

MAUI'S NATIVE FOREST BIRDS

**UNDERSTANDING THE PAST, PRESENT
AND FUTURE**





Hawaii's
Isolation



WIND, WATER, OR WINGS



Hawaiian Monk Seal
Monachus schauinslandi
`Ilioholoikauaua



Green Sea Turtle
Chelonia mydas

Hawaiian Hoary Bat
Lasiurus cinereus semotus
Opeapea



NATIVE HAWAIIAN BIRDS



Total Number of Original
Species:

127

Now Extinct:

60

Extant:

67

Federally Listed as
Threatened or Endangered:

33



HAWAIIAN HONEYCREEPERS



Original Number of Species:

54

Now Extinct:

28

Extant:

26

Federally Listed as
Threatened or Endangered:

17

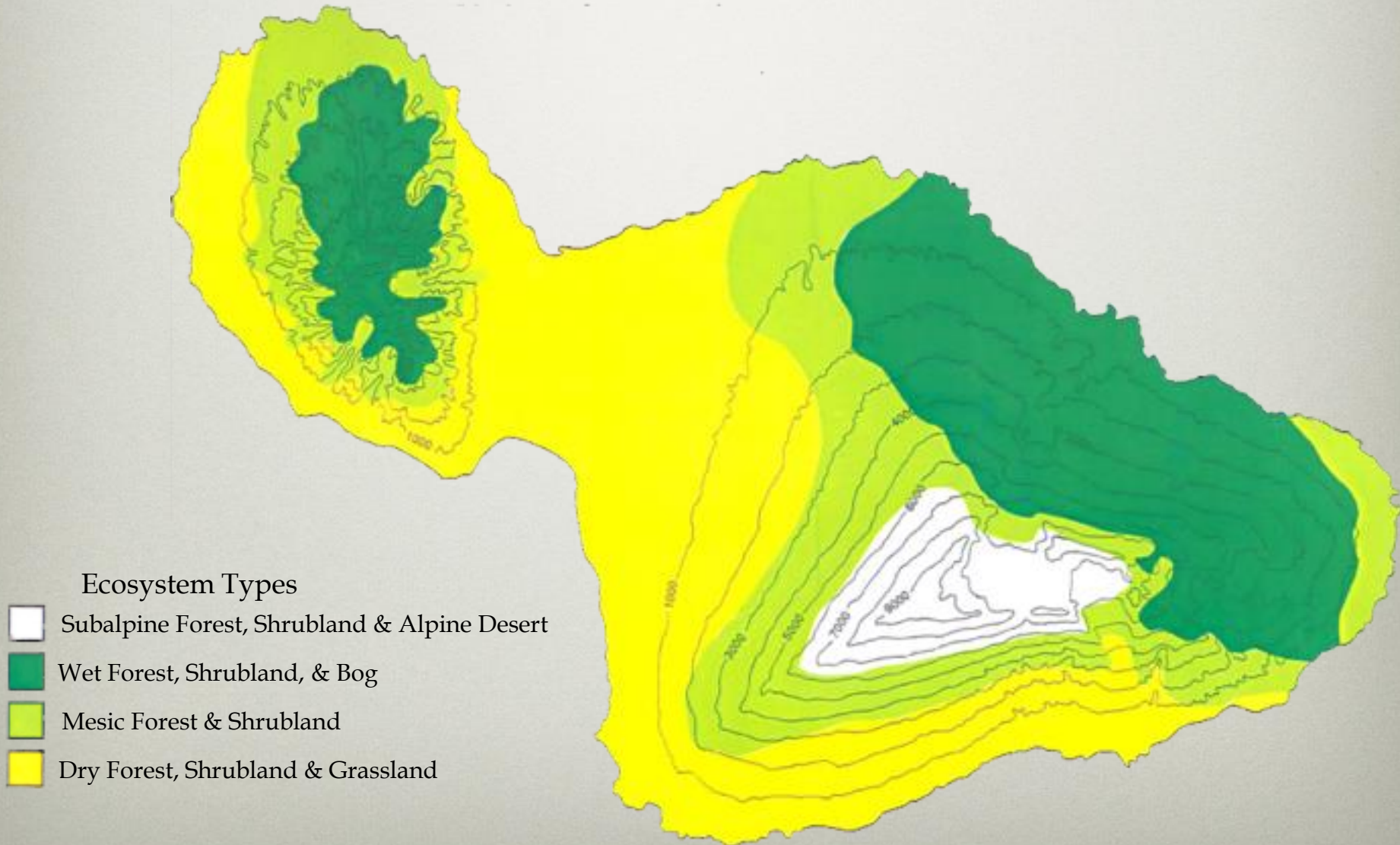
SUMMARY OF CURRENT THREATS

- Habitat Degradation
- Introductions:
 - Invasive Plants and Animals
 - Ungulates
 - Disease



