

# Friends of Hakalau Forest

National Wildlife Refuge

WINTER 2011

PO BOX 6065 HILO HI

ISSUE 10



*Open House 2011*

*Patrick Hart,  
bird tour guide*

## Hakalau Forest NWR's 19th annual Open House

A crowd of 218 visitors plus 54 refuge staff, Friends and volunteer guides enjoyed the cool and misty day on the refuge. Many guests were at the Pua Akala Barn shortly after the 9:00 a.m. opening for the traditional Hawaiian blessing by Kumu Moses Crabbe.



As always, the day's highlight was a walk through the rain forest with an expert bird guide to hear and view the native and endangered birds for which the refuge is famous. Some of the guests were fortunate enough to see all three endangered forest bird species as well as the five common species and everyone saw the highly visible nene around the barn and greenhouse area.

This year, for the first time, the Friends of Hakalau Forest (FOHF) offered a special guided hike for members as a fund raiser. Renowned biologist and birder **Patrick Hart** led this group on a hike through the lower portion of

the Pua Akala Unit, and area that was off limits to the general public.

To supplement the refuge displays in the barn, FOHF members set up a booth at the barn entrance to recruit new members, raise funds through the sale of tee shirts, bandanas and other items, and to assist the refuge in providing general information to the public. Together, the special guided hike and the booth produced seven new memberships and sales and donations totaling \$1,512!

### FOHF BOARD MEMBERS

*Richard Wass, President*

*Creighton Litton, Vice President*

*J. B. Friday, Secretary*

*Mililani Browning, Treasurer*

*Emily Needham, Newsletter Editor*

### MEMBERS AT LARGE

*Liba Pejchar*

*Jonathan Price*

*Robert Shallenberger*

See pages 5-6 for an eye-opening article on the status of Hawaii's birds.

Items available for sale from FOHF see page 4

2012 Jack Jeffrey Conservation Education Grant see page 3

**SOS**  
page 4

# Website Update



by J.B. Friday

Aloha Friends.

We have re-done the website in a new format that makes it easier for us to add new material. Please take look:

[www.friendsofhakalauforest.org](http://www.friendsofhakalauforest.org).

We will be updating it with new events, talks, and featured species. All the newsletters are also posted.

One way we would like to make the website more participatory is by featuring a photo gallery linked to a Flickr group. To participate, set up a free account at Flickr.com, then post your photos of the refuge, the birds or the plants, or your group's service trip. From your Flickr account, join the group Friends of Hakalau Forest NWR (<http://www.flickr.com/groups/friendsofhakalauforest/>) and upload photos to the group.

You may post up to 10 photos per day. As moderator, I will review photos before they appear on the group site and on the new Friends site. I am hoping to see lots of new photos of all sorts of activity on the refuge!

J. B. Friday, Secretary  
Friends of Hakalau Forest NWR



# Grand Opening of the Hawai'i Wildlife Center



On Saturday, November 19, more than 200 people celebrated the Grand Opening of the Hawai'i Wildlife Center (HWC) in Kapa'au, on the Big Island of Hawai'i. The mission of the HWC is to protect, conserve and aid in the recovery of Hawai'i's native wildlife through hands-on treatment, training, research, science education and cultural programs. The HWC facility consists of a state-of-the-art wildlife treatment facility, and interpretive lanai and an educational pavilion. The 4,500 sq ft building includes rooms for wildlife intake, holding, washing, drying, food preparation, lab work, medical treatment and isolation. The Center will provide for the best achievable medical and husbandry care for sick, injured, contaminated and orphaned native wildlife, servicing the entire Hawaiian archipelago and other Pacific Islands, as needed.

Linda Elliott, the Center Director, has managed or participated in 18 oiled wildlife responses worldwide. She has

also provided technical support in response to avian botulism outbreaks, the annual fallout of shearwaters and petrels, nene handling, quarantine and interisland relocation. HWC will provide a resource for Hakalau and other refuges in the state to treat sick and injured birds, learn handling, stabilization, transportation and emergency response and provide another resource for public outreach on conservation of native species and habitats.

The HWC's interpretive lanai, once completed, will be open to visitors wishing to learn about conservation of Hawaiian wildlife. In addition, the HWC will provide wildlife response training for agency staff and volunteers.

