

**2014-
2015**

**MAUI FOREST BIRD
RECOVERY PROJECT
(MFBRP): WORKPLAN**



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1 July 2014

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Introduction

The 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;
- b) MFBRP collaborators such as Zoological Society of San Diego (ZSSD), The Nature Conservancy of Hawaii (TNC), National Park Service, Natural Area Reserve System (NARS), American Bird Conservancy (ABC), USFWS, and the various watershed partnerships (e.g. Leeward Haleakala Watershed Restoration Partnership (LHWRP)) to inform them of our activities;
- c) MFBRP advisors including DOFAW, USFWS, and collaborating scientists to gain advice on project directions 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 2014-2015 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) Monitor a) population status, b) response to management and c) threats to Maui's forest birds.
- 3) Support and develop forest restoration on leeward Haleakala.
- 4) Re-establish a second Kiwikiu population on leeward Haleakala.
- 5) Promote collaboration and policy supportive of Maui's forest birds including reforestation with native tree species.
- 6) Share information on endangered forest birds 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

2014-2015 Basic Staffing

Name	Role	Timing
Core Staff:		
Hanna Mounce*	Project Coordinator	100% year-round
Laura Berthold*	Avian Conservation Research Facilitator	100% year-round
Christopher Warren	Research-GIS Technician	100% year-round
Jenn Atkinson	Program & Outreach Assistant	80% year-round
Temporary Staff:		
Christa Seidl/TBA**	AmeriCorps Intern	100% year-round
Interns/Volunteers:		
Kyle Alreck, Colin Sayre and Janel Hull**	Restoration Volunteers	Aug-Dec. 2014
TBA x 4**	Banding Volunteers	February-March 2015
Supplemental Staff:		
Alex Wang	Graduate Student UH Hilo	January 2014-June 2014
Peter Motyka	Graduate Student NAU	January 2014-June 2014

Of note:

*Positions listed are contingent upon H. Mounce moving from interim project coordinator in FY2014 to project coordinator in FY2015.

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

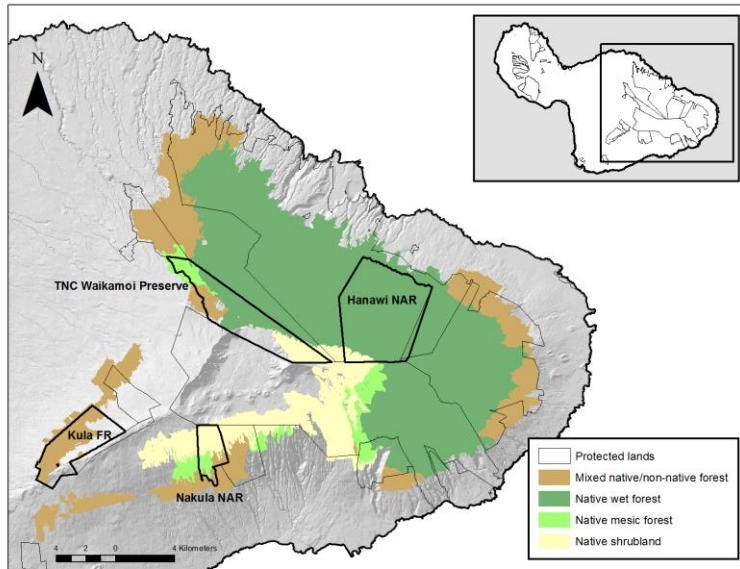
Volunteer Program

MFBRP has an approved volunteer program with Pacific Cooperative Studies Unit. Additional volunteers may be used throughout the year as needed.

FY 2014 Schedule (1 July 2014- 30 June 2015)

Month	Staffing	Activities
July 2014	3.8 Core Staff 1 AmeriCorp 2 Graduate Students Community volunteers	2014 season wrap-up Partner Reporting Island Biology/HCC Conference Manuscript/Grant Writing Nakula planting/PC MAAL grad project/AKOH grad project Intern/Volunteer Hiring
August 2014	3.8 Core Staff 1 AmeriCorp 1 Graduate student 3 Restoration Volunteers	Manuscript/Grant Writing Data Analyses AKOH grad project Community outreach development Crowdfunding Campaign Nakula Spraying Trip
September 2014	3.8 Core Staff 3 Restoration Volunteers	Manuscript/Grant Writing Data Analyses Nakula Spraying Trip Community outreach
October- December 2014	3.8 Core Staff 1 AmeriCorp 3 Restoration Volunteers Community volunteers	Oct Nakula planting/PC Nov Nakula monitoring/planting Nov MAPA Capture Trips Dec Nakula planting (platforms?) Manuscript/Grant Writing Conservation genetics wrap-up Partner/band Reporting Community outreach
January – March 2015	3.8 Core Staff 1 AmeriCorp Banding volunteers Community volunteers	Jan Nakula planting/PC/seeds Feb Nakula banding/planting Mar Nakula banding/pt ct installation Grant writing/Manuscript prep Community outreach Install cat control in WAIK?
April – June 2015	3.8 Core Staff 1 AmeriCorp Community volunteers	Apr Nakula pt counts/seeds/planting Apr Mauna Kea Volunteer Trip May Nakula pt counts/monitoring WAIK cat control? Annual planning Grant writing