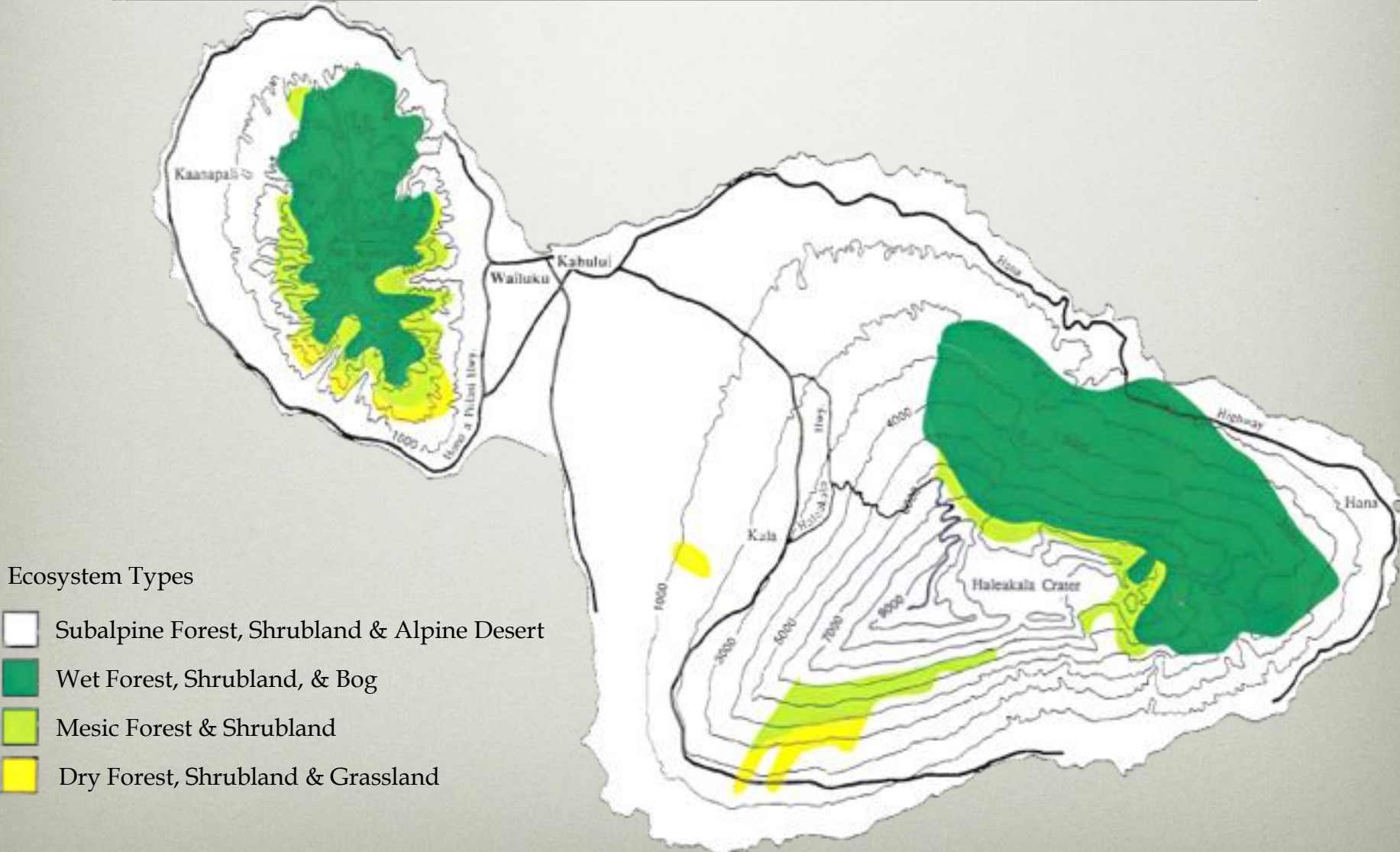
HABITAT LOSS AND DEGRADATION

NATIVE HABITAT BEFORE HUMAN HABITATION



HABITAT LOSS AND DEGRADATION

CURRENT LIMITS OF NATIVE ECOSYSTEMS



HABITAT LOSS AND DEGRADATION

INVASIVE PLANTS



Miconia (*Miconia calvescens*)

Photos by Forest & Kim Starr and Rob Tucker



Strawberry Guava
(*Psidium cattleianum*)

MAUI INVASIVE SPECIES COMMITTEE

"Defending the 'āina"