Rob Shallenberger,

Friends Board Member at Large



## The 2012 Jack Jeffrey Conservation Education Grant

The Jack Jeffrey Conservation Education Grant is awarded each year, pending available funds, to honor Jack's commitment to conservation education. Proposed projects should directly contribute to the conservation education of Big Island students, teachers, residents and/or visitors, and should focus on native terrestrial species/ecosystems occurring at Hakalau Forest National Wildlife Refuge. Funds may be requested for materials and supplies, travel, labor or other items appropriate for the proposed work. Projects must: (i) demonstrate clear partnerships with other agencies or organizations, and (ii) include in-kind or matching contributions. Up to \$1,000 will be awarded in early 2012 for the proposal(s) that best fits the criteria above.

Applications should be submitted to Friends of Hakalau Forest NWR by December 31, 2011. Email ([friendsofhakalauforest@gmail.com](mailto:friendsofhakalauforest@gmail.com)) as a single PDF attachment. Proposals should include: (i) a narrative description of the proposed work and expected results (not to exceed 2 pages), and (ii) an itemized budget clearly identifying both requested funds and in-kind/matching contributions. The recipient of the 2012 award will be announced at the FOHF Annual Meeting

on 1/28/12. Questions about the grant should be addressed to Dr. Creighton M. Litton ([litton@hawaii.edu](mailto:litton@hawaii.edu)).

Background: A wildlife photographer, retired wildlife biologist, and long time resident of the Big Island, Jack Jeffrey is intimately familiar with Hawaii's hidden valleys and remote rainforests. Jack moved to Hawaii in 1974 and began a life dedicated to the protection and conservation of Hawaii's endemic birds. He started work as a biologist conducting forest bird surveys for the U.S. Fish and Wildlife Service in 1978, and from 1990 to 2009 was the senior wildlife biologist at the Hakalau Forest NWR. Jack has long been a strong proponent of conservation education and outreach. Over the past 30 years, he has given 100s of presentations about Hawaii's avifauna, and led thousands of volunteers, students, and members of the general public on nature hikes at Hakalau Forest NWR and in other forests throughout Hawaii to increase awareness of the conservation and management of Hawaii's unique natural heritage. Jack has received several prestigious awards including: The National Wildlife Refuge Employee of the year (1997), Hawaii Audubon Society Conservationist of the Year

(1998), Hawaii Sierra Club Conservationist Award (1999), The National Sierra Club Ansel Adams' Award for Conservation Photography (2002), The Nature Conservancy of Hawaii Kako'o Aina Award for Conservation Education (2007), and the U.S. Fish and Wildlife Service Endangered Species Recovery Champion Award (2009). Jack has co-authored several books and his photographs of Hawaii's native birds have been featured in numerous local, national, and international magazines, books, and calendars. Upon Jack's retirement in December 2008 from the U.S. Fish and Wildlife Service, he was asked about a retirement gift and his reply was "something to give back to the Refuge". Thus, in lieu of a personal gift, monetary gifts were given to the Friends of Hakalau Forest NWR to establish a fund to promote conservation education and outreach at the Hakalau Forest NWR in his honor.

If you are interested in donating towards this worthy cause, please email [friendsofhakalauforest@gmail.com](mailto:friendsofhakalauforest@gmail.com).

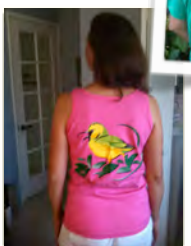
Dr Creighton Litton



FOHF items  
still for sale

Some of the *Friends of Hakalau Forest* Tee shirts sold at Hakalau Forest's Open House 2010 and 2011 are available. The Friend's *akiapōla'au* logo is on the back, with Friends of Hakalau Forest, NWR lettering & koa leaf on the front. Place your order by emailing us at [friendsofhakalauforest@gmail.com](mailto:friendsofhakalauforest@gmail.com) with your selection of style, size, color and quantity.

Shirt sizes, styles and colors are limited as the sales were very brisk at Open House, but we have plenty of caps. For all orders, please email us to see what we have in stock before you order. We will respond quickly to your email and will let you know what is available regarding your particular order plus the estimated cost of mailing.