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 Ko'olau Gap. On the western drier edge, koa (*Acacia koa*) and ohia (*Metrosideros polymorpha*) are the co-dominant 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*), akala (*Rubus hawaiiensis*), and oha wai nui (*Clermontia arborescens*). 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; 614 ha) on the leeward slope of Haleakalā is continuous with the 925 ha Kahikinui Forest Reserve (FR). 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 dominated by kikuyu grass (*Pennisetum clandestinum*) with widely scattered native trees, although a diverse assemblage of native ferns and other understory plants are present in areas 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 has been reported as stable for a number of years, 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 one-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. The climate is less harsh and mosquitoes do not thrive in the area's dry conditions. Restoring leeward mesic and 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 rodents 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 ± 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, but 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 is 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)



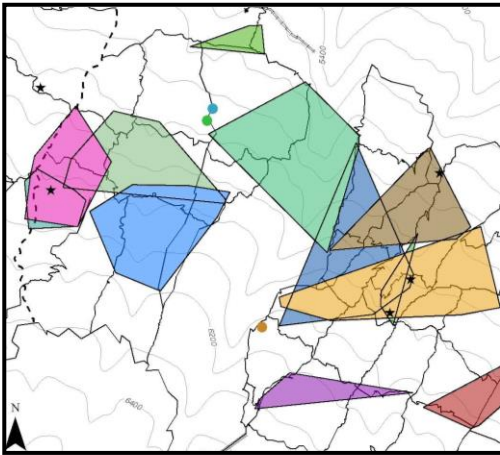
Status: The Maui Alauahio or Maui Creeper (*Paroreomyza montana*), endemic to Maui, is not listed as endangered under the US Endangered Species Act or the state of Hawaii. The species is listed as endangered under the IUCN. Current population estimate is 35,000 ± 5,000 individuals. Although the Maui Alauahio is considered stable, 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 slopes of Haleakala 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.

FOREST BIRD DEMOGRAPHICS, HABITAT USE, AND RECOVERY ACTIONS



KIWIKIU HOME RANGE SIZE AND VARIABILITY

KIWIKIU POPULATION VIABILITY MODELING

AKOHEKOHE MOVEMENTS AND DISPERSAL

MAUI ALAUAHIO USE OF NON-NATIVE HABITATS

KIWIKIU REINTRODUCTION

PREDATOR ABUNDANCE SURVEYS

Kiwikiu Home Range Size and Variability

Goal: Estimate home range sizes and compare between the core and edge of the MAPA range to inform the planning for re-establishment of a second population.

Status: Ongoing since 1997.

Task: Analyze resights of Kiwikiu and Maui Alauahio to investigate individual and temporal variation in home range size.

2015 Key Tasks and Deliverables:

1. Identify trends in home range size as they relate to reproduction, habitat quality, conspecific and heterospecific densities, age, and sex.
2. Create home range polygons for Kiwikiu and Maui Alauahio in Waikamoi and Kula Forest Reserve using only birds with a sufficient number of well-distributed resights.
3. Model how these home range results may inform reintroduction planning.
4. Draft manuscript based on results.

Locations: Waikamoi Preserve, TNC; Hanawi NAR, Kula FR

Collaborators: DOFAW, TNC

2015 MFBRP Staffing requirements: 1 GIS specialist, 1 Project Coordinator.

Publications & Presentations as a Result of this Work:

- 1) Iknayan, K.J., H.L. Mounce, C.D. Becker. 2010. Home Range Patterns of Maui Alauahio and Maui Parrotbill. Poster Presentation. Hawaii Conservation Conference, Honolulu, HI.
- 2) Mounce, H.L. and C.C. Warren. 2014. Home-range patterns of two Hawaiian honeycreepers, Kiwikiu (*Pseudonestor xanthophrys*) and Maui Alauahio (*Paroreomyza montana*). Presentation. Hawaii Conservation Conference, Honolulu, HI.

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

Kiwikiu Population Viability Modeling

Goal: Estimate population viability of MAPA.

Status: Ongoing since 2004.