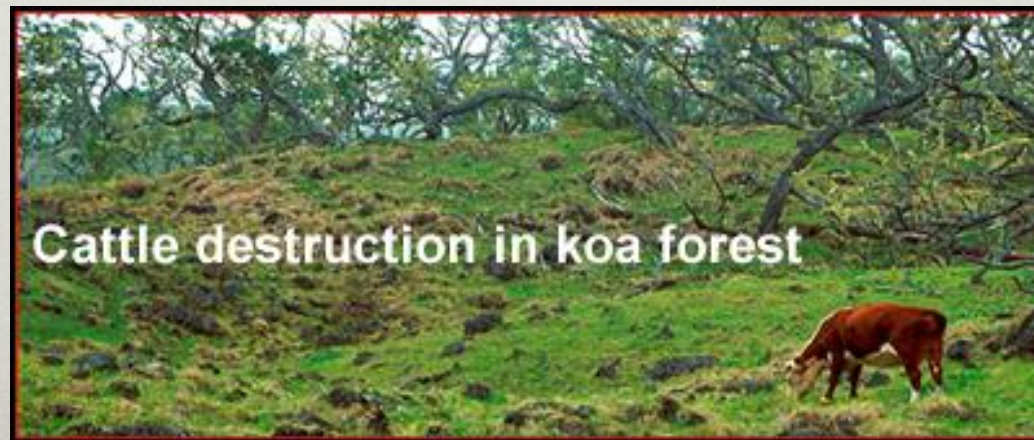
MAUI INVASIVE SPECIES COMMITTEE

573.MISC (6472)
www.mauisc.org



HABITAT LOSS AND DEGRADATION

FERAL UNGULATES



Photos by J. Jeffrey

PROTECTING THE WATERSHED

- Watershed Partnerships
- The Nature Conservancy
- The National Park
- State of Hawaii
- Hawaiian Islands Land Trust



PREDATION



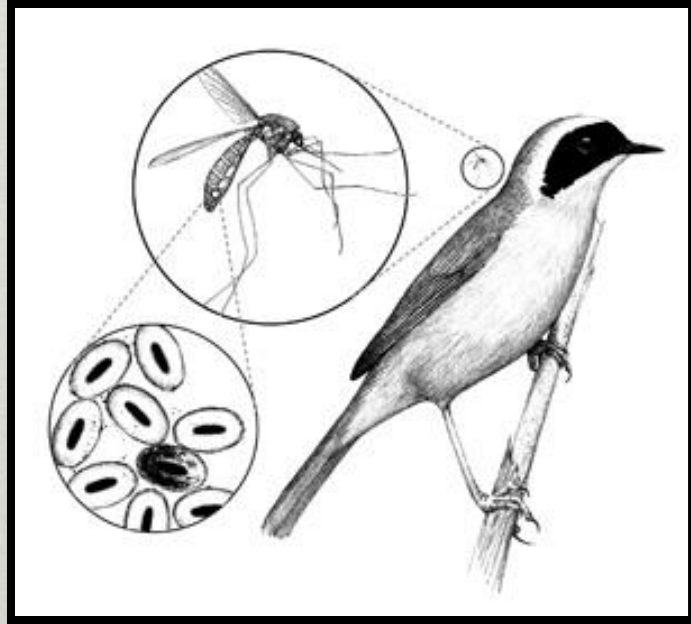
Photos by J. Jeffrey and Chris Jones

COMPETITION WITH NON-NATIVES



Photos by J. Jeffrey, Oahu Nature
Tours and Janruss

INTRODUCED DISEASES: AVIAN MALARIA AND AVIAN POX



**WHAT ARE MAUI'S
NATIVE FOREST
BIRDS?**

ʻĀPĀPĀNE

(*Himatione sanguinea*)



- Common and widespread
- Most abundant honeycreeper
- Nectarivorous
- Recent detections at low elevations may indicate some resistance to avian malaria



HAWAI`I`AMAKIHI

(Hemignathus virens)



- Found on:
 - Hawai`i, Maui, and Moloka`i
- Dietary generalists
- Evolution of avian malaria resistance suggested by observational and genetic data

ʻIʻIWI

(*Vestiaria coccinea*)



- Occurs on:
 - Hawai`i, Maui, and Kaua`i
 - Moloka`i and Oahu (facing extirpation)
- Population showing downward trend in most areas
- Nectarivorous
- Highly susceptible to avian malaria

MAUI `ALAUAHIO, MAUI CREEPER

(Paroreomyza montana)



- Historically on Maui and Lana`i . Now restricted to East Maui
- Population: 35,000
- Occupies both native and alien forests
- Generalist insectivore

AKOHEKOHE, CRESTED HONEYCREEPER

(*Palmeria dolei*)



- Maui Endemic. Used to be found on Molokai'i.
- Currently occupies only 5% of historic range
- Critically Endangered
Population: 3,800
- Mostly nectarivorous, also eats arthropods

KIWIKIU, MAUI PARROTBILL

(Pseudonestor xanthophrys)



- Range currently limited to windward Haleakala
- Critically Endangered
- Population: 502 ± 116 (HFBS); density estimates statistically stable.
- Excavates bark and wood in search of insect and larval prey



WHAT IS BEING DONE?

