

**2015-
2016**

MAUI FOREST BIRD RECOVERY PROJECT: WORKPLAN



Hanna Mounce

Pacific Cooperative Studies
Unit, University of Hawaii

Division of Forestry and
Wildlife, State of Hawaii
Department of Land and
Natural Resources

1 July 2015

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Introduction

Maui Forest Bird Recovery Project (MFBRP) is a Pacific Cooperative Studies Unit (PCSU) and State of Hawaii Division of Forestry and Wildlife (DOFAW) project. The United States Fish and Wildlife Service (USFWS), DOFAW, and subject matter experts provide project guidance. This Maui Forest Bird Recovery Project work plan is intended for:

- a) MFBRP staff as background on our organization and its activities and for planning purposes;
- b) MFBRP collaborators such as American Bird Conservancy (ABC), The Nature Conservancy of Hawaii (TNC), National Park Service, Native Ecosystem Protection and Management (NEPM) Program, San Diego Zoo Global (SDZG), USFWS, and the various watershed partnerships (e.g. Leeward Haleakala Watershed Restoration Partnership (LHWRP)) to outline our activities;
- c) MFBRP advisors including DOFAW, USFWS, and collaborating scientists to gain advice on project direction and planning;
- d) Supporters of MFBRP and organizations concerned with endangered birds and their recovery.

We provide an overview of on-going project activities with an emphasis on 2015-2016 work and outline future projects for which we seek funding and collaboration. For more information about Maui Forest Bird Recovery Project, please visit our website at www.mauiforestbirds.org.

MFBRP Mission

Maui Forest Bird Recovery Project develops and implements techniques that recover Maui's endangered birds and to restore their habitats through research, development, and application of conservation techniques. The USFWS Revised Recovery Plan for Hawaiian Forest Birds, Hawaii's Comprehensive Wildlife Conservation Strategy (HCWCS), and species specific five year implementation plans guide our work.

MFBRP Long-term goals:

- 1) Sustain and increase current populations of Maui's endangered forest birds.
- 2) Evaluate a) population status, b) response to management and c) threats to Maui's forest birds.
- 3) Support and develop forest recovery on leeward Haleakala.

- 4) Re-establish a second Kiwikiu population.
- 5) Promote collaboration and policy supportive of Maui's forest birds' recovery.
- 6) Share information on endangered forest birds and forest recovery with the local Maui community as well as the wider scientific community.

For further reading, please refer to:

- USFWS (2006) Revised Recovery Plan for Hawaiian Forest Birds
- DLNR (2005) Hawaiian Comprehensive Wildlife Conservation Strategy
- NEPM (2015) Draft Nakula Management Plan

2015-2016 Staffing

Name	Role	Timing
Core Staff:		
Hanna Mounce	Project Coordinator	year-round
Laura Berthold	Ornith Res/Logist Outrch Tech	year-round
Christopher Warren	Avian Rsrch/Restorat&Data Tech	year-round
Temporary Staff:		
Teia Schweizer*	AmeriCorps Intern**	October-August
TBA x 3	PCSU Technicians**	March-June 2016
Interns/Volunteers:		
TBA x 3	Restoration Volunteers**	Sep-Dec 2015
TBA >30	Community Volunteers as needed***	year-round

Of note:

*Position ends August 2015 and will begin with a new intern October 2015

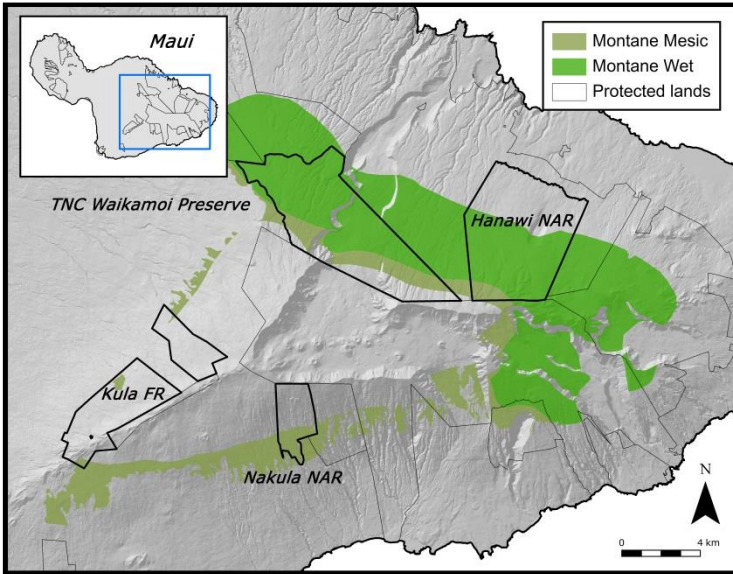
**Housed at the MFBRP field station during their employment.

*** MFBRP has an approved volunteer program with Pacific Cooperative Studies Unit.

FY 2015 Schedule (1 July 2015- 30 June 2016)

Month	Staffing	Activities
July-August 2015	3 Core Staff 1 AmeriCorp Community volunteers	Restoration monitoring Herbicide spraying Mosquito sampling NAK Seed collection ATBC/HCC Conference WFA Training Partner Reporting Manuscript reviews Grant Writing Olinda decon deck construction?
September- December 2015	3 Core Staff 3 Restoration interns 1 AmeriCorp Community Volunteers	Nakula planting Herbicide Spraying Seed collection Restoration monitoring Mosquito sampling NAK Captive MAPA Captures Data Analyses Nakula platforms construction? Partner reporting Community outreach
January – March 2016	3 Core Staff 1 AmeriCorp 3 Technicians Community volunteers	Restoration monitoring Mosquito sampling NAK Planting WAIK predator control Seed collection Partner Reporting Community outreach Manuscript/Grant writing
April – June 2016	3.8 Core Staff 1 AmeriCorp 3 Technicians Banding volunteers Community volunteers	Mosquito sampling NAK/WAIK NAK VCP counts NAK Banding NAK Re-sighting WAIK predator control Partner Reporting Community outreach Manuscript/Grant Writing Annual planning

Study Areas (TNC's Waikamoi Preserve and Nakula NAR)



The Nature Conservancy's Waikamoi Preserve (WAIK)

Mesic and wet sub-tropical montane forest vegetation intergrades at Waikamoi west of the Koolau Gap. On the western drier edge of the study area, koa (*Acacia koa*) and ohia (*Metrosideros polymorpha*) are co-dominant canopy trees. This area has a diverse understory of ferns

and a midstory of small trees, shrubs, and vines. In the eastern and lower portions of the study area ohia is the dominant tree and the wetter conditions support a greater density and diversity of understory and midstory species including kanawao (*Broussasia arguta*) and akala (*Rubus hawaiiensis*). The Nature Conservancy (TNC) has worked to recover native forest features in the Waikamoi Preserve by removing alien plants and mammals and has likely improved habitat suitability for native Hawaiian forest birds.

