

Preventing Extinction:

A Race Against Time to Save Kaua'i's Forest Birds

Kayla Bonnette

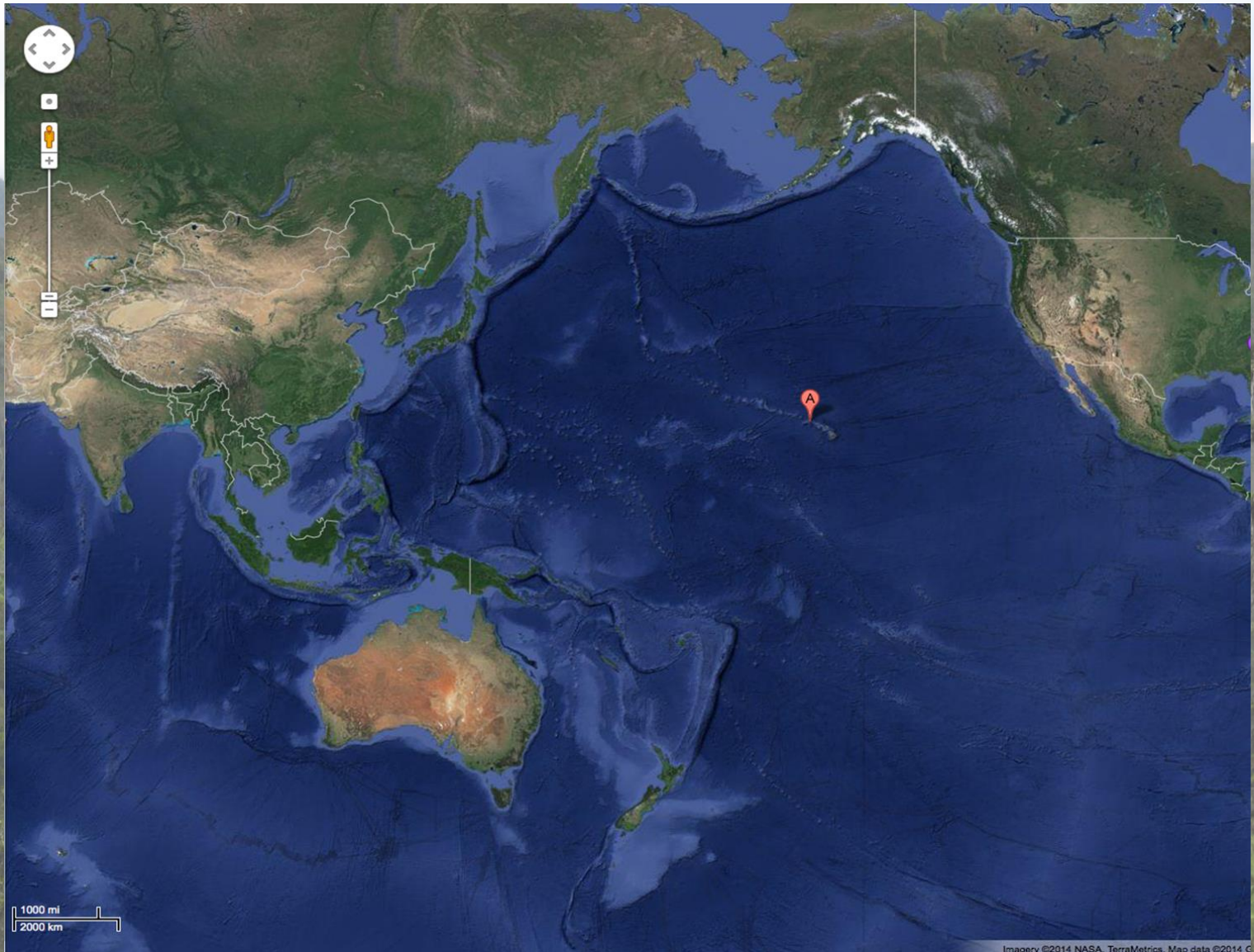


Overview

- Hawai'i's biogeography
- Why Kaua'i?
- Forest birds of Kaua'i
- Threats and declines
- Conservation efforts
- Kaua'i Forest Bird Recovery Project
- Other organizations

