Semi Annual Report | Spring2016

Kiwikiu news

CAUTION! Beware of Rapid 'Ōhi'a Death!

A newly identified disease is killing large numbers of native 'ōhi'a (*Metrosideros polymorpha*) trees on Hawaii Island. Recent surveys show that over 34,000 acres have been affected! Annual death rate of 'ōhi'a on the Big Island is 26%!

'Ōhi'a makes up approximately 80% of Hawaii's native forests and over half of these trees are on the Big Island. 'Ōhi'a is an essential component of our native watershed. It is the backbone of Hawaii's native forests and 'ōhi'a trees cover more than 1 million acres statewide.

The disease is being caused by a wilt fungus, *Ceratocystis*. Trees can be infected for a year or longer before showing symptoms. Once symptoms appear, however, tree death happens quickly. The crowns of affected trees turn yellow and then brown within days to weeks. Dead leaves remain on branches for some time.

It is not known how the disease is being spread. In other similar hosts, the fungus is moved by insects, soil, water, infected cuttings, or tools.

There is no known cure/containment for the disease.

Rapid 'Ōhi'a Death **has not** yet been found on any other islands, but it could become a state-wide issue. Preventing 'ōhi'a from becoming infected is critical. Currently, there is a state ban on exporting 'ōhi'a from the Big Island. Individuals should also clean trucks, tools, clothing, and shoes. Use a 10% bleach solution or 70% isopropyl alcohol to disinfect everything.

See **rapidohiadeath.org** or follow on Facebook to keep up to date. View Rapid 'Ōhi'a Death brochure here.

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Avian Research & Management *Update*

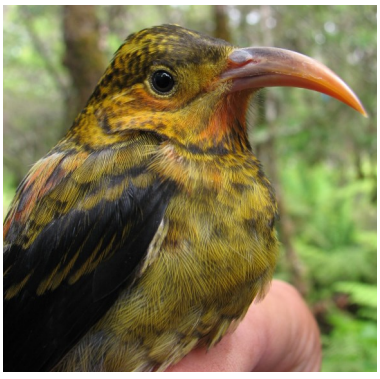
In December, MFBRP brought one female Kiwikiu into captivity from The Nature Conservancy's (TNC) Waikamoi Preserve on East Maui. This is the first time that a bird from this area has been taken into the captive breeding facility program run by San Diego Zoo Global. This will increase genetic diversity in the captive populations and add an additional breeding pair to the facility, as there were unpaired males.

April-June, MFBRP continued monitoring avian demographics and bird community composition in Nakula Natural Area Reserve through variable circular plot (VCP) point counts and color-banding birds to monitor the effects of forest restoration.

Additionally, MFBRP partnered with Smithsonian Institute and U.S. Geological Survey to help conduct surveys on Amakihi avian disease and genetics. Avian malaria was introduced to Hawaii in the 1930s and has caused dramatic declines in native bird populations. Some species, like the Hawaii Amakihi, have been able to persist or recolonize in low elevation areas, where avian malaria occurs. The goal of the study is to characterize the genetic changes that are involved in the resistance and/or tolerance to avian malaria. RNA and DNA samples are being collected from high elevation bird populations, where avian malaria does not occur, and low elevation sites, where avian malaria occurs. MFBRP is using mist nets to catch Hawaii Amakihi at Kula Forest Reserve, TNC's Waikamoi Preserve, Nakula Natural Area Reserve (high elevation sites), Garden of Eden/Hana highway and Waihee Ridge Trail (low elevation sites). This research is also being conducted on the Big Island, O'ahu, and Kaua'i. The study will have an impact on the conservation of Hawaiian birds and evolution of resistance.

Thanks to our banding and field volunteers, assistants, and partners: Jason Gregg, Jason Tappa, Jason Preble, Julie Remp, Roberto Predromingo Kus, Zach Pezzillo, Michelle Smith, Kiele Braun, Erica Jernail, Madison Furlong, Becky Geelhood, Lynn Zhang, Eben and Kristina Paxton, Loren Sackett, Mandy Talpas, Brad Eichhorst, Kayla Shepard, Wilson Ethington, Emily Buonopane, Zach Wilson, and Lynx Gallagher. Thanks to DLNR-DOFAW, TNC, San Diego Zoo Global, and Bessie King and Mike Waggoner at the Garden of Eden.

Photos: Top right: Bob Taylor carefully hiking female Kiwikiu out of TNC's Waikamoi Preserve. Top left: Hawaii Amakihi. Bottom right: Kiwikiu at Maui Bird Conservation Center, credit San Diego Zoo Global. Bottom left: Juvenile 'I'iwi .



Love is in the air!

Spring time is here. For many species, that means breeding season. Some birds will start the breeding season with courtship behavior, which can range from birds feeding each other, aerial displays, singing, preening, and something that can look like "fighting". Typically, females build nests, incubate the eggs, and brood the nestling. Males will typically feed the female while she is nesting. After the eggs hatch and nestlings are old enough, they will leave the nest. This is their first flight. Some fledglings will stay with the parents for a few weeks, others, like Kiwikiu, will stay for over a year. This is a vulnerable time for the young when predators can easily catch them. We hope that they'll make it the next breeding season, though, when they find their own mates!

New Publications

Visit www.mauiforestbirds.org to access all MFBRP publications.

- Warren, CC, Motyka, PJ, Mounce HL. 2015. Home range sizes of two Hawaiian honeycreepers: implications for proposed translocation efforts. Journal of Field Ornithology 86(4):305-316.