Nakula Natural Area Reserve (NAK)

The Nakula Natural Area Reserve (NAR; 612 ha) on the leeward slope of Haleakalā is contiguous with the 893 ha western unit of Kahikinui Forest Reserve (FR) and the Nu`u unit of Haleakalā NP. This area historically supported a koa-‘ōhi‘a montane mesic forest, which declined markedly between 1890 and 1930 due to feral ungulates. The area is now mostly pasture and savanna (primarily koa) with a ground cover dominated by a mixture of non-native grasses and little understory; although a diverse assemblage of native ferns and other understory plants are present in drainages, inaccessible to ungulates.

Focal Species (Kiwikiu, Akohekohe, Maui Alauahio)

Kiwikiu or Maui Parrotbill (MAPA)



Status: The Kiwikiu or Maui Parrotbill (*Pseudonestor xanthophrys*) is listed as endangered under the US Endangered Species Act, the state of Hawaii, and the International Union for Conservation of Nature (IUCN). Current population estimate is 502 ± 116 individuals. Although the population estimates have remained relatively constant for a number

of years, population counts have been unable to determine if the population is stable and there is evidence that the Kiwikiu's range is contracting.

Geographic Area: Restricted to a single population of about 50 km², between 1,200 – 2,350 m in east Maui. The species was formerly more widespread and occurred on west Maui and Molokai. Subfossils have been found from drier, low elevation koa (*Acacia koa*) forests, and historic observations suggest that Kiwikiu may have preferred to forage on koa. Now they are restricted to wet ohia-dominated forests.

Primary Threats: Similar to other Hawaiian honeycreepers, Kiwikiu have suffered from habitat destruction, predation by non-native mammals, and disease. Their extremely low reproductive rate and limited distribution makes them very vulnerable to extinction. Kiwikiu lay a single-egg clutch and produce one fledgling per year (there have been a few sightings of adults caring for 2 offspring at once). Their current range is most likely an artifact of habitat destruction and non-native disease. This is likely suboptimal habitat where frequent storms result in the loss of a high percentage of nests. Climate change is predicted to facilitate upslope movements of disease vectors (mosquitoes). This would further reduce suitable habitat for Kiwikiu unless they develop disease resistance.

Conservation Planning and Action: Maintaining and monitoring productivity and abundance of Kiwikiu within their current range is a top priority. Establishing a second Kiwikiu population on the southern (leeward side) of east Maui is a high priority recovery action in the USFWS 2006 Revised Recovery Plan for Hawaiian Forest Birds. Nakula NAR has been selected as the site for this reintroduction. The climate is drier and

the area may support few breeding sites for mosquitoes. Restoring leeward mesic koa forest to establish a second self-sustaining population of Kiwikiu will require substantial time and expenditures. New sites must be fenced, ungulates removed, and predation by mammals must be controlled in addition to restoration of native forest.

Akohekohe or Crested Honeycreeper (AKOH)



Status: The Akohekohe or Crested Honeycreeper (*Palmeria dolei*) is listed as endangered under the US Endangered Species Act, the state of Hawaii, and the IUCN. Current population estimate is $3,800 \pm 700$ individuals. Although the population has been reported as stable for a number of years, there is concern that Akohekohe range will contract in response to climate change.

Geographic Area: Restricted to a single population in 50 km², between 1,200 – 2,350 m on east Maui that overlaps with Kiwikiu. Akohekohe were formerly more widespread and occurred in west Maui and Molokai. Subfossils have been found from drier, low elevation mesic koa (*Acacia koa*) – ohia (*Metrosideros polymorpha*) forests, and historic observations suggest that Akohekohe may have preferred mesic forests over wet ohia-dominated forests.

Primary Threats: Similar to other Hawaiian honeycreepers, Akohekohe have suffered from habitat destruction, predation by non-native mammals, and non-native disease. Fortunately, Akohekohe have a moderate reproductive rate. However, altitudinal migration in response to ohia flowering phenology may bring them in contact with mosquitoes, thereby increasing mortality from disease. Their limited distribution makes them vulnerable to extinction. Their current range is most likely an artifact of habitat destruction and disease and may be sub-optimal.

Conservation Planning and Actions: Conservation planning and delisting criteria for Akohekohe are described in detail in the USFWS 2006 Recovery Plan for Hawaiian Forest Birds. To secure Akohekohe from extinction another population must be established. Currently, they are restricted to a single, small population that occupies sub-optimal habitat. Restoration of mesic koa–ohia forest at all locations possible above 4,500 ft. and establishment of a second population in a disease-free recovery area are

considered essential for recovery. Translocation, rather than captive breeding, is preferred for Akohekohe because they are aggressive and do not adapt well to captive conditions.

Maui Alauahio or Maui Creeper (MAAL)



Status: The Maui Alauahio or Maui Creeper (*Paroreomyza montana*), endemic to Maui, is not listed as endangered under the US Endangered Species Act or the state of Hawaii. The species is listed as endangered under the IUCN. Current population estimate is 35,000 \pm 5,000 individuals. Although the Maui Alauahio is considered stable and possibly increasing, their population could decline with climate change and associated factors.

Geographic Area: Maui Alauahio occur in two separate populations above 3,000 ft. in elevation on the windward slopes of Haleakala Maui and Kula FR in east Maui. The species was formerly more widespread and occurred on west Maui and Lanai. Fossil evidence suggests that Maui Alauahio were common across the south side of the island and included lowland forests.

Primary Threats: Similar to other Hawaiian honeycreepers, Maui Alauahio have suffered from habitat destruction, predation by non-native mammals, and disease. Their current range is most likely an artifact of habitat destruction and disease and may be sub-optimal. Climate change is predicted to facilitate disease at higher elevations. This would further reduce suitable habitat for Maui Alauahio unless they develop resistance.

Conservation Planning and Actions: Although there are no specific conservation plans for Maui Alauahio, efforts to manage the Kiwikiu may benefit Alauahio as well. These projects include ungulate fencing for better habitat, predator control to reduce non-native predators, and restoration of mesic koa-ohia forest on the leeward side of Haleakala. Continued forest bird surveys and habitat monitoring are needed to assess the efficacy of these actions. Although the windward population is considered stable or increasing, size and status of the Kula and the (historic) Kahikinui populations are unknown. Loss of these populations could represent significant loss to the overall population as well as important genetic diversity.

FOREST BIRD DEMOGRAPHICS, HABITAT USE, AND RECOVERY ACTIONS



KIWIKIU REINTRODUCTION

AUGMENTATION OF CAPTIVE KIWIKIU FLOCK

BAND AND RE-SIGHT

POINT COUNT SURVEYS

AVIAN DISEASE SURVEYS

PREDATOR CONTROL

KIWIKIU EAST AND WEST DEMOGRAPHIC COMPARISON

Kiwikiu Reintroduction

Goal: Establish a second wild population of Kiwikiu on leeward Haleakala.

Status: Working group formed, authors of draft plan selected, outline drafted.