CURRENT RESEARCH



Established in 1997 to investigate declines in Maui's forest bird populations, including the Po'ouli.

Mission: To develop and implement techniques for the recovery of Maui's endangered bird species.

Most current research is focused
on the Maui Parrotbill

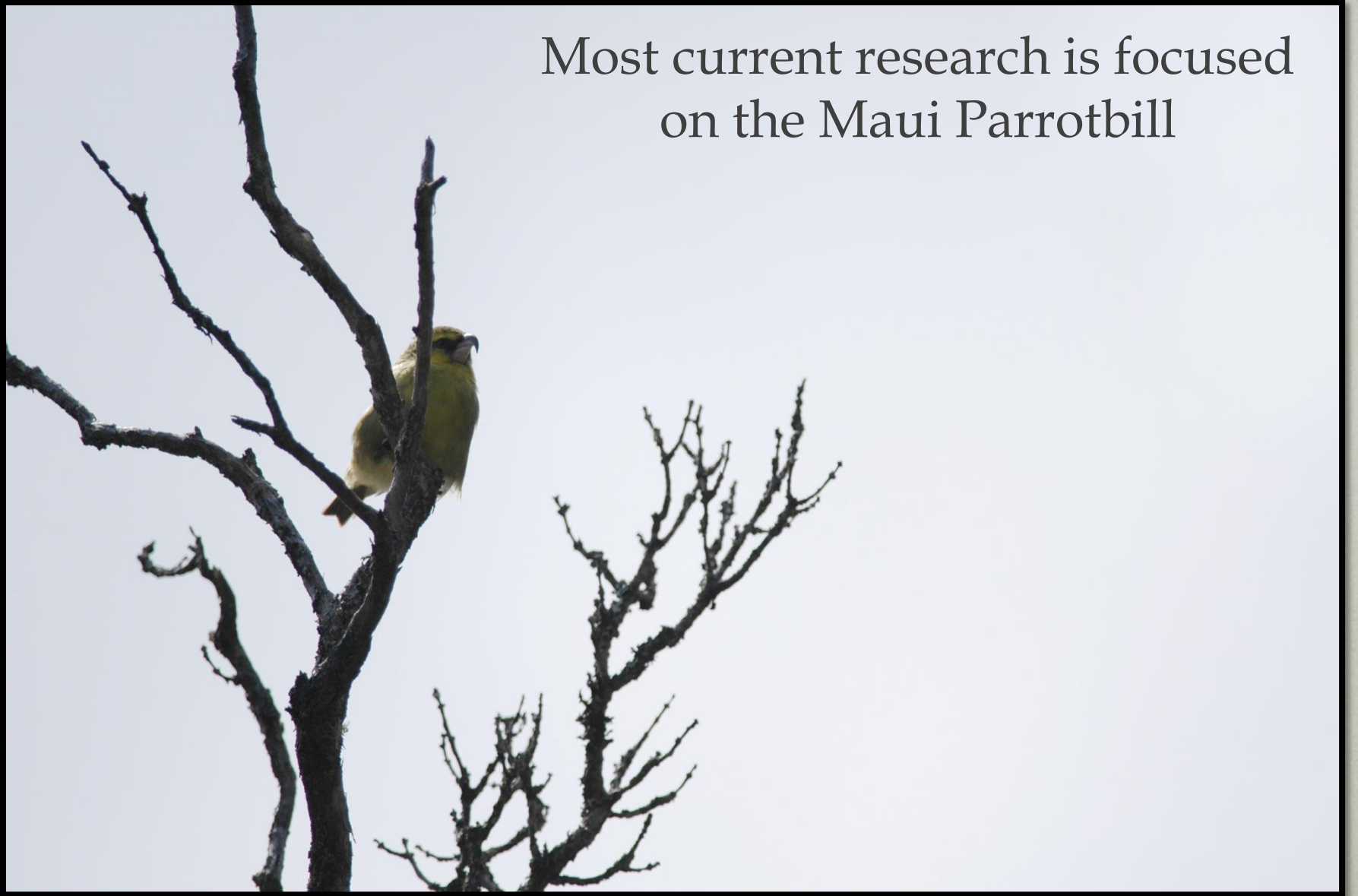


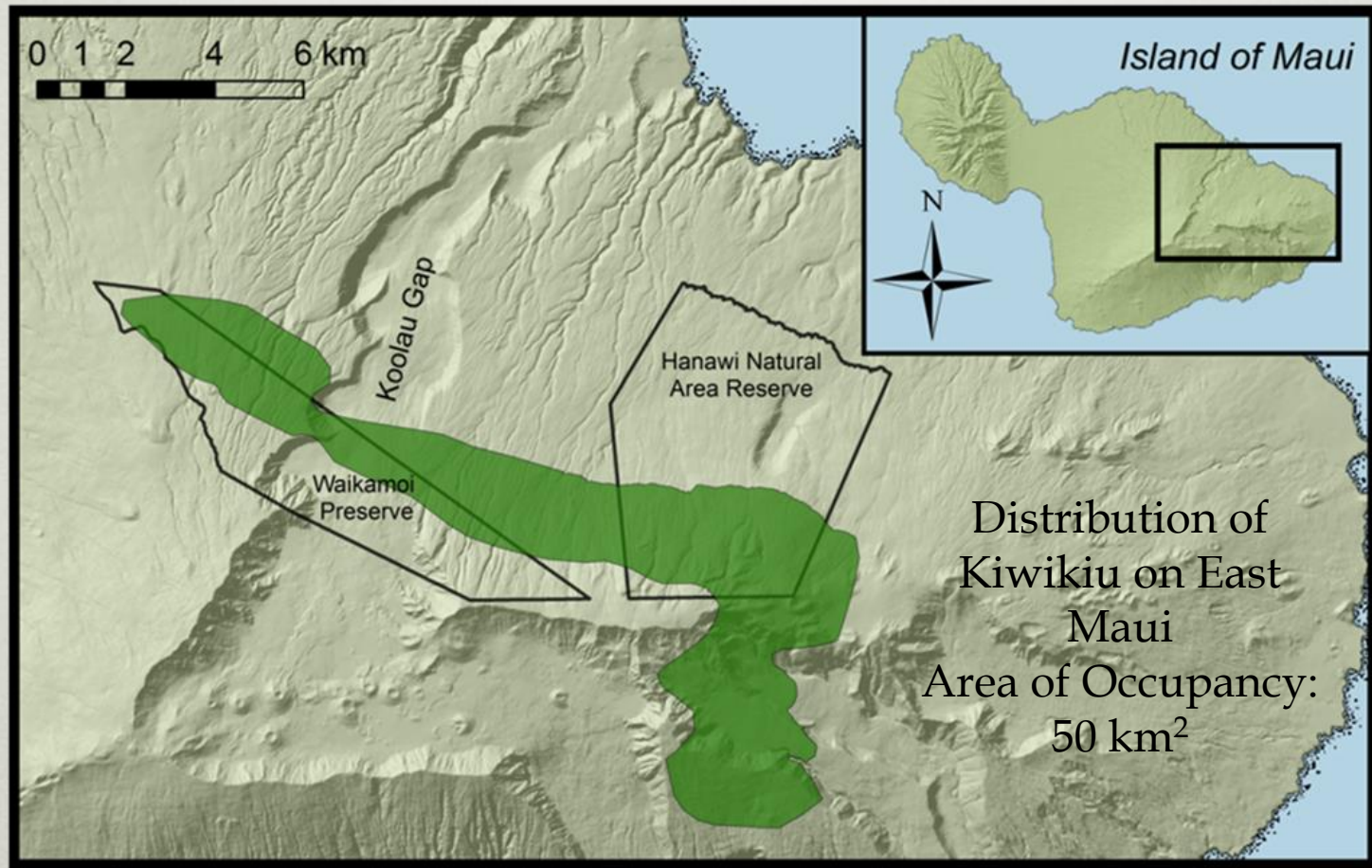
Photo by Adam Elzinga

KIWIKIU LIFE HISTORY

- Insectivorous
- Monogamous
- Long-lived (14+ years)
- High adult survival rates
- Nest in ohia with 1 egg clutch
- Long juvenile dependency
- Fledge one chick per season
- Productivity studies



KIWIKIU & MFBRP



- ~ 500 individuals restricted to ~ 50 km²
- 2006: Began research in Hanawi Natural Area Reserve, core
- 2012: Switched studies to TNC Waikamoi Preserve, edge

PRODUCTIVITY

QUESTIONS

- Population estimates
- Age at first successful breeding
- Proportion of population which is breeding
- Breeding lifespan
- Recruitment rate
- Egg fertility or genetic constraints
- Annual Variation



SURVIVAL DATA

(MARK, RECAPTURE, RESIGHT)