Nakula Forest Restoration *Update*

MFBRP has been planting and rebuilding forest in Nakula Natural Area Reserve since 2013. We have planted over 30,000 seedlings. Each month, MFBRP staff and volunteers fly into the field by helicopter to plant trees, control weeds, and collect seeds. Since December, crews have worked over 1600 hours in Nakula!

Kiwikiu reintroduction to the area is in the near future, 2017-2018. There's lots of work to still do and many ways to help! Consider joining a monthly volunteer trip to Nakula. We have openings August-January. If you can't join us, you can still be a part of restoration! Many seedlings are sponsored by supporters of native forest restoration. Many gave the gift of trees for Christmas, some in memory of a loved one who passed away, others for the celebration of their wedding. What will your tree be for?

To sponsor a tree to be planted in Nakula, visit our website.

Photos: Top: Heather Mackey and Ariana Loehr collect pilo berries from a 2-year old outplanting. Bottom: USGS scientist, Lucas Fortini, installs a dendrometer on a koa tree. Right: Climate station in Nakula.

Partnering with U.S. Geological Survey

MFBRP is assisting USGS scientists with climate research in Nakula Natural Area Reserve.

Fog, or cloudwater, is an important contributor to the water cycle in Hawaii, but it can be difficult to determine how it influences the ecological and hydrological processes of ecosystems. Fog water inputs can be important for the survival and growth of plants in what are otherwise low rainfall areas. Changes in fog with future climate scenarios, then, may alter where and when forests can persist on Hawaii, with important implications for forest birds.

The research in Nakula is focused on understanding the spatial and temporal variation of fog and how it affects the water budget, forest dynamics and restoration efforts. Dendrometers, which measure the circumference of trees and shrubs, have been installed to monitor fluctuations related to environmental conditions.

A climate station that measures environmental conditions such as temperature, humidity, rainfall, wind speed/direction, and solar radiation, was installed in Nakula. The measures of plant growth and survival can be matched to climate and soil moisture measurements to see if time periods with fog create conditions for growth and survival that might not otherwise exist. Results will inform local restoration efforts, and give clues to the impacts of climate change across the state on the conservation of native ecosystems as well as management of freshwater and other natural resources.

THANK YOU!

Thank you to our restoration volunteers who have helped us in Nakula since December: Lindsay Veazey, Michelle Smith, Jerry Broadus, Adam Lottig, Joe Imhoff, Zach Pezzillo, Stephanie Yelenik, Stacy Montemayor, Lucas Fortini.

Three of our volunteers received the President's Volunteer Service Award 2015 for giving over 100 hours of their time: **Ian Vogel, German Gordo, and Ben Davis** (pictured to the right). Ben volunteered 204 hours!

Project Support & Partnerships

Lele O Nā Manu: Hawaiian Forest Birds

Bishop Museum's newest original exhibit takes visitors soaring through the science and cultural significance of native bird species in Lele O Nā Manu: Hawaiian Forest Birds, on display March 19 - July 31, 2016. The primary objective of Lele O Nā Manu is to educate the public about the rich and diverse natural history of native Hawaiian forest birds, their preeminence in traditional Hawaiian culture, their direct connection to the health of native forests and the dire need for their conservation.

The J.M. Long gallery in Hawaiian Hall has been transformed with vibrant displays brought to life with the world-premiere of a taxidermy collection of Hawaiian forest birds. Many of the species showcased are extinct, offering a rare opportunity for the public to see these birds. There are also interactive features and hands on experiences at the exhibit.

Come see Lele O Nā Manu not only to learn about the past, present, and future of Hawai'i's forest birds but also to see what you can do to help keep more native birds from becoming extinct. Bishop Museum collaborated with multiple organizations, including MFBRP, to create this experience. For more information, visit www.bishopmuseum.org.

UPCOMING EVENTS

► **Maui Mauka Conservation Awareness Trainings at UH-Maui College on May 13th at 9am.** By East Maui Watershed Partnership, Maui Invasive Species Committee, and Maui Forest Bird Recovery Project. Please RSVP to miscpr@hawaii.edu.

► **Pint Night for the Birds at Maui Brewing Company Brewpub. Friday, May 20th, 6-10pm.** Enjoy local pints and help the birds. Half the nights' beer profits go to bird conservation.

► **TNC Volunteer Work Day in TNC's Waikamoi Preserve. Saturday, May 21st.** Assist The Nature Conservancy with invasive species control. For more information and to RSVP, email kfay@tnc.org.

► **Give Hawaiian Airlines Miles to MFBRP.** Hawaiian Airlines match up to a half a million miles. Donated miles are used for necessary travel that saves project funds for work in the field.

Outdoors with Patagonia

Patagonia has donated over $6 million to fund environmental work this fiscal year. As a company that uses resources and produces waste, they recognize their impact on the environment and feel a responsibility to give back. Patagonia makes quality outdoor products and their mission is to build the best product, cause no unnecessary harm, and use business to inspire and implement solutions to the environmental crisis. MFBRP was honored to receive a grant and outdoor gear from the company. We are grateful for their support and generosity. A big mahalo to Patagonia!

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Aloha to our many volunteers and interns over the past several months: **Heather Mackey** and **Aarin Sengsirirak, Erin Johnson**, and our **office and field volunteers**.

E Komo Mai to our new staff member, **Bob Taylor**, Field Associate, who has worked for MFBRP in temporary positions since 2013. We also welcome our new Kamehameha Schools' Kāpili 'Oihana Internship Program intern **Chase Alexander**.

Mahalo to those who participated in our **Plant a Tree** and **Adopt a Kiwikiu** Programs.