Objective: Develop protocols for translocating and reintroducing Kiwikiu to areas of the Nakula NAR based off the best available demographic, genetic, and environmental information.

2016 Key Tasks and Deliverables:

1. Complete two sections of the background for the reintroduction plan.
2. Meet throughout FY16 with authorship group on plan development.
3. Finish all publications currently in prep and under review in regards to MAPA demographics and PVA to provide guidance for the draft plan.

Locations: Olinda Field Station, MFBRP

Collaborators: DOFAW, USFWS, ABC, NEPM, SDZG

2016 MFBRP Staffing requirements: 1 Project Coordinator

Augmentation of Captive Kiwikiu Flock

Goal: Maximize the breeding potential of the current captive flock.

Status: Planned for fall/winter 2015.

Objective: Capture wild Kiwikiu at a sex ratio needed in order for the current captive MAPA flock to have the greatest reproductive potential in regards to pairing in captivity.

2016 Key Tasks and Deliverables:

1. Capture 2 wild females in fall 2015.
2. Target individuals in TNC's Waikamoi Preserve to diversify captive genetics.
3. Coordinate with SDZG to transfer individuals to Maui Bird Conservation Center.
4. Be prepared to locate and capture more individuals (adults or SY birds) as SDZG and DOFAW deem appropriate.

Locations: Waikamoi Preserve, TNC

Collaborators: DOFAW, USFWS, ABC, SDZG

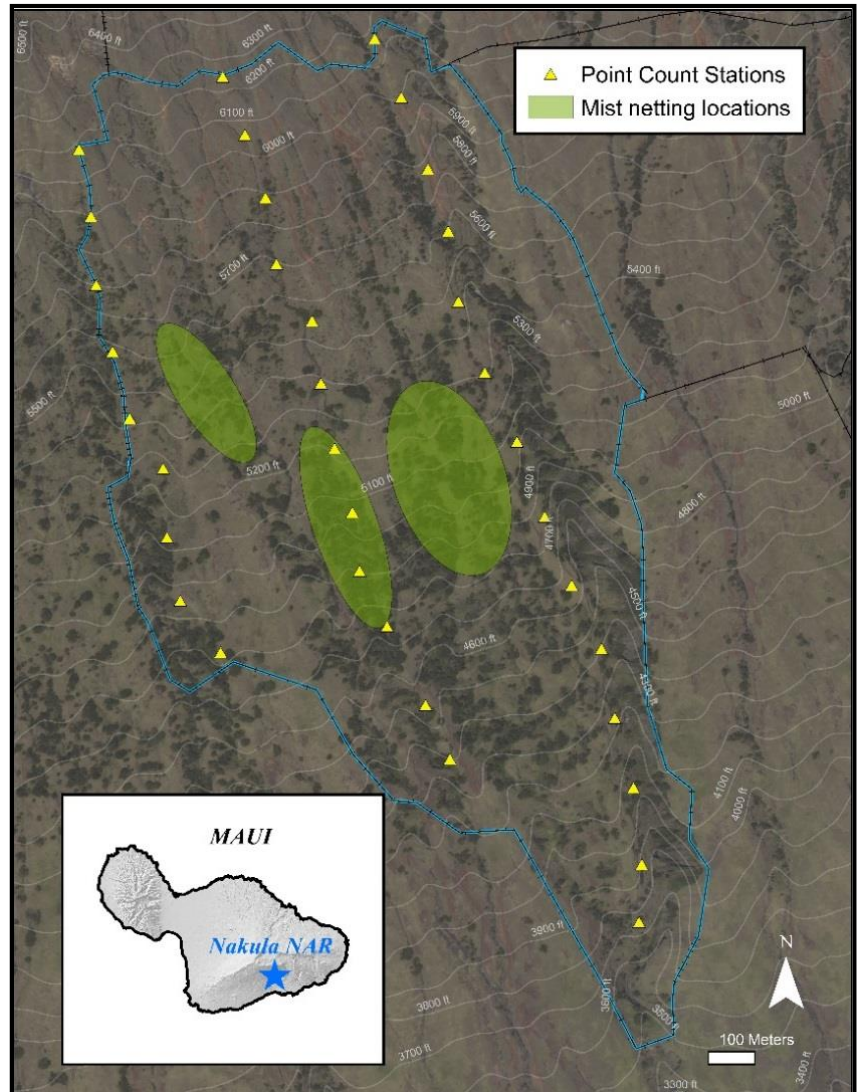
2016 MFBRP Staffing requirements: 3 MFBRP staff

Band and Re-sight

Goal: Establish a color-banded population of native birds in the Nakula NAR.

Status: Ongoing.

Objective: Mist net and color-band native forest birds within the fenced Wailaulau unit of Nakula NAR for monitoring and assessing population demographics.



2016 Key Tasks and

Deliverables:

1. Set up mist net stations throughout Nakula NAR during the spring.
2. Capture as many HAAM and APAP (and other native spp. if found) individuals as possible.
3. USFWS band non-natives.
4. USFWS band and color-band natives.
5. Collect blood samples from all individuals.
6. Re-sight color banded individuals and GPS locations.

Locations: Nakula NAR, DOFAW

Collaborators: DOFAW, NEPM

2016 MFBRP Staffing requirements: all staff, interns, and volunteers

Point Count Surveys

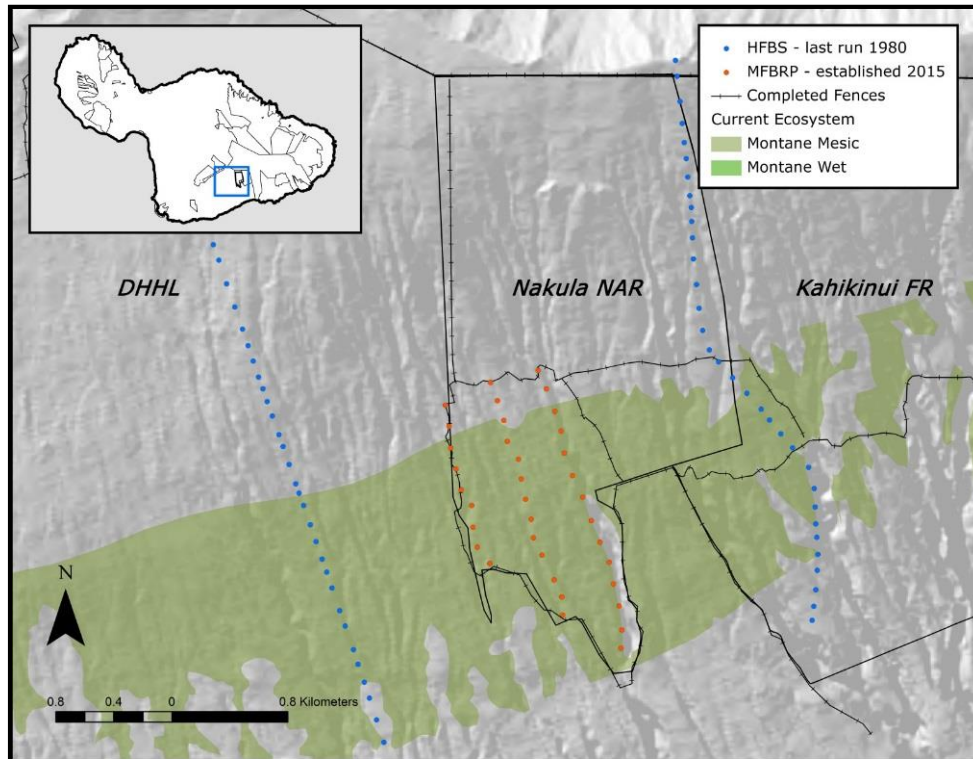
Goal: Evaluate and monitor forest bird populations in Nakula NAR as continued restoration and recovery continues.

