

HAKALAU FOREST

National Wildlife Refuge



PO Box 6065 Hilo, HI 96720

Issue #8, April 2011

Annual Meeting

*summarized by
Friends President
Dr Dick Wass*

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take on critical offices.*

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Greenhouse is now in
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2011 JJ Grant award

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Litton presented the
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2011 Annual Meeting

The Friends of Hakalau Forest (FOHF) annual general membership meeting was held January 29, 2011 at the Institute of Pacific Islands Forestry in Hilo

The meeting opened with a history of FOHF since its 2006 inception by Lorri Ellison. Six Directors were elected for the 2011-12 term to join the two Directors in the middle of their terms. The six are Mililani Browning, J.B. Friday, Creighton Litton, Emily Needham, Liba Pejchar and Rob Shallenberger. They join Jonathan Price, and Dick Wass to form the 2011 Board. Outgoing board members Deighton Emmons, Cathy Lowder and Jim Wiley were thanked for their two years of service. President Dick Wass



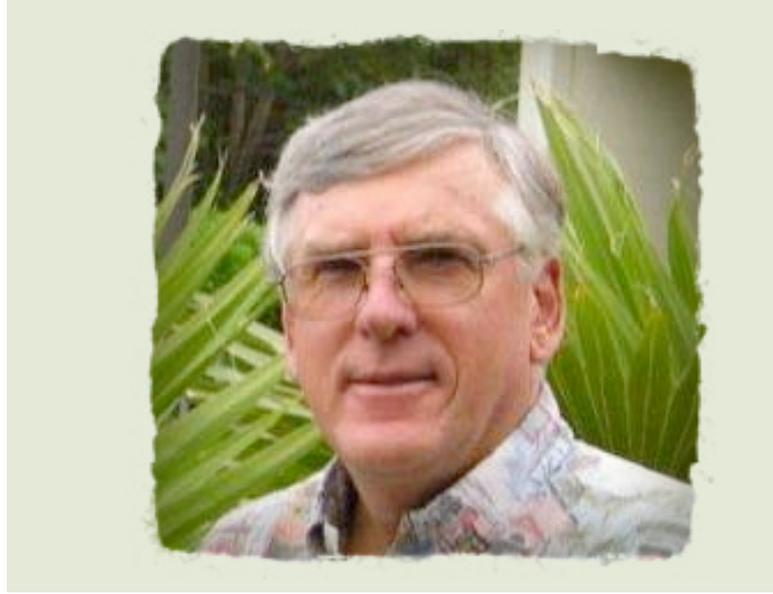
Nene Meeting

summarized the major FOHF accomplishments for 2010 including an increase in membership from 137 to 146; publication of four newsletters; fundraising and promotional efforts; letters of support to Congresswoman Mazie Hirono and Refuge Manager Jim Kraus for acquisition of new refuge lands

and the Comprehensive Conservation Plan; and service trips to the Refuge to assist with the Open House, tree planting, and native plant propagation in the Refuge greenhouse. Colin Phifer, 2010 recipient of the Jack Jeffrey Conservation Education Grant, reported on his plant pollinator research, training of assistants for data collection, and development of lessons for K-8 teachers on native Hawaiian plant pollinators. Creighton Litton announced that 'Imi Pono no Ka 'Āina has been selected as the 2011 recipient of the Jack Jeffrey Conservation Education Grant and presented their representative, Lahela Burgess Camara, with a check for \$1,000. The 2010 activities and accomplishments at Hakalau Forest NWR were summarized by Refuge Manager Jim Kraus. The highlighted presentation of the meeting was given by USGS-BRD Biologist Rick Camp who discussed and gave evidence for increasing forest bird population trends at Hakalau Forest NWR. (Dr. Camp has agreed to write an article for a future newsletter)



Creighton Litton and Lahela Burgess Camara



2012 Jack Jeffrey Conservation Education Grant

The Jack Jeffrey Conservation Education Grant program is entering its third year of existence, and we NEED YOUR HELP to continue what we believe is an outstanding program that we are very proud of. This grant program is designed to promote conservation education in Hawaii, specifically in and around the Hakalau Forest National Wildlife Refuge, in memory of the 21 years of service that Jack provided Hakalau as an employee of the Refuge. 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. These initial donations have been enough to run the program for the first two years, and we now ask you to consider donating to the program so that we can continue offering grants in 2012 and far beyond. It is our goal to raise a minimum of \$1,000 in 2011 to keep this program running. Please contact FOHF at friendsofhakalauforest@gmail.com if you would like to contribute to this worthwhile program, or call Dr. Creighton M. Litton at 808-956-6004 if you have questions or would like more information.

