'i at Manoa Department of Zoology will be working on a study to determine the importance of artificial nesting cavities for the endangered Hawai'i Akepa (*Loxops coccineus coccineus*).

Naboa indicates that there is evidence that suitable natural nest cavities are a limiting factor in the recovery of this endangered bird. Oscar W. Johnson, of Montana State University, will be continuing his investigation of Pacific Golden Plover (*Pluvialis fulva*) migratory behavior using radiotelemetry. This research will further clarify our knowledge of the life history of this popular winter migrant to Hawai'i. Hawaii Audubon Society will publish a brief report of their findings at the conclusion of these projects.

Many Thanks to Christmas Bird Count Volunteers!

by Arlene Buchholz, Christmas Bird Count Coordinator

Thank you to all the volunteers who counted birds throughout Hawai'i for the annual Audubon Christmas bird count! Many of the coordinators for the Honolulu count have been helping for several years including Clyde Imada, who organizes a group to count the Hawai'i Kai area; Ron Walker who counted the Manoa Valley and Tantalus region; Abby Brown, Dave Watson, Bob Pyle and Chad Castle

who counted the Kailua area; Keith Leber who counted Palolo Valley; Vaughn Sherwood who counted Punchbowl; Eric Vanderwerf who counted the Marine Corps Base Hawai'i area, Dave Smith who counted Halawa Valley; David Bremer who counted Tripler Ridge and coordinated the Waipi'o count; and Mike Ord who counts the Diamond Head area.

The neighbor island coordinators

included Michelle Ho'okano and the staff of the Koke'e Natural History Museum and Barbara Stuart on Kaua'i; Arleone Dibben-Young on Moloka'i; and Lance Tanino on Maui. Reggie David and Larry Katahira and staff on the Big Island of Hawai'i do a tremendous job organizing and participating in the Christmas count. Next year we hope to have more participants and cover more count areas. Mahalo!

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Calendar of Events

Thursdays, February 1 and March 1

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, February 12 and March 12

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

Mondays, February 12 and March 12

HAS Board meeting, always open to all members, 6:30 to 8:30 p.m. at the HAS office.

February 17

Field Trip to Sea Life Park's Seabird Rehabilitation department. See page 8.

Monday, February 26

Program Meeting - Dr. Jim Groombridge will give a talk entitled "An Overview of the Restoration of the Mauritius Kestrel and Other Endangered Birds Endemic to Mauritius." See page 8.

March 17 or 18

Field Trip to Hilton Hawaiian Village. See page 8.

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