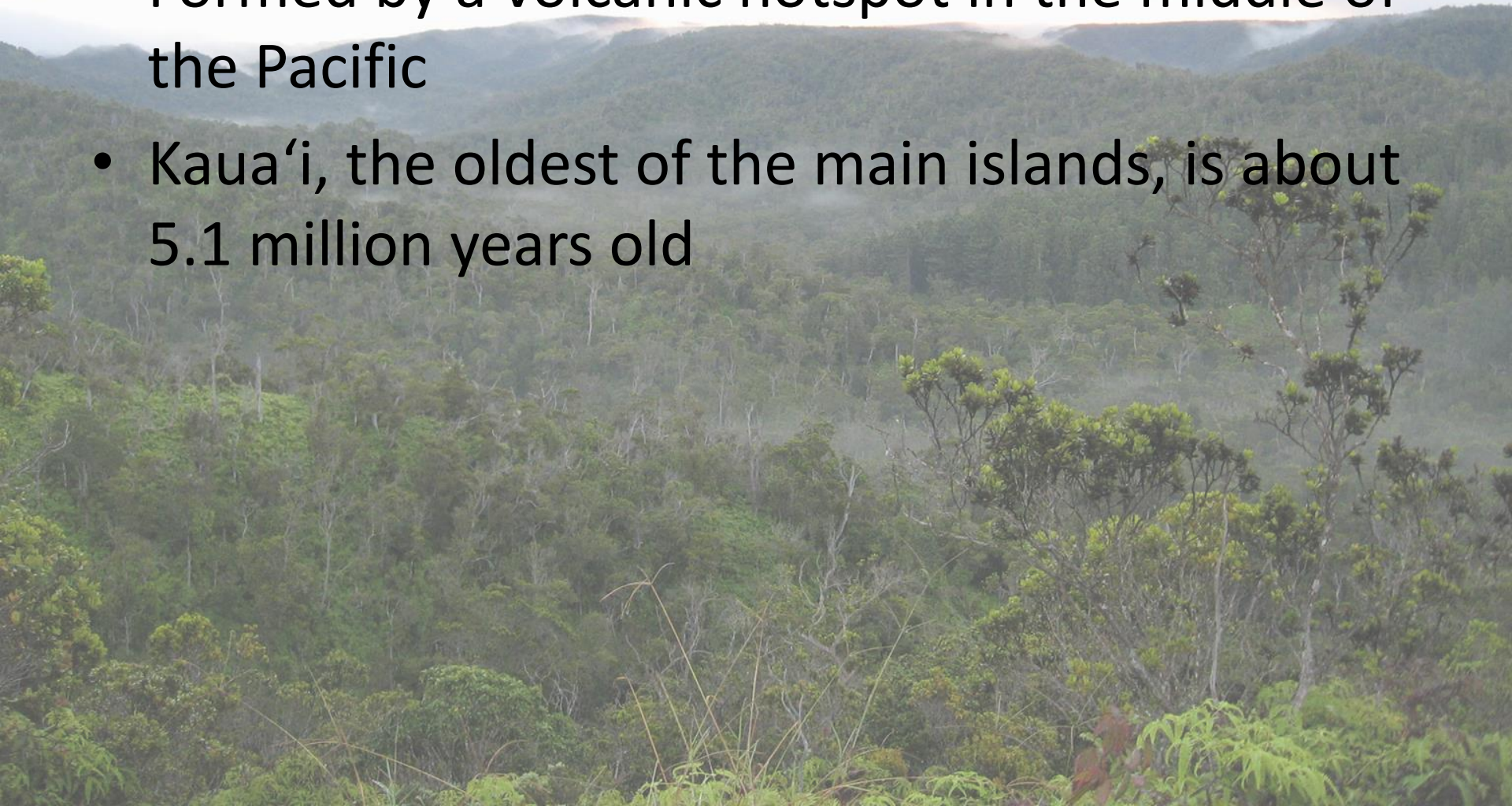


Hawai'i's Biogeography

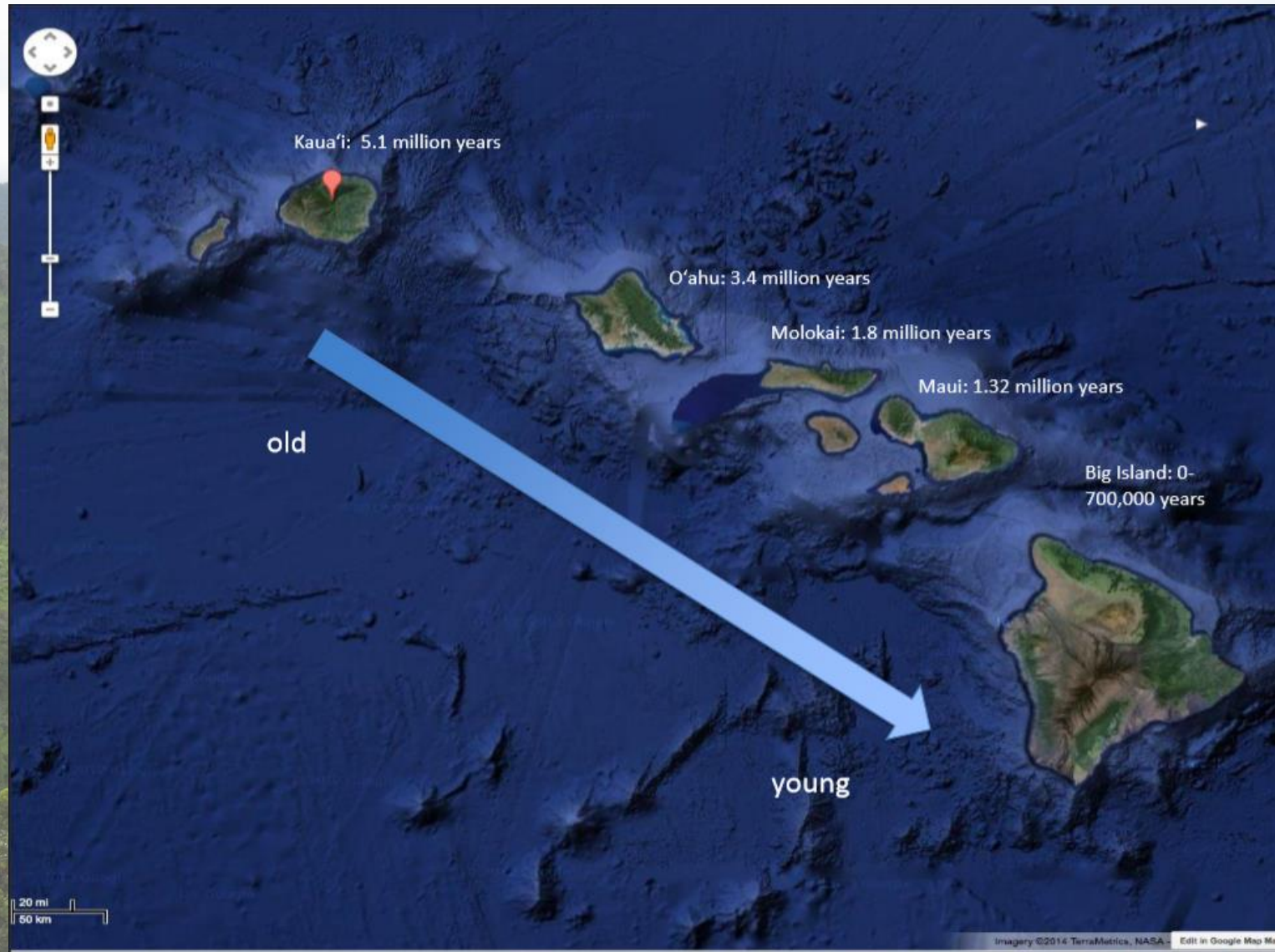


Hawai'i's Biogeography

- Formed by a volcanic hotspot in the middle of the Pacific
- Kaua'i, the oldest of the main