2011 Jack Jeffrey Conservation Education Grant

FOHF is very pleased to announce the winner of the 2011 Jack Jeffrey Conservation Education Grant. At the 2011 annual meeting held in January 2011, 'Imi Pono no Ka 'Āina was announced as the recipient of the 2011 award, and Lahela Burgess Camara was in attendance to accept a check for \$1,000 from the Friends. 'Imi Pono no Ka 'Āina is the environmental education program for The Three Mountain Alliance (TMA) watershed partnership, an organization that is dedicated to watershed protection and management of over one million acres across Mauna Loa, Kīlauea, and Hualālai as part of an expanded Partnership between the State of Hawaii, the National Park Service, U.S. Fish and Wildlife, U.S. Geological Survey, Kamehameha Schools, USDA Forest Service, and USDA NRCS.

'Imi Pono no Ka 'Āina was established in 1999 to help improve the relationships between conservation agencies and the communities they work in. As

part of this effort, a student environmental education program was created to stimulate greater public support by educating island youth about conservation activities. 'Imi Pono no Ka 'Āina will use the funds from the 2011 Jack Jeffrey Conservation Education Grant award to help with the costs of running three 2011 Summer Sessions that will target three separate Hawai'i Island Communities: Hilo, Honoka'a and Ka'ū. For each session, 12 students will participate in a ten day environmental education program throughout the Island of Hawai'i. In particular, the funds awarded by FOHF will be used to support a three day segment of each summer session at the Hakalau Forest National Wildlife Refuge, where local youth will be educated about conservation issues in native wet forest ecosystems. Much thanks to the many Friends members and others who have donated money to make this grant award opportunity a reality over the past two years.

24th Annual Forest Bird Survey At HFNW

Hakalau Forest NWR (HFNWR), established in 1985 for the protection and preservation of native endangered forest birds and their habitat, has the longest and most extensive forest bird survey data set within the Hawaiian Islands. Beginning in 1987, annual forest bird surveys have been conducted along 10 to 13 transects within the refuge, collecting valuable data on endangered and common native forest birds as well as invasive non-native bird species. This information has been used to show that management of native habitats is an important tool in protecting habitat for endangered birds and increasing their populations. The survey started in 1987 but in 2009, due to budget and staff shortfalls, the bird survey was not done. Continuous long term data from these surveys is needed to assess the changes in endangered and common bird populations as habitat restoration, through feral ungulate removal and weed control, reforestation, and habitat regeneration, continues at the refuge. Importantly, early detection of potentially declining bird populations will play critical role in protecting endangered forest bird species from extinction. Results from these surveys will also provide data that will promote protection and preservation of other native forest habitats in Hawaii.

Between March 14th and 22nd , 2011, the twenty-third annual Hakalau Forest NWR forest bird survey was conducted with the help of personnel from U.S. Fish and Wildlife Service, USGS BRD, Hawaii Volcanoes National Park, Three Mountain Alliance, Hawaii State Natural Area Reserves System, University of Hawaii, and volunteers. With the help of some great weather, the primary and secondary surveyors counted birds along 50 kilometers of mauka-makai transects on the refuge at 250 stations. No easy task, considering the rough terrain and thick

vegetation that the counters must hike through between each station. Reforestation with Koa and other plant species has been ongoing at the upper portions of the refuge since 1989.

Always, the big question has been “How long will it take native forest birds to re-colonize these Koa reforestation sites?” Well, during the 2011 survey we saw all of the common bird species within the reforestation sites, as well as three of the endangered forest birds, the Hawaiian Hawk, Hawaii Creeper and Akiapolaau. These species were detected within the Koa corridors, many far above the old growth forest. Also, the Hawaii Akepa, another endangered bird and old growth forest Ohi’a specialist, was detected on the lower edges of the Koa reforestation areas, along the old growth forest boundary, as would be expected. This was also the first time that the invasive Japanese bush warbler was detected during the Hakalau Forest Bird Surveys. This invasive species is common at the Kona Forest Unit of HFNWR and elsewhere on the Big Island, Maui, Molokai, Oahu and Kauai and has been seen or heard on or near Hakalau refuge on several occasions over the past 10 years but never detected during a forest bird survey.