Task: Estimate population viability of Kiwikiu using VORTEX.

2015 Key Tasks and Deliverables:

1. Develop population viability analyses (PVA) models for Kiwikiu.
2. Assess MAPA population viability and model variation and sources of variation.
3. These analyses will include recently published productivity and survival demographics as well as genetic diversity data for Kiwikiu.
4. Draft manuscript of PVA results for Kiwikiu Reintroduction Working Group and publication.

Locations: Hanawi, NAR; Waikamoi Preserve, TNC

Collaborators: DOFAW, USFWS, University of Kent, TNC

2015 MFBRP Staffing requirements: 1 Project Coordinator

Akohekohe Movements and Dispersal

Goal: Document Akohekohe movements and take foraging observations of both adult and juveniles using radio-telemetry in Waikamoi Preserve, Maui.

Status: Field work completed at the end of 2014 and data being analyzed.

Task: Use data from captured and radio tagged Akohekohe to make inferences on juvenile dispersal movements.

2015 Key Tasks and Deliverables:

1. Alex Wang will be using this project to complete his MS under Pat Hart at University of Hawaii—Hilo 2012-2015.
2. Telemetry work was completed by a team of 3 in Waikamoi Preserve in 2013 and 2014.
3. MFBRP managed permits, assisted with logistics, and provided guidance on project design and data analysis.

Locations: Waikamoi Preserve, TNC

Collaborators: DOFAW, USFWS, TNC, University of Hawaii Hilo

2015 MFBRP Staffing requirements: 1 Project Coordinator, 1 Graduate Student

Publications & Presentations as a Result of this Work:

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

Maui Alauahio Use of Non-Native Habitats

Goal: Investigate the use of non-native forests by native birds to evaluate the management of non-native forests on Maui for the potential benefit of native forest bird species.

Status: Field work completed in 2014.

Task: Investigate native forest bird species' use of the non-native dominated Kula Forest Reserve and compare bird densities among various vegetation structures within that forest.

2015 Key Tasks and Deliverables:

1. Peter Motyka will be using this project to complete his MS under Jeff Foster and Northern Arizona University to be completed in 2015.
2. Field work was completed in 2014 by a team of 3 in Kula FR.
3. MFBRP managed permits, assisted with logistics, and provided guidance on project design and data analysis.

Locations: Kula FR

Collaborators: DOFAW, Northern Arizona University

2015 MFBRP Staffing requirements: 1 Project Coordinator, 1 Graduate Student

Kiwikiu Reintroduction

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

Status: Working group formed and Outline drafted at the end of 2014.

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

2015 Key Tasks and Deliverables:

1. Brainstorm and generate an outline for protocols within the Kiwikiu Reintroduction Working Group (WG).
2. Draft translocation protocol from the WG discussions and circulate for review within one year from start of FY15.
3. MFBRP, ABC, DOFAW and SDZG will author plan.

4. Finishing all publications on MAPA demographics, genetics, and PVA are imperative before the plan is drafted.
5. Capture individuals (4-5) from the wild and transfer to SDZG to boost captive breeding program.

Locations: Hanawi, NAR; Nakula, NAR; Waikamoi Preserve, TNC

Collaborators: DOFAW, USFWS, ABC, NARS, SDZG

2015 MFBRP Staffing requirements: 1 Project Coordinator, 2 Core Staff

Predator Abundance Surveys

Goal: Establish baseline predator abundance levels in order to design appropriate larger scale predator control before future bird releases or translocations.

Status: Ongoing.

Task: Implement a 40 ha predator control grid for the control of cats, mongooses, and rats.