## ANNUAL MEMBERSHIP MEETING

Mark  
your  
Calendar

Mark your calendar to attend the annual general membership meeting for Friends of Hakalau Forest (FOHF) to be held in the conference room at the Institute of Pacific Islands Forestry, 60 Nowelo Street, Hilo at 2:00 p.m. on Saturday January 28, 2012. FOHF Director Rob Shallenberger will give a presentation on the National Wildlife Refuge System and national Friends groups and Lahela Camara will report on how Imi Pono No Ka Aina used the 2011 Jack Jeffrey Conservation Education Grant from FOHF. The 2011 accomplishments by the Friends will be highlighted by President Dick Wass and Refuge Manager Jim Kraus will give an update on the major happenings at Hakalau Forest NWR. The business will include election of four board members for the 2012-13 terms. Meet the new board members, enjoy the refreshments and buy a Friends t-shirt!

## Help Needed

We're looking for volunteers to serve on the nine-member Board of Directors and to assist Geoff Nelson with managing the membership database. If you would like to have a major role in the operation and direction of

Friends of Hakalau Forest NWR, or if you have computer skills and enjoy interacting with our members, please register your interest in an email to FOHF ([FriendsofHakalauForest@gmail.com](mailto:FriendsofHakalauForest@gmail.com)).

# Extinction in Paradise

By George E. Wallace and David Leonard

The following article is reprinted with permission of The Wildlife Society. The article originally appeared in the *The Wildlife Professional*, Fall 2011 issue.

**HAWAII** is the bird extinction capital of the world, with the numbers to prove it. Prior to the arrival of humans, these islands supported at least 113 endemic bird species. After the Polynesians arrived more than a millennia ago, at least 48 species went extinct and, since the arrival of Europeans in 1778, at least another 23 species have been lost (Olson and James 1991, James and Olson 1991, Pyle 1997, Banko *et al.* 2001, James 2004). Though on paper Hawaii is believed to support 69 regularly occurring native bird species, 10 of these have not been seen within as many as 40 years and may be extinct (Pratt 2009). Of the 42 surviving endemic bird species and subspecies, which live nowhere else on the planet, 33 are listed under the federal Endangered Species Act (ESA).

If these figures alone aren't enough cause for concern, consider the grave threats that the surviving native Hawaiian bird species face. Hawaii is among the world's most isolated archipelagoes, lying more than 3,200 kilometers southwest of the mainland United States. Likely because of this isolation—compared to most mainland U.S. species, Hawaiian birds generally have high adult survival but low reproductive potential and little to no defense against non-native mammalian predators and alien diseases. These characteristics increase the birds' vulnerability to novel perturbations (Pratt 2009). Based on hundreds of years of history and decades of research, we know that without major conservation interventions, the remaining unique avifauna that is so a part of Hawaii will be lost.

## Adding Insult to Injury

Humans are responsible for the profound changes in Hawaii at all ecosystem levels, including bird populations (Pratt *et al.* 2009). Polynesians cleared habitat for agriculture, hunted flightless birds to extinction, and began the long history of alien species introductions, including Polynesian rats (*Rattus exulans*) and pigs (*Sus scrofa*). Europeans brought even more pernicious aliens to the islands, including cattle (*Bos primigenius*), black (*R. rattus*) and Norwegian (*R. norvegicus*) rats, domestic cats (*Felis catus*), and mosquitoes (*Culex* spp.). Small Indian mongoose (*Herpestes auropunctatus*), sheep (*Ovis* spp.), and several plant diseases are among the more recent and damaging introductions.

Humans have also negatively affected birds by building tall structures, which seabirds in particular are vulnerable to hitting head-on. Newell's shearwaters (*Puffinus auricularis newelli*), which are listed as threatened under the ESA, and Hawaiian petrels (*Pterodroma sandwichensis*), a federally endangered species, frequently collide with power lines and other structures. Lights also attract birds, especially fledglings, which use the luminance of the moon or stars to guide them from their burrows to the sea. Mistaking artificial lights for navigational signals, the birds tend to circle the lights until exhausted, then fall to the ground where they are hit by cars or taken by predators (Telfer *et al.* 1987, Podolsky *et al.* 1998). Since 1979, approximately 30,000 Newell's

shearwaters have been downed by utility lines and lights on Kauai, likely representing one of the largest documented incidents of unauthorized take of a listed species.