Status: Ongoing.

Objective: Use forest bird population densities, compositions, and trajectories to monitor the progress of forest recovery on leeward Haleakala.

2016 Key Tasks and Deliverables:

1. Re-establish the State Forest Bird Survey transects in Nakula NAR, Kahikinui FR and Department of Hawaiian Homelands (DHHL) – Kahikinui unit.
2. Establish repeatable VCP transects through the fenced portion of Nakula NAR.
3. Repeat VCP counts along transects 3-6 times each spring.
4. Use data to calculate species abundance, densities, and composition.
5. Establish additional VCP transects through adjacent DLNR and DHHL lands.



Locations:
Nakula
NAR,
DOFAW

Collaborators: DOFAW, NARS, ABC, USGS-BRD

2016 MFBRP Staffing requirements: all staff, interns, and volunteers

Avian Disease Surveys

- Goal:** Evaluate avian disease risk in Nakula NAR.
- Status:** Ongoing.
- Objective:** Assess the disease prevalence of avian malaria throughout the year in Nakula NAR.

2016 Key Tasks and

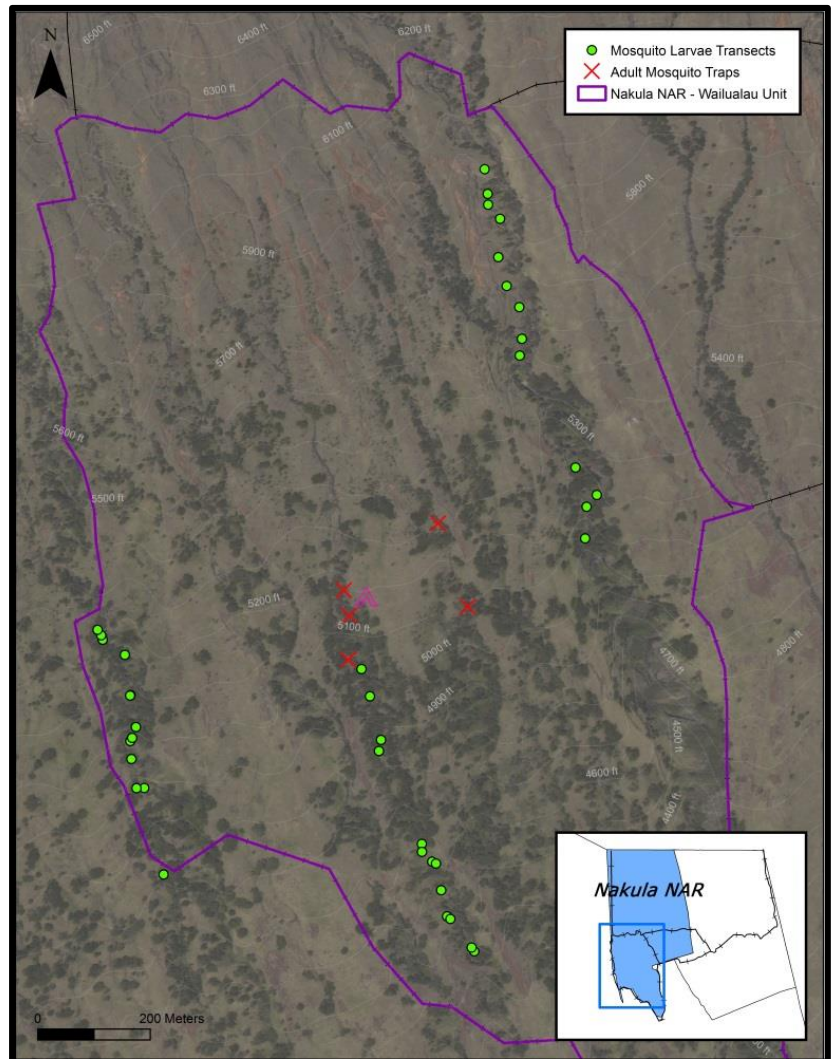
Deliverables:

1. Conduct mosquito larval surveys in Nakula NAR each season (fall, summer, winter, spring).
2. Run mosquito traps for adult mosquitos in Nakula NAR each season (fall, summer, winter, spring).
3. ID all mosquito larvae to genus.
4. Test adult mosquitos of all spp. for avian malaria.
5. Test blood samples from bird banding for avian malaria.
6. Run mosquito traps for adult mosquitos in Waikamoi Preserve each season (fall, summer, winter, spring) starting spring 2016 for baseline comparison of disease prevalence in current Kiwikiu habitat.

Locations: Nakula NAR, DOFAW; Waikamoi Preserve, TNC

Collaborators: DOFAW, UNH (Jeffrey Foster)

2016 MFBRP Staffing requirements: all MFBRP staff, interns, and volunteers



Predator Control

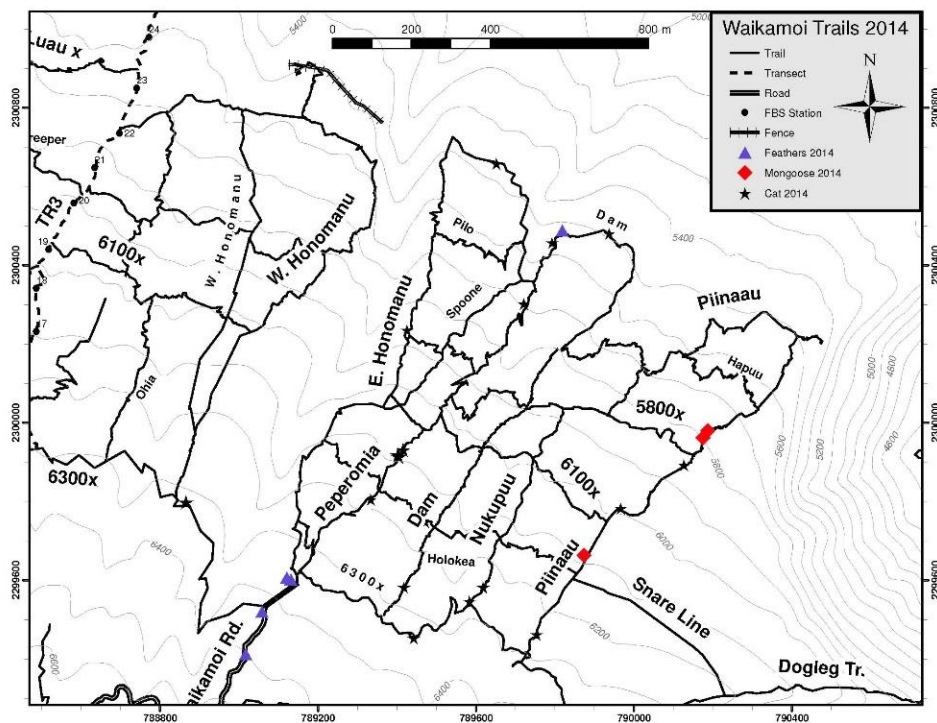
Goal: Reduce predation risk for endangered forest birds.