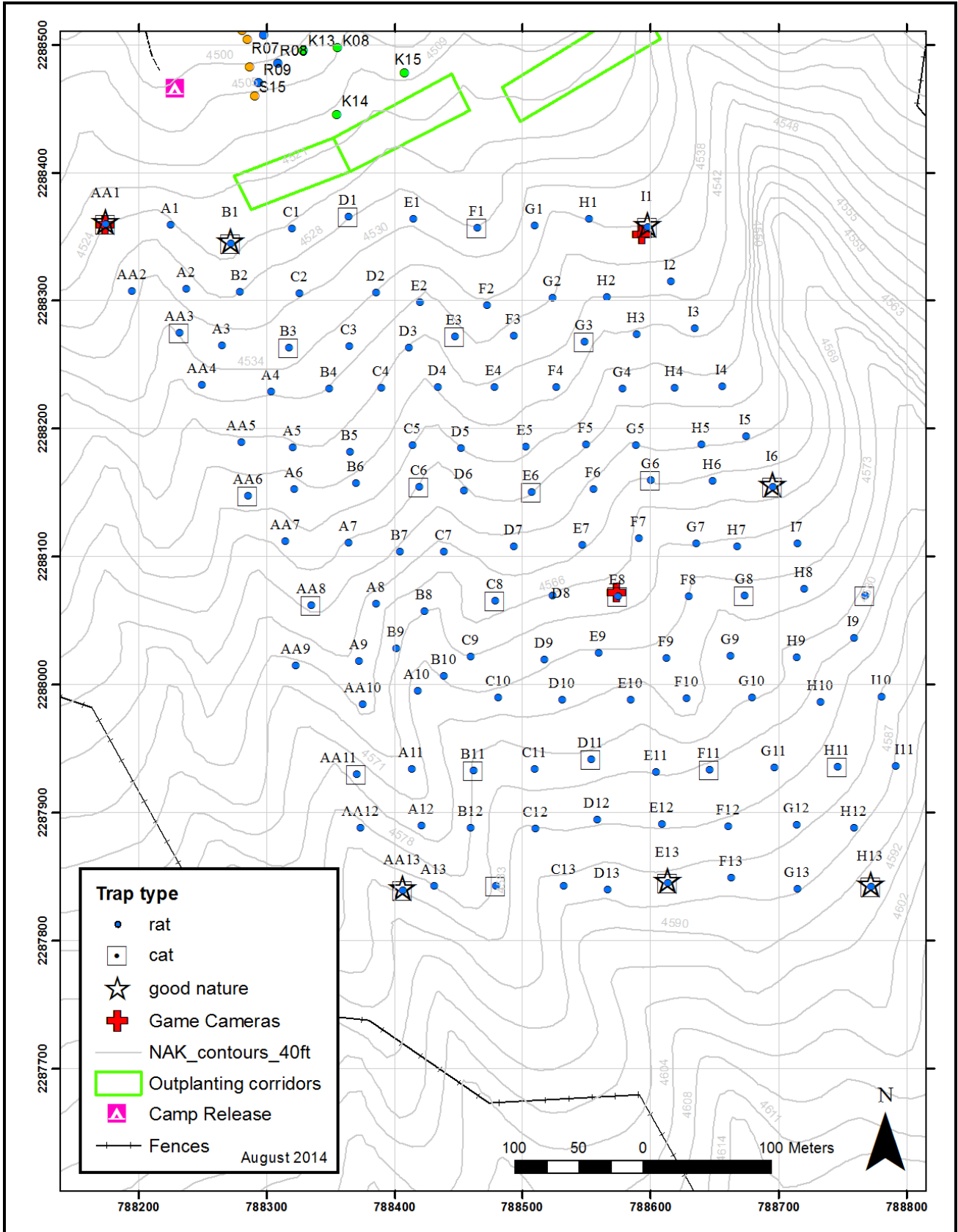
2015 Key Tasks and Deliverables:

1. Deploy camera traps in July to confirm presence of predator species suspected.
2. Use trapping grid to assess the trapping effort that will be needed for reintroduction activities.
3. Run grid for three 10 night sessions in multiple seasons.

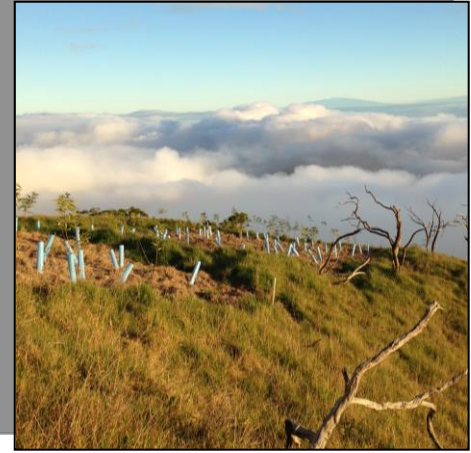
Locations: Nakula NAR

Collaborators: DOFAW, ABC

2015 MFBRP Staffing requirements: all staff, interns, and volunteers



FOREST RESTORATION



EXPERIMENTAL RESTORATION PLOTS IN NAKULA NAR

VEGETATION CORRIDORS

SEED COLLECTION

BIRD BANDING

POINT COUNT SURVEYS

Experimental Restoration Plots in Nakula NAR

Goal: Restore native mesic forest in fenced sections of Nakula NAR.

Status: Continuing second year of monitoring.

Task: Use results from trials to determine the most efficient and effective methods of restoration for the area.