Photo by Robby Kohley

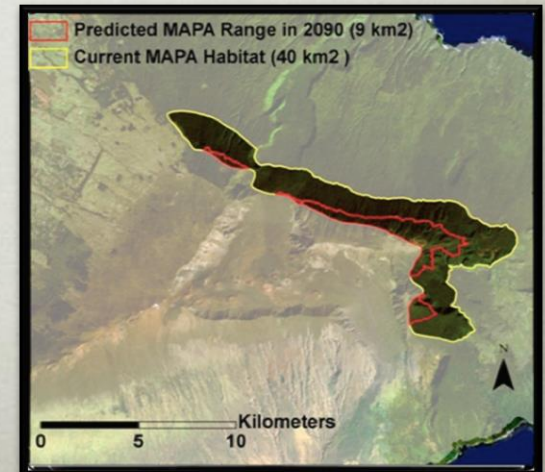
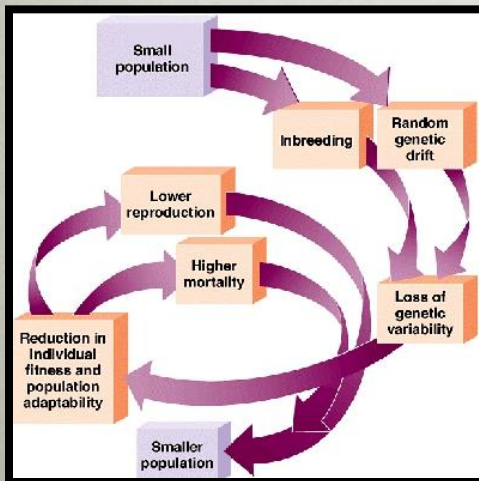
PRODUCTIVITY