Over all, the numbers and range of the forest birds seemed consistent with surveys in past years, but it will take statistical analysis by the statisticians at USGS BRD to determine if any changes, positive or negative, in the bird populations have occurred.

Jack Jeffrey

Birds top to bottom
Hawaiian Owl - 'Io
Hawaiian Creeper
Akiapolaau
Akepa

CAN YOU IDENTIFY THESE BIRDS?



Pollination Celebration! An Update on the 2010 Jack Jeffery Conservation Education Grant Recipient – Mr. Colin Phifer

As the first Jack Jeffery Conservation Education Grant recipient, I am pleased to share my adventures in research and education with the FOHF readers. I received this grant in February 2010 in support of my thesis research at the University of Hawaii at Hilo, and environmental education initiatives in the Big Island community. I first reported on these activities at the 2011 FOHF annual meeting this past January. The grant I received from the FOHF was instrumental in funding my research as well as giving me the confidence to move forward with my conservation education plans. Over the course of the last year, my research and educational activities on the pollination ecology of Hawaiian plants has developed, and I'm now beginning to see some exciting results. I see pollination as a special connection between plants, pollinators and people. These connections, or "stories" as I call them, are vital links in our world. I am examining how pollination, an important ecological interaction, may be affected by habitat fragmentation.

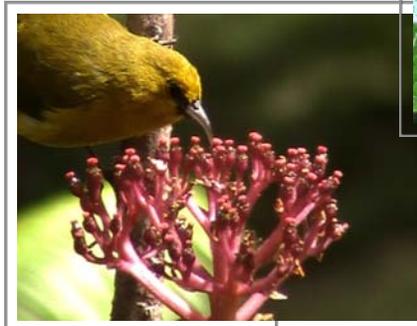
Habitat fragmentation is a leading threat to biodiversity here in Hawai'i, as native forests are developed. Forest fragmentation can directly impact species through loss of habitat and declining populations, and indirectly by eroding the links between species, like pollination. In this rapidly changing world, it is important to understand and predict how species, both plants and pollinators, will respond in a disjointed habitat. To help answer this question, I am monitoring the reproductive success of kanawao (*Broussaisia arguta*) and pa'iniu (*Astelia menziesiana*), two native dioecious plants. I am documenting the pollinators and visitation rates for both plants in a fragmented and intact forest, and relating this information to how many viable seeds are produced. By studying these two common understory plants, I can predict how other plant species may be impacted by fragmentation.

So far, my research has revealed that the pollinators are different in the forest fragments compared to the large intact forest for kanawao. My preliminary results from nearly 80 hours of observation for kanawao during peak flowering suggests the pollinators and visitation rates between the continuous and fragmented forests are different. In total, 187 visits were observed in the continuous forest compared with 53 visits in the forest fragments. Pollinator assemblages are diverse and unequal with 70% of the pollinator visits in the continuous forest coming from honeybees (*Apis mellifera*). In contrast, only one honeybee visited the plants in the forest fragment where moth species accounted for 66% of the visitors. For both the forest fragments and intact forest, amakihi and apapane were frequent bird visitors. The next step for my research is to count the seeds and grow them in the greenhouse to test viability. This spring I will then do the same methods for pa'iniu and compare results with kanawao.

Beyond my research, I developed a Hawai'i-based classroom curriculum focusing on plant ecology, reproduction and, of course, pollination. In partnership with

Hawai'i Academy of Arts and Sciences (HAAS) and Ho'oulu Lehua, a program working to restore Puna's lowland forests, I introduced these topics to a joint 7-8th grade class this past spring. The students at HAAS are part of Hui Malama na Mea a Kane program at HAAS, an innovative project-based learning experience for middle school students co-taught by Tom and Randi Brennon. The students' response has been great—active participants in class, asking insightful questions, engaging with the material! In class we've had hands-on laboratories where the students learn to identify parts of flowers and hypothesize who the likely pollinator may be, as well as discussions about the ecosystem services pollinators provide for humans—like chocolate, which is pollinated by a small fly! In the near future, students will begin to restore a 50-acre forest site near the school with Ho'oulu Lehua, and I plan to continue to assist in the forest and classroom.