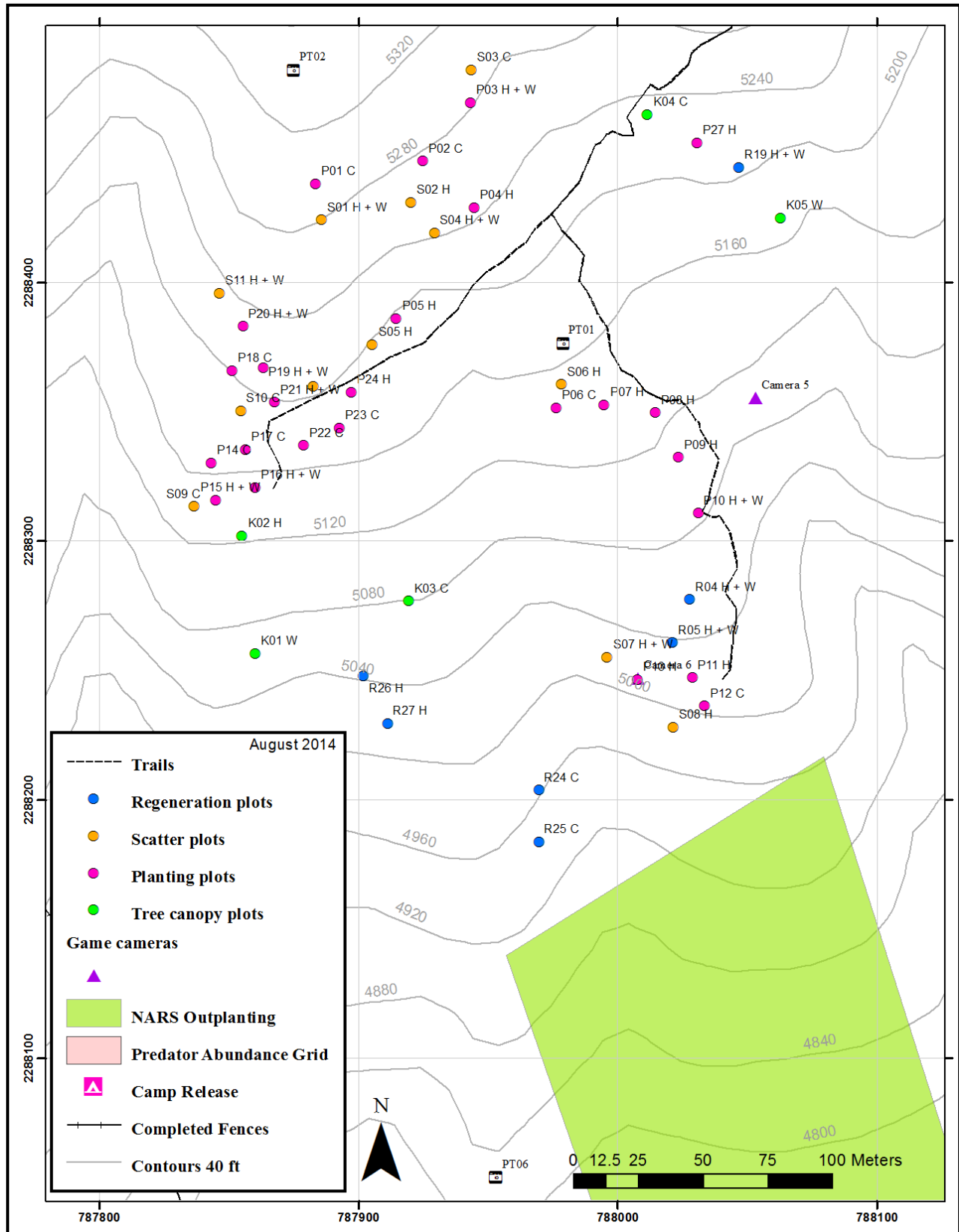
2015 Key Tasks and Deliverables:

1. Continued monitoring of all treatments and techniques in the trials to continue through FY15.
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."

Locations: Nakula NAR

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

2015 MFBRP Staffing requirements: all staff, interns, and volunteers



Vegetation Corridors

Goal: Establish corridors of vegetation in Nakula to facilitate natural regeneration from intact gulches.

Status: Ongoing.

Task: Herbicide and plant a variety of species (depending on seed availability) along corridors in the fenced portion of the Nakula NAR.