Status: To be proposed 2015.

Objective: Reduce the number of mammalian predators in forest bird habitat in upper Waikamoi Preserve.

2016 Key Tasks and Deliverables:

1. Complete predator control proposal to submit to TNC.
2. Add Waikamoi Preserve to IACUC permits for cat and mongoose trapping.
3. Design a trapping grid that has both easy day access and covers the high predator activity areas in Waikamoi Preserve.
4. Install trapping grid in Waikamoi before core bird breeding season, fall 2015.
5. Run trapping grid before and during core forest bird breeding season in Waikamoi Preserve.
6. Experiment with techniques to increase capture rates for target animals.



Locations:

Waikamoi Preserve, TNC

Collaborators:

DOFAW,
USFWS

2016 MFBRP

Staffing

requirements:

MFBRP staff
and temporary
interns

Kiwikiu East and West Demographic Comparison Study

Goal: Provide managers with comprehensive demographic information on Kiwikiu.

Status: Field work complete, writing underway.

Objective: Analyze survival and productivity data from the west Kiwikiu population for comparison to the east population.

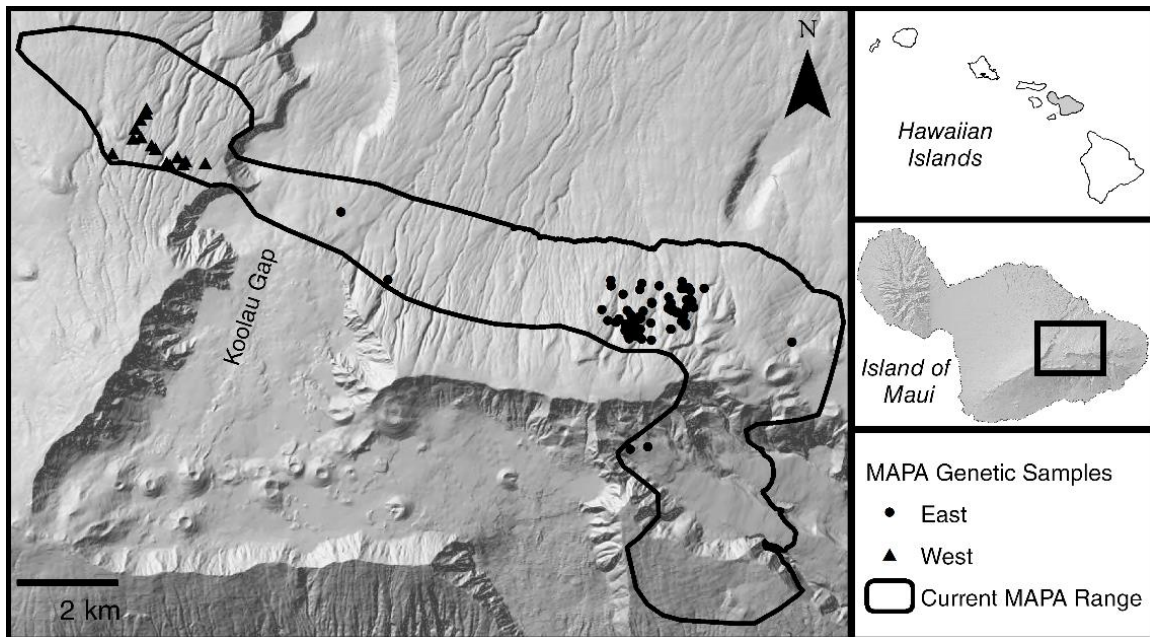
2016 Key Tasks and Deliverables:

1. Analyze WAIK nest data (Mayfield).
2. Analyze WAIK annual reproductive success.
3. Analyze WAIK survival data (MARK).
4. Draft manuscript to compare the demographics of the west population to that of the east (already published data).
5. Draft management suggestions.

Locations: Olinda Field Station, MFBRP

Collaborators: DOFAW, USFWS, TNC

2016 MFBRP Staffing requirements: 2 MFBRP staff, one volunteer



FOREST RESTORATION



EXPERIMENTAL RESTORATION PLOTS IN NAKULA NAR

LANDSCAPE RESTORATION NAKULA NAR

SEED COLLECTION

Experimental Restoration Plots in Nakula NAR

- Goal:** Design efficient and effective restoration methods for Nakula NAR.
- Status:** Completed 18-month monitoring of all experimental plots. Initial analyses conducted.
- Objective:** Evaluate results from experimental restoration trials on survival and growth of key plant species for restoration efforts.