My story continues with more research and conservation education outreach work planned. From my classroom experiences, I am working to revise some of my lesson plans and share the curriculum with other teachers through PRISM, a University of Hawaii at Hilo education program focused on the unique biological and cultural landscape of Hawaii. I anticipate completing field research by fall 2011 and successfully defending my thesis in Spring semester 2012. Prior to my defense, I will send a final report to Friends outlining the final achievements of my research and education activities. Beyond that, I hope my story will lead to an exciting sequel as a Ph.D. student, continuing to explore the relationships between species, and contributing to the conservation of our forests and education of the next generation of conservation biologists in Hawaii!



Amakihi



Bee on Kanawao



Colin attempting to be a pollinator

Photos on this page are courtesy of Colin Phifer



Construction of the 19,600 gallon greenhouse water tank is complete! Way back in October 2008, Horticulturist Baron Horiuchi and mainland visitor Valentine Judge were talking about the need for a large water tank dedicated to the provision of water for use at the refuge greenhouse. During periods of drought, water had to be hauled over very rough roads from a catchment 3 miles distant at Pua Akala Ranch to irrigate native plants under propagation for outplanting on the refuge. Friends of Hakalau Forest (FOHF) immediately joined forces with Ms. Judge and the effort to raise the necessary funds was born. More than 50 donations were collected and deposited in a designated account for the water tank. In 2010, The Fish and Wildlife Service and FOHF signed a Challenge Cost Share agreement under which each party would pay half of the total construction cost estimated at \$15,000. Bids were sought from local companies and a contract was signed with Waterworks – Hilo for \$14,241.52. The refuge selected a location for the tank and bulldozed a pad on the west side of the greenhouse. The tank was installed late February 2011 and has been accumulating runoff from the roof of the staff residence ever since. The current balance in the FOHF greenhouse water tank fund (\$5,385.21) will be combined with money from the general fund to pay FOHF's half of the water tank cost. At long last, the greenhouse has a dedicated source of water for the thousands of native seedlings propagated therein. A sign will be placed on the tank in the near future crediting FOHF and our wonderful donors for leading and contributing to the procurement effort. A huge **MAHALO** goes out to the following

FOHF members and even a few non-members for your generous contributions toward this worthwhile project:

Christine Ahia, Puanani Akaka, Alina Alvarado, Donna Ball, Norina L. Barcenas, Judith Ann Bird, Deborah Blair, Joyce H. Brown, Jean Campbell, Randy Ching, Conservation Council for Hawaii, Sophie DeLaCour, Julie Denslow, Debbie, Niklass & Kas Dumroese, Lorraine Ellison, Ken & Darlene Fiske, Steven & Sandra Foster, Kathryn J. Frost, Glen Fujinaga, Betsy Harrison Gagne, Richard Heller, David Iacobucci, Mychale Inasaki, Ruth Iwata, Casey Jarman & Bill Gilmartin, Valentine Judge as a memorial of Winifred Ledger, Pauline Kawamata, Tracy Kazunaga, Ken & Patty Kupchak, Jerry Leinecke, Karen Liliker, Andrew & Brandon Lockwood, Kaye Lundberg, Dr Tom & Ellen Maeda, Dennis Martino, Ruth Migita & Friends, Ron & Emily Needham, Stan Oka, Douglas Powless, Jim & Patsy Purvis, Patricia Richardson, Brooks Rownd, Nancy Russell in memory of Virginia Doty, Jacob D. Seabury & family, Patricia Tummons, Dr. Anne P. Underhill, Deborah J. Ward, Jim & Deborah Wiley, J.D Wyatt.,



Elected to Serve on the Friends Board

at the annual meeting. Pictures and bios below along with the offices they are filling:



Mililani Browning, Alala Outreach Coordinator, Hawaii State Division of Forestry and Wildlife: Mililani graduated from the University of Hawaii at Hilo with a degree in Agroecology and Environmental Quality.