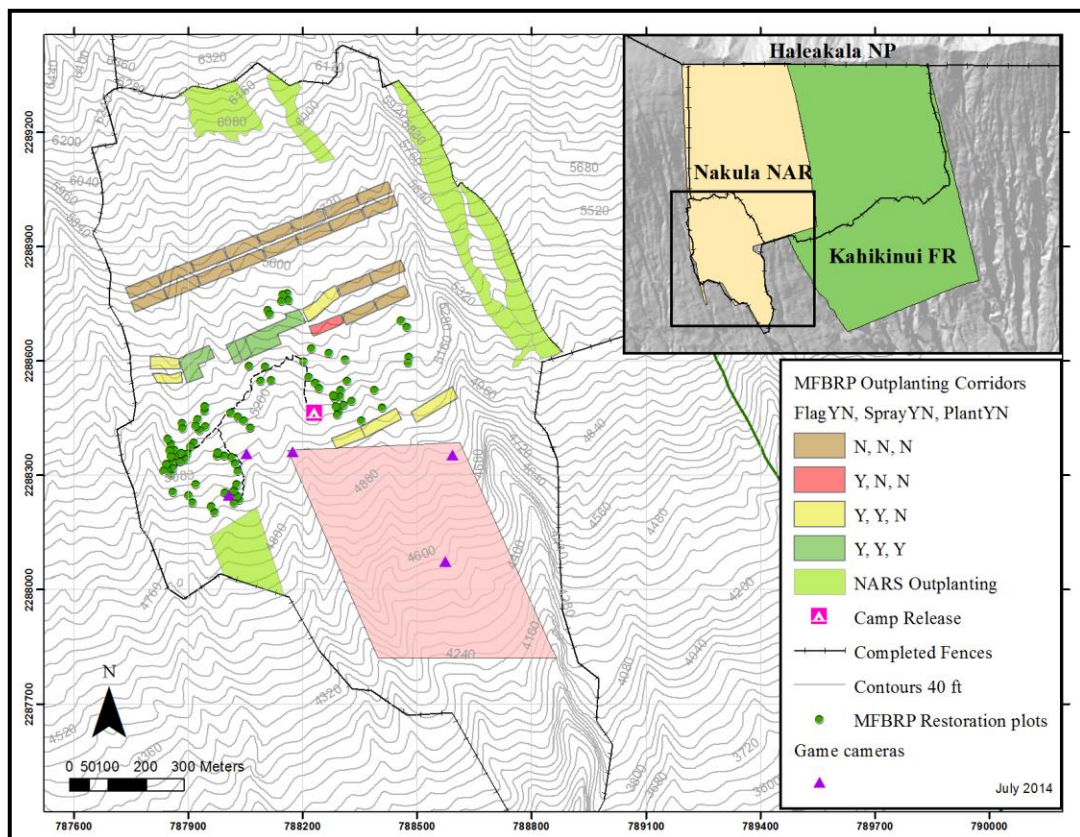
2015 Key Tasks and Deliverables:

1. Monitor the planting that were done in 2014
2. Design, spray, and plant new corridors in segments of 300 plants at a time for ease of monitoring.
3. Using community volunteers on every outplanting trip.

Locations: Nakula NAR

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

2015 MFBRP Staffing requirements: all staff, interns, and volunteers



Seed Collection

Goal: Source seeds for Nakula NAR restoration.

Status: Best seasons for plant phenology identified, two seasons of collections complete. All seeds either stored or planted out at Native Nursery.

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

2015 Key Tasks and Deliverables:

1. Collect seeds in Nakula opportunistically during any field trips.
2. Collect seeds in Kula Forest Reserve throughout the year.
3. Akala seeds can be obtained from Waikamoi Preserve.
4. Work with LHWRP to get seeds from adjacent Hawaiian Homelands area.
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, Kula Forest Reserve, Waikamoi Preserve, Hawaiian Homelands

Collaborators: DOFAW, NARS, USFWS, LHWRP, ABC, Native Nursery, TNC, LHWRP

2015 MFBRP Staffing requirements: all staff, interns, and volunteers

Bird Banding

Goal: Establish a color banded populations of native forest birds in the Nakula NAR for assessing population demographics in the future.

Status: To begin in 2015.

Task: Mist net and color-band native forest birds within the fenced portions of the Nakula NAR.

2015 Key Tasks and Deliverables:

1. Capture as many HAAM and APAP individuals as possible.
2. USFWS band, color-band, collect blood samples from all individuals.
3. Use experienced volunteers to be able to operate more nets.
4. Target birds in the spring 2015.

Locations: Nakula NAR

Collaborators: DOFAW, NARS, ABC

2015 MFBRP Staffing requirements: all staff, interns, and volunteers

Point Count Surveys

Goal: Monitor forest bird population trajectories in Nakula NAR as continued restoration and recovery continues.

Status: To begin 2015.

Task: Establish repeatable VCP transects in the Nakula NAR.