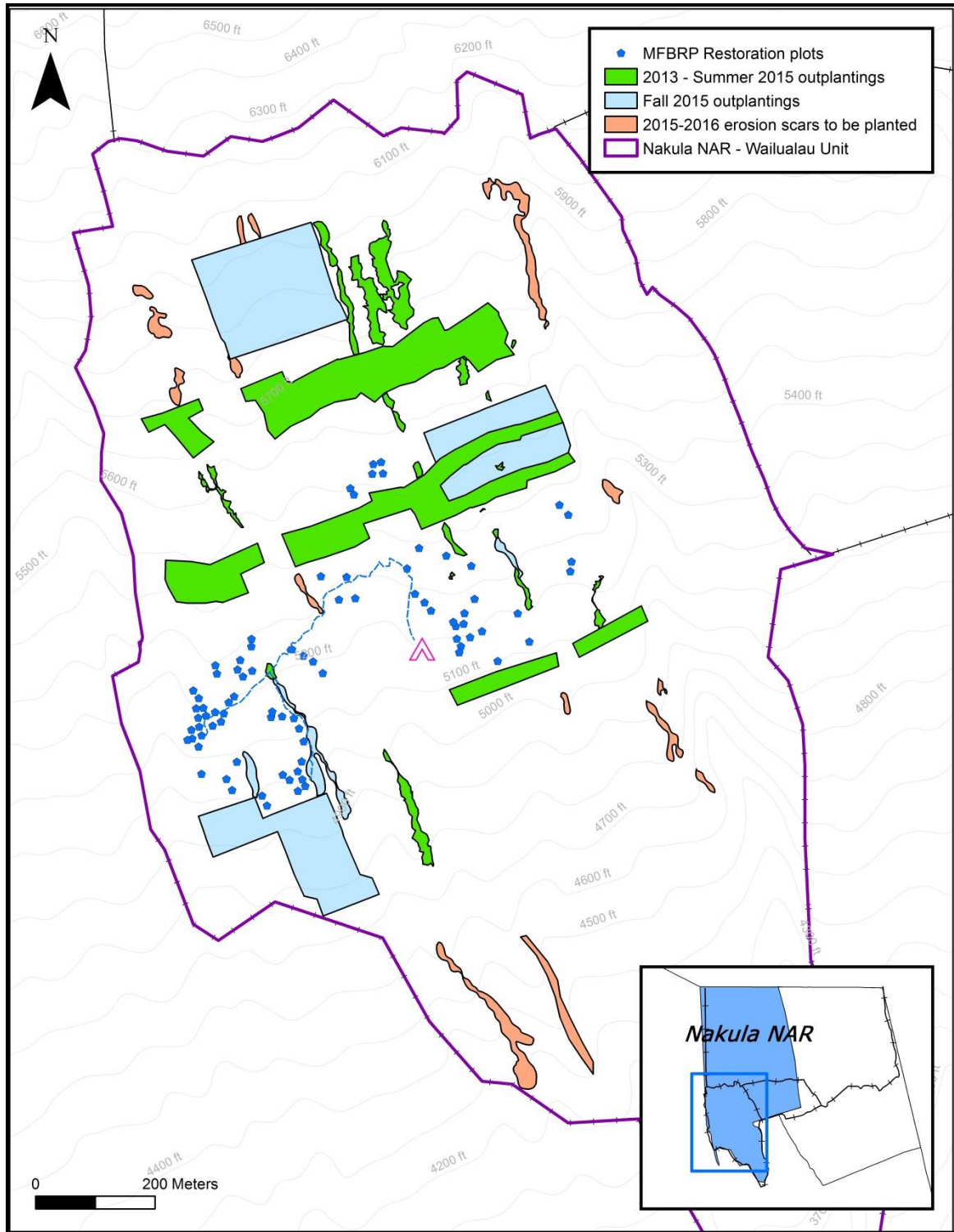
2016 Key Tasks and Deliverables:

1. Complete monitoring of all treatments and techniques in the trials in Jan. 2016.
2. Weeds and other threats in the fenced NAR need to be assessed as they encroach and recover.
3. Collaborations between multiple agencies working on restoring this area need to be better facilitated for sharing resources, protocols, and knowledge.
4. Using volunteers to assist on every field trip.
5. Further details can be found in the “Nakula Trial Restoration Plan.”
6. Complete and report final analyses on restoration trials.

Locations: Nakula NAR, DOFAW

Collaborators: DOFAW, NEPM, USFWS, LHWRP, ABC, Native Nursery, LLC

2016 MFBRP Staffing requirements: all staff, interns, and volunteers



Landscape Restoration Nakula NAR

Goal: Facilitate forest recovery in Nakula NAR.

Status: Ongoing.

Objective: Plant vegetation corridors and erosion scars within the fenced sections of Nakula NAR.

2016 Key Tasks and Deliverables:

1. Monitor the planting that were done in 2013-2015 (survivorship of all 2013-2015 outplanting corridors will be monitored by spring 2016).
2. Identify erosion scars to be planted to slow soil loss from erosion.
3. Design and plant corridors to connect existing vegetation in Nakula.
4. Spray and plant new corridors in segments of 300 plants at a time for ease of monitoring.
5. Experiment with planting akala cuttings and monitor success in erosion scars as opposed to only dibble tube plantings.
6. Using community volunteers on every outplanting trip.
7. Monitor canopy cover changes across the landscape using aerial imagery as available.

Locations: Nakula NAR

Collaborators: DOFAW, NEPM, ABC, Native Nursery, LLC

2016 MFBRP Staffing requirements: all staff, interns, and volunteers

Seed Collection

Goal: Source seeds for Nakula NAR forest recovery.

Status: Ongoing.

Objective: To collect seeds for continued outplantings in Nakula and Kahikinui FR.

2016 Key Tasks and Deliverables:

1. Collect seeds in Nakula opportunistically during all field trips.
2. Collect seeds in Kula Forest Reserve throughout the year (NOT akala).
3. Collect seeds in Waikamoi Preserve throughout the year (mainly akala, kolea, and kanawao).
4. Work with LHWRP to get seeds from adjacent Department of Hawaiian Homelands areas.
5. Volunteers are a good resource for seed collection trips if each can be partnered with a staff member.
6. All fleshy fruited seeds will be planted out immediately by Native Nursery while dry seeds (mamane, aalii, koa) may be saved until the most cost effective and efficient restoration methods are identified.

Locations: Nakula NAR, DOFAW; Kula Forest Reserve, DOFAW; Waikamoi Preserve, TNC; Leeward Haleakala, DHHL

Collaborators: DOFAW, NEPM, Native Nursery, TNC, LHWRP

2016 MFBRP Staffing requirements: all staff, interns, and volunteers

OUTREACH AND COMMUNICATIONS



OUTREACH

SOCIAL MEDIA AND PUBLIC COMMUNICATIONS

PUBLIC HIKES

PUBLICATION SUMMARY

PRESENTATION SUMMARY

MFBRP Outreach Goals

1. Foster mutual understanding and cooperation between MFBRP, Maui-based conservation organizations, and State and Federal agency partners.
 - Extend ties and foster relationships with MFBRP supporters locally and world-wide.
 - Provide reports to all partners as appropriate.
2. Increase island-wide recognition of MFBRP.
 - Outreach education at community events.
 - Educational presentations to community groups.
 - Consistent and pronounced branding using MFBRP logo.
3. Improve local community awareness, trust, ownership, and accurate understanding of the MFBRP mission, native forest birds, and native forest bird habitat.
 - Make brochures widely available island-wide.
 - Direct supporters to our website through social media, print publications, and outreach education activities.
 - Set up outreach tables at community events and fairs (up to six/year).
 - Present educational exhibits and presentations (e.g. Rotary, Makawao Library, Hawaii Audubon Society) (up to six/year).
 - Distribute plush Kiwikiu, Iiwi, and Akohekohe toys to local businesses to sell with attached information about the species and MFBRP.
4. Improve visitor awareness of threats to native forest birds and the on-going bird extinction crisis in Hawaii.
 - Continue Native Ecosystems Awareness Trainings for local tour guides.
 - Continue to investigate outreach opportunities with local hotels.
 - Set-up a table at the Maui Swap Meet once a quarter.
5. Increase global understanding of the uniqueness of Maui's native forest birds, the severity of threats to their survival, the plan for recovery, and options for helping.
 - Submit articles to newsletters and magazines with national and international reach.
6. Increase and diversify fiscal support.