Efforts to switch to renewable energy likewise endanger Hawaiian birds. Hawaii's Clean Energy Initiative has set the ambitious goal of providing 40 percent of state energy needs from renewable sources (such as solar, wind, and hydroelectric) by 2030. While these developments are good for the environment in many ways, they can spell danger for birds, especially the Hawaiian petrel, Newell's shearwater, and the nēnē (*Branta sandvicensis*), if constructed in important flyways. The most significant threat to birds since Europeans arrived has been alien avian diseases (Warner 1968, van Riper *et al.* 1986). The *Culex quinquefasciatus* mosquito was introduced in 1826 and is now present throughout most of Hawaii (Atkinson and LaPointe 2009a). Avian malaria and avian pox, both spread by mosquitoes, have contributed to the extinction of many species, including the Kauai akialoa (*Akialoa stejnegeri*), a honeycreeper species last seen in 1965. Even today, most native passerines are largely restricted to forests above 1,500 meters in elevation, where temperatures are generally too cool for the survival and reproduction of mosquitoes and malaria parasites (Atkinson and LaPointe 2009b). With threats seemingly lurking around every corner, a variety of conservation measures are being employed in Hawaii. All need to be substantially increased, however, to avoid additional extinctions. These include:

**Alien ungulate removal.** Fencing and removal of alien ungulates from native habitats and from areas with restoration value are among the highest priority actions with the greatest potential benefit for threatened species. Removing ungulates, especially pigs, improves habitat quality and can reduce mosquito breeding sites (Goff and van Riper 1980). Such efforts will require a considerable influx of new funding, ongoing fence maintenance, and unprecedented outreach to gain needed social and political support.

**Alien predator control.** Keeping predators such as rodents, exotic snakes, and cats away from crucial habitats can boost nesting success and survival of adult and young birds (VanderWerf 2010). Predator-proof fencing would protect critical nesting sites, although set-up costs are very high (at least \$300 per meter). A more cost-effective option is use of rodenticides, such as diphacinone, which was recently approved for aerial application in Hawaii. Though diphacinone application poses little threat to human health or non-target species when applied according to label guidelines, we will need to engage in education and outreach to gain widespread public approval for this approach. In addition, the federal and state government must be proactive in expanding biosecurity measures to prevent new invasive species from becoming established in Hawaii (Kueffer and Loope 2009). One of the greatest potential biosecurity threats is the accidental introduction of the brown tree snake (*Boiga irregularis*), which has already devastated birdlife on Guam.



**Alien plant control.** There is an urgent need for targeted efforts to reduce the spread of invasive, exotic plants in areas important to threatened birds. Fountain grass (*Pennisetum setaceum*), for example, a species indigenous to tropical Africa and Asia, is spreading in dry forests and grasslands, including the last remaining habitat of the palila (*Loxioides bailleui*) on the slopes of the Mauna Kea volcano, where the grass increases wildfire risk.

**Captive breeding and translocation.** Captive propagation is critical for several Hawaiian birds, most importantly the 'alalā, or Hawaiian crow (*Corvus hawaiiensis*), which now exists only in captivity (Lieberman and Kuehler 2009). For other species, captive propagation provides individuals to bolster existing wild populations, and combined with translocation of wild birds, allows managers to establish new populations in protected or restored habitats. Translocation has already been used to create "insurance" populations for species restricted to single sites, such as the endangered Laysan duck (*Anas laysanensis*), which has been translocated from Laysan to Midway (Reynolds and Klavitter 2006).