NEST SUCCESS & HATCHLINGS/PAIR

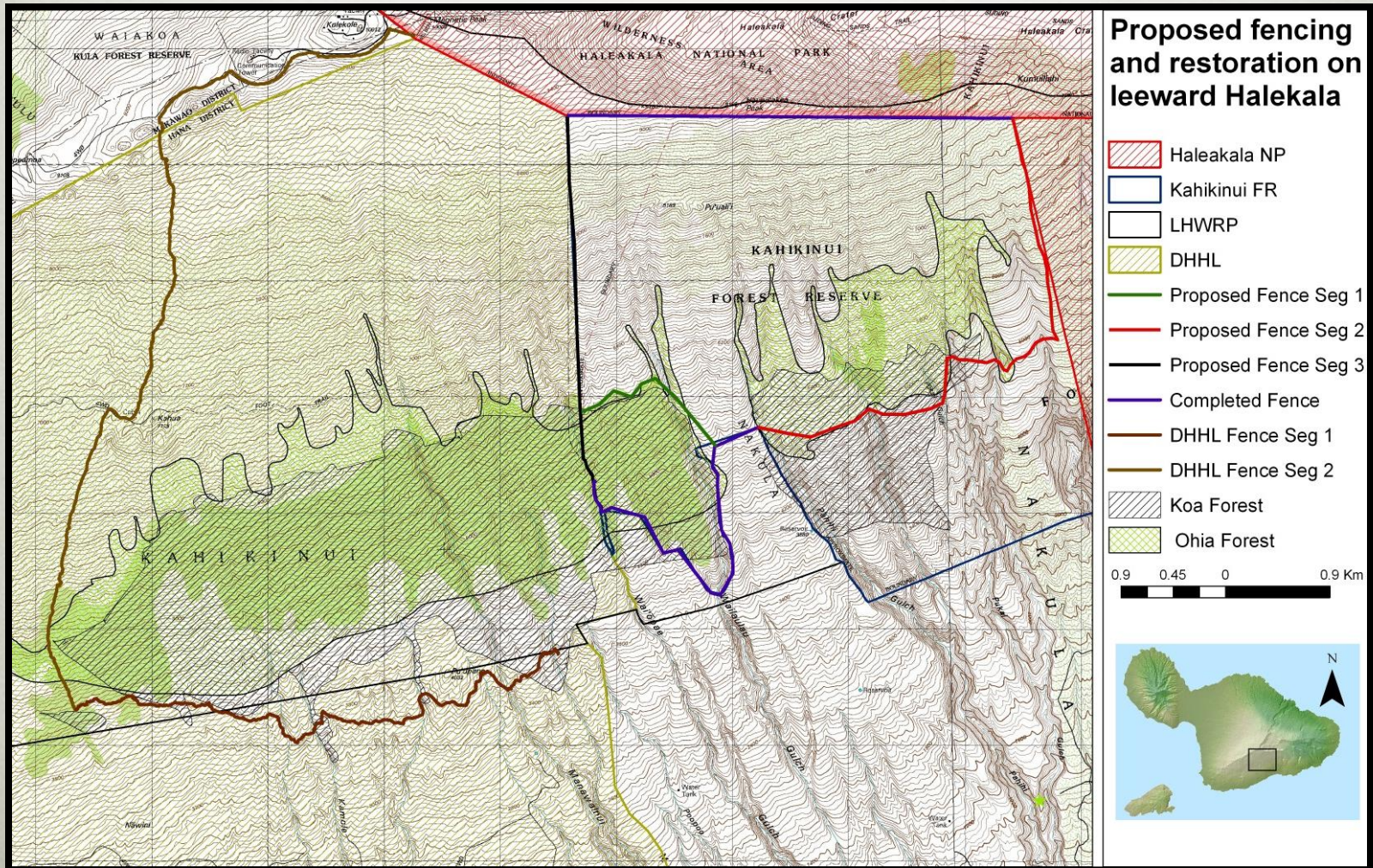


ADDITIONAL THREATS

- Population Size
- Disastrous Introductions
 - Brown Tree Snake
- Climate Change
 - Avian Disease and Habitat Loss
 - Potential 75% loss in habitat

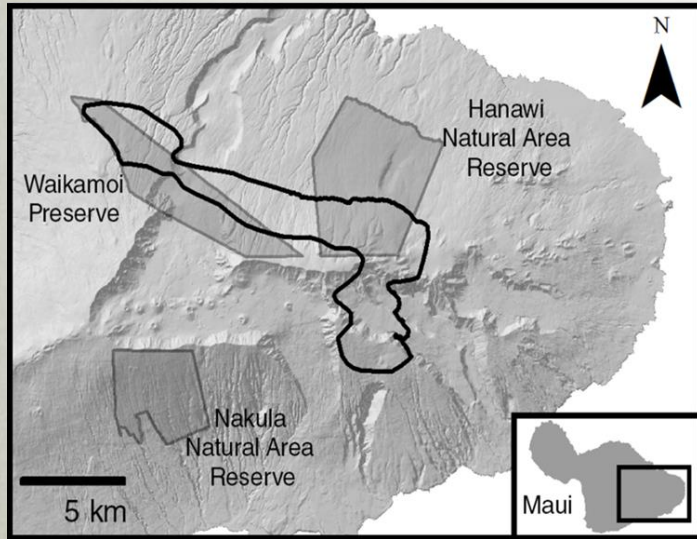


ESTABLISHING A SECOND POPULATION

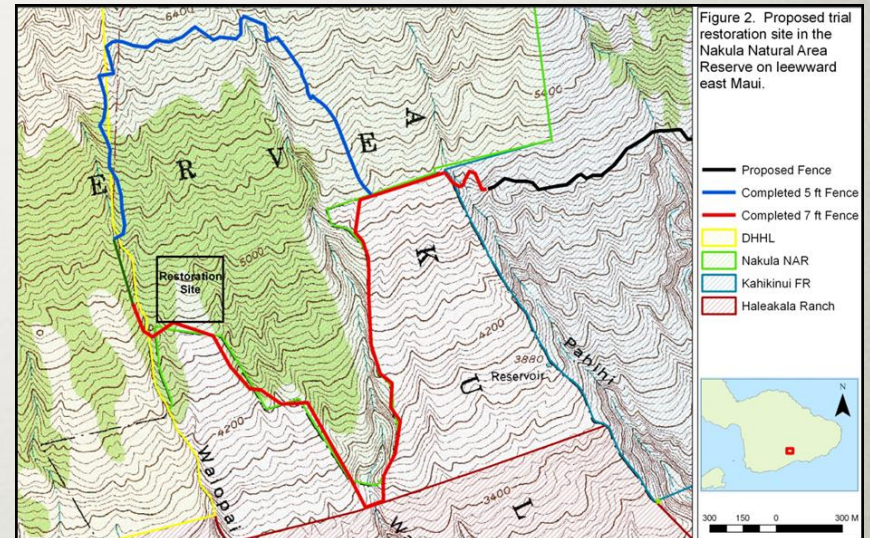


NAKULA NATURAL AREA RESERVE

614 ha Nakula NAR



150 ha experimental enclosure



RESEARCH FOR REINTRODUCTION

- Genetics and the selection of birds
- Maui Bird Conservation Center/San Diego Zoological Society captive flock
- Food availability in existing forests
- Supplemental feeding
- How to restore habitat