- Broaden MFBRP's fundraising network.
- Work with the Board of Na Koa Manu Conservation to develop new plans for fundraising and project support.
- Maintain current support through consistent recognition, appreciation, and contact with donors.
- Market "Give Wings to Great Causes" Hawaiian Airlines partnership.
- Host fundraisers at supportive local businesses (up to four/year).

Social Media and Public Communications

MFBRP employs a broad-based and multi-faceted communications program to meet outreach goals. Social media (Facebook), e-mail communications (MailChimp), and the semi-annual newsletter (Kiwikiu News) give MFBRP a wide reach for sharing project news, events, fundraisers, and volunteer opportunities with supporters. Social media and public communications are essential for increasing public awareness of forest bird recovery on Maui, engaging with the public, and increasing brand recognition.

Public Hikes

MFBRP offers guided birding hikes into TNC's Waikamoi Preserve on a limited basis. These are usually arranged for key supporters, collaborators, and/or project donors. Hikes will not be offered to the general public unless MFBRP gets specific funding for such outreach activities. All hikes guided by MFBRP must be pre-approved by TNC.

Summary of Publications for 2011-2015

All publications are available at mauiforestbirds.org/articles/45

Garvin JC, Mounce HL, Becker CD, Leonard DL. *In Prep.* Using discriminant function analysis to accurately sex Maui Alauahio (*Paroreomyza montana*).

Motyka PJ, Foster JT, Mounce HL. *In prep.* Use of non-native forest by Maui Alauahio (*Paroreomyza montana*).

Wang AX, Hart PJ, Paxton EH, Perroy RL, Mounce HL. *In prep.* Juvenile dispersal and adult home range size of an endangered Hawaiian honeycreeper, the Akohekohe (*Palmeria dolei*).

Mounce HL, Warren CC, McGowan CP, Paxton EH, Groombridge JJ. *In review.* Extinction risk and recovery options for the endangered Maui Parrotbill (Kiwikiu, *Pseudonestor xanthophrys*). Biological Conservation.

Warren CC, Motyka PJ, Mounce HL. *In review.* Home range patterns of Maui Parrotbill and `Alauahio: Implications for proposed translocations efforts. Journal of Field Ornithology.

Mounce HL, Raisin C, Leonard DL, Wickenden H, Swinnerton KJ, Groombridge JJ. 2015. Spatial genetic architecture of the critically-endangered Maui Parrotbill (*Pseudonestor xanthophrys*): management considerations for reintroduction strategies. Conservation Genetics 16(1):71-84.

Mounce HL, Iknayan KJ, Leonard DL, Swinnerton KJ, Groombridge JJ. 2014. Management implications derived from long term re-sight data: annual survival of the Maui Parrotbill (*Pseudonestor xanthophrys*). Bird Conservation International 24:316-326.

Jirinec JC, Rutt CL, Kutylowski JA, Wang AX, Kohley CR, Wheeler SR, Mounce HL, Jeffrey J. 2013. A Nest in koa (*Acacia koa*) successfully fledged two 'Akiapōlā'au (*Hemignathus munroi*). 'Elepaio 73(5).

Mounce HL, Leonard DL, Swinnerton KJ, Becker CD, Berthold LK, Iknayan KJ, Groombridge JJ. 2013. Determining productivity of Maui Parrotbills, an endangered Hawaiian honeycreeper. *Journal of Field Ornithology* 84(1):32-39.

Brinck KW, Camp RJ, Gorresen PM, Leonard DL, Mounce HL, Iknayan KJ, Paxton EH. 2012. 2011 Kiwikiu (Maui Parrotbill) and Maui Alauahio abundance estimates and the effect of sampling effort on power to detect a trend. Hawaii Cooperative Studies Unit, University of Hawaii at Hilo. Technical Report HCSU-035.

Vetter JP, Swinnerton KJ, VanderWerf EA, Garvin JC, Mounce HL, Breniser HE, Leonard DL, Fretz JS. 2012. Survival estimates for two Hawaiian honeycreepers. *Pacific Science* 66(3):299-309.

Mounce HL, Leonard DL. 2012. Habitat restoration aiding the recovery of the Maui Parrotbill. *Biodiversity Science* 6.

Mounce HL. 2012. Help Save the Maui Parrotbill. *Winging It* 24(3).

Summary of Scientific Presentations 2011-2015

All presentations are available at mauiforestbirds.org/articles/45

Berthold LK, Warren CC, Mounce HL, Vetter JP. 2015. Leeward East Maui forest bird community: Surveys in Nakula Natural Area Reserve. Poster Presentation. HI Conservation Conference, Hilo, HI.

Mounce HL, Warren CC, Farmer C, Vetter JP, Berthold LK, Landon P, Burnett KR, Duvall F, Fretz S. 2015. Planning for Kiwikiu reintroduction: Habitat restoration in Nakula NAR. Presentation. HI Conservation Conference, Hilo, HI.

Wang AX. 2015. Juvenile dispersal and adult home range size of the Akohekohe (*Palmeria dolei*). Presentation. HI Conservation Conference, Hilo, HI.

Mounce HL, Warren CC, Farmer C, Vetter JP, Berthold LK, Landon P, Burnett KR, Duvall F, Fretz S. 2015. Planning for Kiwikiu reintroduction: Habitat restoration in Nakula NAR. Presentation. Association for Tropical Biology Conference, Honolulu, HI.

Burnett, K. 2015. Potential Kiwikiu habitat on Leeward Haleakala. 2015 GIS Showcase. University of Hawaii Maui College.

Wang AX. 2014. The presence of an ecological trap in the juvenile dispersal of the Akohekohe (*Palmeria dolei*), a population limiting life stage? Poster Presentation. HI Conservation Conference, Honolulu, HI.

Warren CC, Mounce HL. 2014. Home-range patterns of two Hawaiian honeycreepers, Kiwikiu (*Pseudonestor xanthophrys*) and Maui Alauahio (*Paroreomyza montana*). Presentation. HI Conservation Conference, Honolulu, HI.

Motyka PJ, Foster J, Mounce HL. 2014. Densities, abundance, and habitat use of birds in non-native forest on Maui. Presentation. HI Conservation Conference, Honolulu, HI.

Warren CC, Mounce HL. 2014. Home-range patterns of two Hawaiian honeycreepers, Kiwikiu (*Pseudonestor xanthophrys*) and Maui Alauahio (*Paroreomyza montana*). Presentation. Island Biology Conference, Honolulu, HI.

Seidl C. 2014. Wildfire on Leeward Maui: a hot conservation threat. 2014 GIS Showcase. University of Hawaii Maui College.

Mounce HL, Raisin C, Leonard DL, Groombridge JJ. 2012. Contemporary Genetic Diversity for the Kiwikiu (Maui Parrotbill; *Pseudonestor xanthophrys*). Poster Presentation. NAOC-V Conference.