2015 Key Tasks and Deliverables:

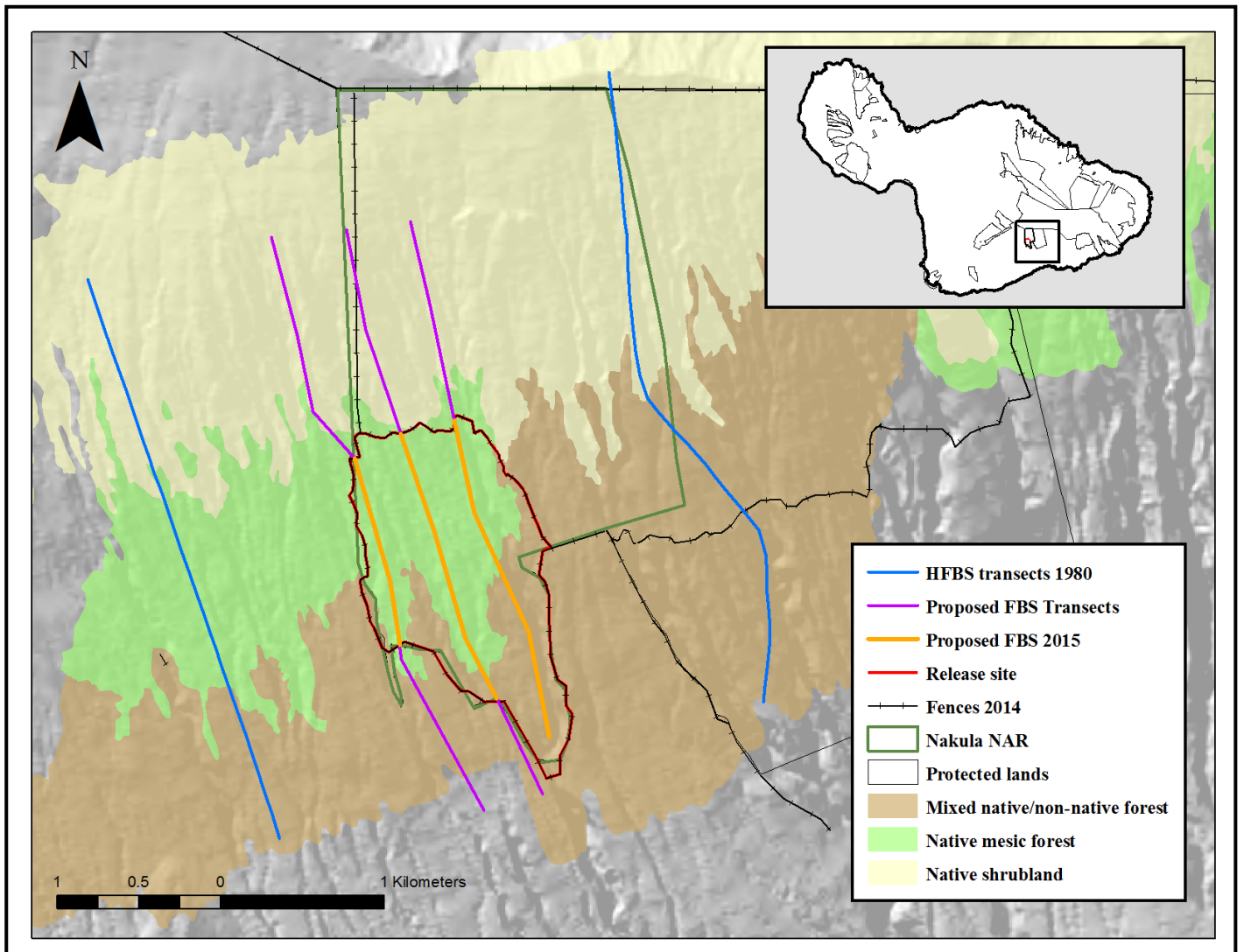
1. Re-establish the State Forest Bird Survey transects in Nakula and Kahikinui FR.

2. Establish new forest bird survey transects through the fenced portion of the Nakula NAR.
3. Repeat VCP counts along transects 3-6 times in the spring of 2015.

Locations: Nakula NAR

Collaborators: DOFAW, NARS, ABC

2015 MFBRP Staffing requirements: all staff, interns, and volunteers



OUTREACH AND COMMUNICATIONS



OUTREACH GOALS

EVENTS AND ACTIVITIES

SOCIAL MEDIA AND PUBLIC COMMUNICATIONS

CROWDFUNDING

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.

Activities: Extend ties and foster relationships with MFBRP supporters locally and world-wide.

2. Increase island-wide recognition of MFBRP.

Activities: 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.

Activities: Make brochures widely available island-wide.
Direct supporters to our website through social media, print publications and outreach education activities.