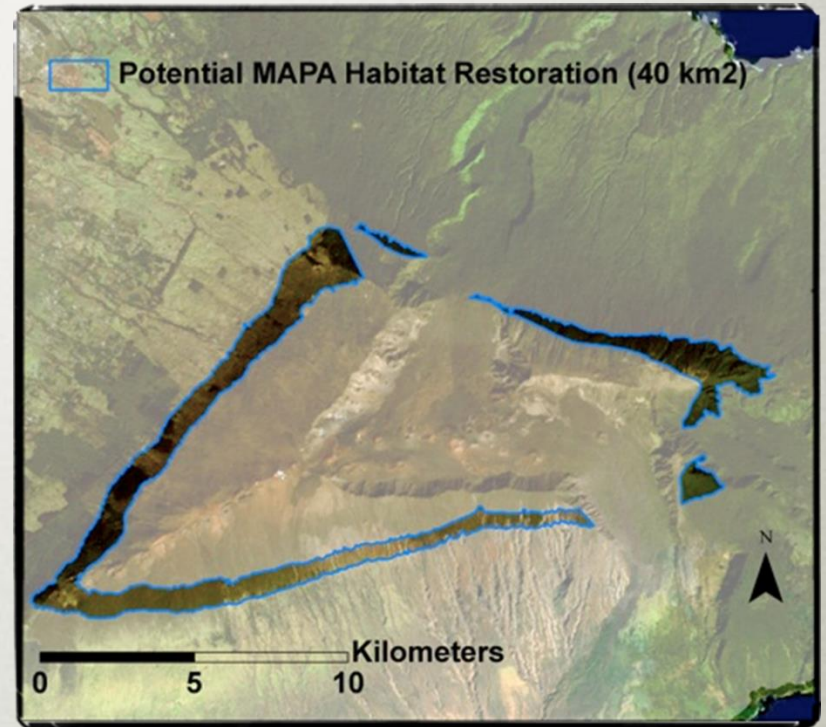
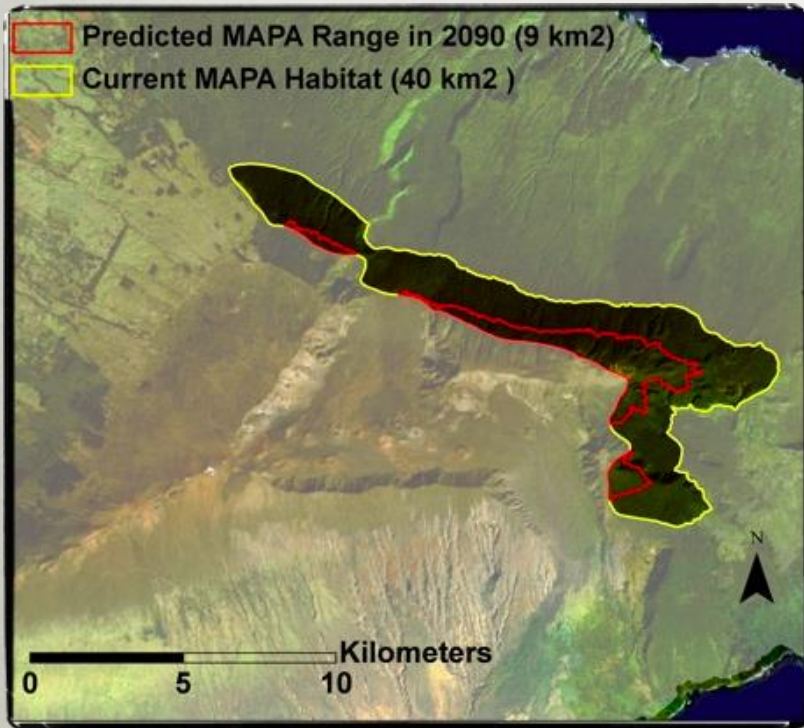


NAKULA EXCLOSURE RESTORATION



- Restoration trials currently being set up
- Planting to begin Fall 2013

LONGER TERM GOAL



Extend restoration to more of Haleakala to gain potential habitat loss back

WHAT CAN YOU DO?

BE A GOOD STEWARD OF THE ENVIRONMENT

- Reduce your ecological footprint
 - www.myfootprint.org/
- Clean your camping gear and shoes from weeds
- Plant Native Plants
- Spay and neuter your pets and prevent loose animals from killing wildlife
- Prevent invasive plants and animals from getting here



WE NEED TO DO SOMETHING NOW!

- Write politicians
- Legislation is needed
 - More money for conservation, protection of our water. Invasive species control.
- Enforcement of laws
 - Prevention of what comes in and out of the islands
- Education of our youth for the future

COST OF MANAGEMENT

Conservation work in Hawaii is expensive!

- Exotic plant removal (Miconia): \$6.27 million
- Maintenance: \$449,245 per year
- Helicopter time: \$750 per hour
- Predator-proof fencing: \$150,000 per km
- Rat control: \$325 /ha/year
- Ungulate fencing: \$50,000 per km

\$2.5 billion needed to recover 21 forest birds

LEARN AND SHARE ECOLOGICAL KNOWLEDGE

- Volunteer or donate to local environmental organizations
 - See our website for a list or visit www.hear.org
- Experience native Maui
 - Join East Maui Watershed, Leeward Haleakala, or West Maui Watershed for one of their interpretive hikes
 - Join Haleakala National Park for a hike in The Nature Conservancy's Waikamoi Preserve





WWW.MAUIFORESTBIRDS.ORG

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