Berthold LK, Mounce HL, Motyka PJ, Leonard DL. 2012. Experiments with Developing and Using Supplemental Feeders for Kiwikiu (Maui Parrotbill; *Pseudonestor xanthophrys*): Potentials for translocation efforts and population productivity levels. Poster Presentation. HI Conservation Conference.

Motyka PJ, Mounce HL, Leonard DL, Groombridge JJ. 2012. Comparing mtDNA diversity in the Kiwikiu (*Pseudonestor xanthophrys*) and the Maui Alauahio (*Paroreomyza montana*). Poster Presentation. HI Conservation Conference.

Mounce HL, Kohley CR, Rutt C, Leonard DL. 2012. Maui's Protected Areas Shelter Long-lived Hawaiian Honeycreepers. Poster Presentation. HI Conservation Conference.

Mounce HL, Raison C, Leonard DL, JJ Groombridge. 2012. Contemporary Genetic Diversity for the Kiwikiu (Maui Parrotbill; *Pseudonestor xanthophrys*). Presentation. HI Conservation Conference.

Berthold LK, Mounce HL, Leonard DL, Iknayan KJ, Becker CD, Swinnerton KJ, Groombridge JJ. 2011. Kiwikiu productivity: nest survival and annual reproductive success. Presentation. Presentation. The Wildlife Society Conference.

Mounce HL, Iknayan KJ, Berthold LK, Leonard DL. 2011. Kiwikiu productivity: Nest survival and annual reproductive success in the Hanawi Natural Area Reserve, Maui, Hawaii. Poster Presentation. HI Conservation Conference.

MFBRP in the NEWS 2013-2015

Upcoming... Audubon Magazine, story by Brooke Jarvis, September 2015.

Upcoming... Akaku, local Maui's channel ongoing commercials in 2015.

HAWAII Magazine, April 2015, story by Kim Steutermann Rogers.

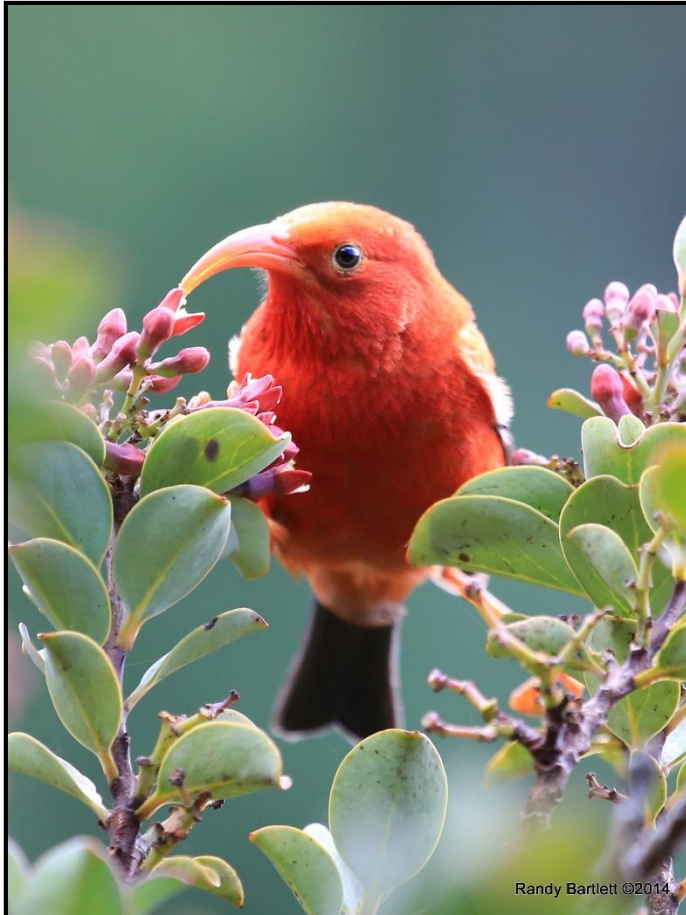
"Bird Woman" Maui No Ka Oi March/April 2014, story by LApana,
www.mauimagazine.net/Maui-Magazine/March-April-2014/Bird-Woman/.

Community Care Connection on Hawaii News Now, November 2014.

Spotlight's Maui Gold 2013/2014.

"The Conservationists" 2013 documentary by Mohamed bin Zayed Conservation Trust,
slips available at www.speciesconservation.org/media-center/videos.

MISCELLANEOUS



OTHER TASKS AND MISCELLANEOUS PROJECT RESPONSIBILITIES

PROJECTS SEEKING FUNDING FOR FUTURE WORK

SUPPORTING PROJECT PARTNERS

Other Tasks Project Responsibilities

MFBRP is a fully staffed project with fiscal and human resource responsibilities to balance with research and management needs. MFBRP operates on a \$300-325K annual budget with ~65% going to personnel costs and ~15% in overhead.

1. **Administration:**
 - a. **Manage budgets, hiring and purchasing through PCSU / RCUH**
 - b. **Manage non-profit relationship via Tri-Isle RC&D, Inc.**
 - c. **Manage non-profit relationship with Na Koa Manu Conservation.**
 - d. **Host interns via AmeriCorps and various universities**
 - e. **Develop volunteer options through DOFAW, TIRCD and UH Manoa.**
2. **Apply for grant opportunities.**
3. **Publish results from current work in local social networks as well as the broader scientific community.**
4. **Present current work and findings at scientific conferences.**
5. Undertake training where applicable, including RCUH requirements, first aid, pesticide application, GIS, helicopter, and firearms.
6. Attend conferences and other appropriate meetings/workshops.
7. Contribute to Working Group Meetings, specifically the Kiwikiu Reintroduction Working Group and the Nakula Restoration Working Group.

We also assist other science-based programs to gain new insight and experience in other techniques and protocols as well as to aid in overall conservation of Hawaiian flora and fauna. These events and activities include:

8. Volunteer for Leeward Haleakala Watershed Restoration Partnership to conduct forest restoration on leeward east Maui.
9. Trade personnel with Kauai Forest Bird Recovery Project and other partners as needed.
10. Assisting DOFAW with avian related projects and admin as needed.
11. Provide and oversee internships and volunteer opportunities.

Projects Seeking Funding for Future Work

(Potential graduate student projects):

- Kiwikiu and Maui Alauahio diet studies using fecal samples to analyze diet overlaps between native and non-native forest bird species.
- Hawaii State Bird Count survey data analyses examining changes in population estimates for native and non-native forest bird species.
- Iiwi (USFWS ESA candidate species) breeding biology and population assessment on east Maui.
- Habitat selection analyses for Kiwikiu to examine micro-habitat selection criteria within the core and edge of the Kiwikiu population range.
- Cost effective cat control in east Maui forests.
- Genetic variation in forest bird species.
- Predator diet studies. Predator abundance levels, habitat needs, and territories.
- Seed dispersal and soil analysis in Nakula forest restoration site.
- Can fire play a role in restoration of Hawaiian ecosystems?
- Assessing the potential for Maui Alauahio re-introductions.
- Bird demographics and habitat use in non-native forests.

Supporting Partners