4. Improve visitor awareness of threats to native forest birds and the on-going bird extinction crisis in Hawaii.

Activities: Implement Native Ecosystems Awareness Trainings with tour guides.
Pilot a partnership approach to outreach education with one or more local hotels.
Pursue publication in Hana Hou magazine.
Pursue a partnership with the Pono Project.

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.

Activities: Submit articles to newsletters and magazines with national and international reach.

6. Increase and diversify fiscal support.

- Activities:
- Broaden MFBRP’s fundraising network.
 - Market “Give Wings to Great Causes” Hawaiian Airlines partnership.
 - Develop and implement crowdfunding campaigns.
 - Host fundraisers at supportive local businesses.

Events and Activities

We conduct periodic educational outreach throughout the year as time allows. During these events, we focus on educating residents and visitors about native forest birds, restoration, threats, and our research. Events include:

1. Fundraisers at supportive local businesses - up to six per year.
2. Outreach tables at community events and fairs - up to six per year.
3. Educational exhibit and presentations (e.g. Rotary, Makawao Library, Hawaii Audubon Society) - up to six per year.
4. Distributing Plush Kiwikiu toys to local businesses to sell. MFBRP wholesales these birds to retail establishments after attaching additional information about the species and MFBRP to each bird.



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.

Crowdfunding

Throughout the month of September, MFBRP is running a crowdfunding program to support restoration efforts. Crowdfunding and other social media campaigns may be vital to ensure our project is sustainable in the years to come. This campaign is currently focused on supporters and restoration-friendly contacts but if successful, in the future could expand to businesses wanting to invest in carbon off-set options.

www.razoo.com/story/Nakula



Public Hikes

MFBRP offers guided birding hikes into TNCs Waikamoi Preserve on a limited basis. These are usually arranged for key supporters, collaborators, 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 2007-2014

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

Mounce, H. L., K. J. Iknayan, D.L. Leonard, K.J. Swinnerton, and J. J. Groombridge. Management implications derived from long term re-sight data: annual survival of the Maui Parrotbill (*Pseudonestor xanthophrys*). Bird Conservation International, DOI: 10.1017/S0959270913000476.

Mounce, H. L., C. Raisin, D.L. Leonard, H. Wickenden, K.J. Swinnerton, and J. J. Groombridge. Using genetic information to design reintroductions: examining alternative strategies using spatial genetic architecture in the critically-endangered Maui Parrotbill (*Pseudonestor xanthophrys*). Conservation Genetics. DOI: 10.1007/s10592-014-0641-9

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

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

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

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

Mounce, H. L., Raisin, C., Leonard, D. L., and J. J. Groombridge. 2012. Contemporary Genetic Diversity for the Kiwikiu (Maui Parrotbill; *Pseudonestor xanthophrys*). Poster Presentation. NAOC-V Conference.

Berthold, L.K., Mounce, H. L., Motyka, P. J., and D. L. Leonard. 2012. Experiments with Developing and Using Supplemental Feeders for Kiwikiu (Maui Parrotbill; *Pseudonestor xanthophrys*): Potentials for translocation efforts and population productivity levels. Poster Presentation. Hawaii Conservation Conference.

Motyka, P. J., Mounce, H. L., Leonard, D. L., and J. J. Groombridge. 2012. Comparing mtDNA diversity in the Kiwikiu (*Pseudonestor xanthophrys*) and the Maui Alauahio (*Paroreomyza montana*). Poster Presentation. Hawaii Conservation Conference.

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MISCELLANEOUS



OTHER TASKS AND MISCELLANEOUS PROJECT RESPONSIBILITIES

PROJECTS SEEKING FUNDING FOR FUTURE WORK

SUPPORTING PROJECT PARTNERS

Other Tasks and Miscellaneous Project Responsibilities

MFBRP is a fully staffed project with fiscal and human resource responsibilities to balance with research and management needs.

1. **Administration:**
 - a. **Manage budgets, hiring and purchasing through PCSU / RCUH**
 - b. **Maintain non-profit relationship via Tri-Isle RC&D, Inc.**
 - c. **Host interns via AmeriCorps and UH Hilo**
 - d. **Develop volunteer options through DOFAW, Tri-Isle 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 such as the Hawaii Conservation Conference and other appropriate meetings.
7. Contribute to Working Group Meetings, specifically the Kiwikiu Reintroduction Working Group, and the Nakula Restoration Working Group.
8. Update the Kiwikiu 5-year Recovery Plan.

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:

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

Projects Seeking Funding for Future Work

(Potential graduate student projects include)

- Nakula Natural Area Reserve forest bird and/or mosquito disease prevalence study. Mosquito habitat assessment.
- 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 Project Partners