**Disease management.** Reducing the incidence of avian malaria and avian pox is the greatest Hawaiian bird conservation challenge, as managers currently have few available tools to combat the diseases (Atkinson and LaPointe 2009b). Strategies to reduce mosquitoes in discrete areas include: removing pigs to reduce habitat degradation that creates mosquito breeding habitat; insecticide application; and a new technique known as cytoplasmic incompatibility, which uses parasites to cause a sperm-egg incompatibility between the gametes of infected male and uninfected female mosquitoes. Fortunately, some bird species can evolve resistance to malaria over relatively short periods of time (Atkinson and LaPointe 2009a). The Hawaii (*Hemignathus virens*) and Oahu (*H. flavus*) amakihi, whose populations were greatly reduced at low elevations, are apparently on the road to tolerating or developing resistance to malaria, as both are undergoing remarkable and rapid population increases. Captive propagation of disease resistant individuals may help species weather the epidemics, as will reducing mortality from other factors, such as nest predation (Kilpatrick 2006).

**Climate adaptation.** To provide bird species with disease-free habitat in the face of an upward-climbing mosquito-disease zone, we might consider planting forests above the current tree line, but this may be complicated by climate change-induced shifts in rainfall patterns (Giambelluca and Luke 2007). Other possibilities include reintroducing endangered birds to historic ranges and establishing new populations in additional locations. Mitigating threats we can control—such as removing ungulates and controlling predators and weeds—will make birds and their habitats more resilient to climate change (Hunter *et al.* 2010).

**Raising Awareness** Despite the urgent need for action, the plight of Hawaii's avifauna is underappreciated and largely unknown to the American public and policy-makers (Leonard 2008, 2009). As an example, although one-third of all ESA-listed bird species are Hawaiian, they receive just 4.1 percent of federal and state funds dedicated

to recovery efforts for listed birds (Leonard 2008). What drives this lack of appreciation and investment? One problem is a lack of awareness. Hawaii's reputation as a perfect island paradise obscures the true state of environmental degradation. Even many bird enthusiasts are unfamiliar with Hawaiian species, which are usually excluded from U.S. birding guides. In the state itself, most native birds are confined to high-elevation forests or remote islands, where access is difficult or impossible. Thus, many residents and visitors do not realize that most of the birds they see day-to-day, such as the common waxbill (*Estrilda astrild*), are not native. Birds' isolation similarly limits the public's ability to see the benefits of conservation. As a result, there is little call from the public for increased funding and conservation action. The lack of funding for Hawaii's endangered birds also has other roots. The state's small human population results in a low tax base, reduced representation in Congress, and only a 1 percent share of funds from the State Wildlife Grants program, which supports conservation work on non-game wildlife species. The small geographic ranges of Hawaiian birds also contribute to limited funding because allocation of recovery funds by the U.S. Fish and Wildlife Service (FWS) is based partly on range size. And because Hawaii shares no borders or at-risk species with other states, it lacks the opportunity to share the costs of conservation efforts. What's more, species recovery spending decisions are not always based on need or the risk of extinction, but factor in economic, legal, and political issues. FWS designates endangered species with these types of associated complexities as "conflict species." The spotted owl (*Strix occidentalis*) and red-cockaded woodpecker (*Picoides borealis*), both of which pit the timber industry against wildlife interests, are prime examples. For better or worse, these species generally receive more funding and attention from both agencies and advocacy groups (Restani and Marzluff 2002). Hawaii's only designated conflict species, the 'alalā—though now extinct in the wild—used to occur primarily on private lands, causing consternation for landowners wishing to pursue potentially lucrative but environmentally harmful activities, such as logging. The endangered palila, while not technically a conflict species, has also generated controversy on the Big Island. FWS is required to expend resources on species named in legal actions, and both the 'alalā and the palila have been named in lawsuits. Funding generated from this avenue, however, is minimal compared to that directed at mainland species. Conserving Hawaii's remaining avifauna will require novel solutions, decisive strategic planning, and swift implementation of management actions costing hundreds of millions, or even billions, of dollars. Expenditures of this scale are daunting, but precedents exist—just look to restoration efforts in the Great Lakes, the Everglades, and the Chesapeake Bay. In each case, decision makers and the public recognized that an ecosystem was nationally significant and too special not to save. Hawaii, with its unique habitats and species, needs the same recognition. As time passes, the challenge of over-coming myriad threats grows, especially as climate change is added to the mix. However, if we take bold action today, we have an excellent chance of saving Hawaii's endemic birds and, along with them, entire ecosystems found nowhere else on Earth.