TREASURER

Over the past seven years she has worked with The Three Mountain Alliance (TMA) watershed partnership beginning as a student field technician until 2005 when she began working as the coordinator for Imi Pono no ka Aina, the environmental education program for TMA. She has experience coordinating and leading student environmental education programs, community service learning trips, teacher workshops and other outreach events. Many programs were hosted at Hakalau Forest National Wildlife Refuge (NWR) and over the years Mililani has developed familiarity with the refuge and a deep love for the area. In September of 2010, she began as the Alala Outreach Coordinator. She is excited to build a new outreach program which will help support the current and future efforts for this species' survival



Liba Pejchar, PhD, Asst. Professor, Department of Fish, Wildlife and Conservation Biology, Colorado State University (CSU): Liba has an active research program in Hawaii focused on the conservation and restoration of bird and

plant communities and also teaches courses in conservation biology and ecology at CSU. She received a BA in Biology and Environmental Studies from Middlebury College, a PhD in environmental studies from the University of California Santa Cruz and completed a postdoctoral fellowship at Stanford University. She has worked in Hawaii and at Hakalau Forest NWR since 2000 on projects such as Akiapola'au habitat use and foraging behavior, the role of Oma'o in dispersing native Hawaiian fruits/seeds and the potential of koa forestry to serve as a 'win-win' for landowners and forest birds. Current research projects include studying the colonization of Hakalau's young koa stands by birds and arthropods, planting "tree islands" on Hawaii's ranches to create dispersal corridors for birds while also benefitting cattle, and studying the role of birds and bees in conserving and restoring forest communities through seed dispersal and pollination. Liba's work is generally interdisciplinary, seeking innovative ways to integrate conservation biology, finance and policy to solve important emerging environmental problems at the intersection of biodiversity and human well-being. She desires to serve on the board of FOHF because she is passionate about Hakalau Forest NWR and wants to contribute to the protection of this special place in diverse ways; through science, education and outreach. Liba's 20+ months in the field at Hakalau have given her firsthand experience with the challenges the refuge staff face and she hopes to help them continue to steward this spectacular place.

Robert Shallenberger, PhD, Hawaii Island Conservation Director, The Nature Conservancy: Rob earned his M.A. and Doctorate degrees in Zoology at Whitman College and UCLA, respectively. After a short stint as an Ecologist for the U.S. Army Corps of Engineers, he joined the U.S. Fish and Wildlife Service (FWS) as the



manager of Pacific Island National Wildlife Refuge Complex. Over a 22 year career with the FWS, Rob held several management positions, including seven years as the Chief of Refuges in Washington, D.C. He returned to Hawaii in 1997 to manage the newly created National Wildlife Refuge at Midway Atoll. For the last eight years, he has been the Hawaii Island Conservation Director for the Nature Conservancy. He is also the Vice-President of the Hawaii Wildlife Center Board of Directors. Rob has extensive management and research experience focusing on Hawaii's diverse seabird and waterbird species. He has been a member of the Hawaiian Monk Seal Recovery Team, the Northwestern Hawaiian Islands Ecosystem Reserve Advisory Council and the West Hawaii Fishery Council. Rob is an accomplished wildlife photographer, with photographs and articles published in dozens of magazines and books. His most recent publication is the book, *Hawaiian Birds of the Sea*. His interest in, and support for, Hakalau Forest NWR dates back nearly thirty years and he is confident that he can contribute to the successful implementation of the refuge's Comprehensive Conservation Plan.



J. B. Friday, PhD, Extension Forester, Cooperative Extension Service, CTAHR, UH Mānoa: J.B. currently works with landowners, tree farmers, and professional foresters throughout the state on management of both

SECRETARY

native forests and tree farms. His particular interests are in restoration of native forests, silviculture of koa, agroforestry, and management of high-value plantation timber species. He is originally from the northeast, where he earned a bachelor's degree in biology at Dartmouth in 1982 and a master's inforestry at the Yale School of Forestry and Environmental Studies in 1985.

CONTINUING TO SERVE ON THE BOARD:

Dr Richard Wass, President

Dr. Creighton Litton, VP

Dr. Jonathan Price

Emily Needham, Newsletter Editor