islands, is about 5.1 million years old



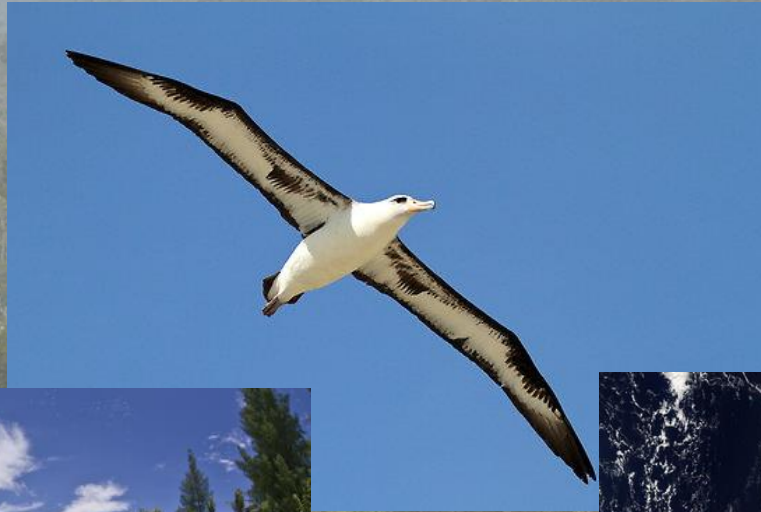
Hawai'i's Biogeography



Colonization of Hawai'i

- How did plants and animals get to the most isolated islands in the world??

- Wings
- Waves
- Wind

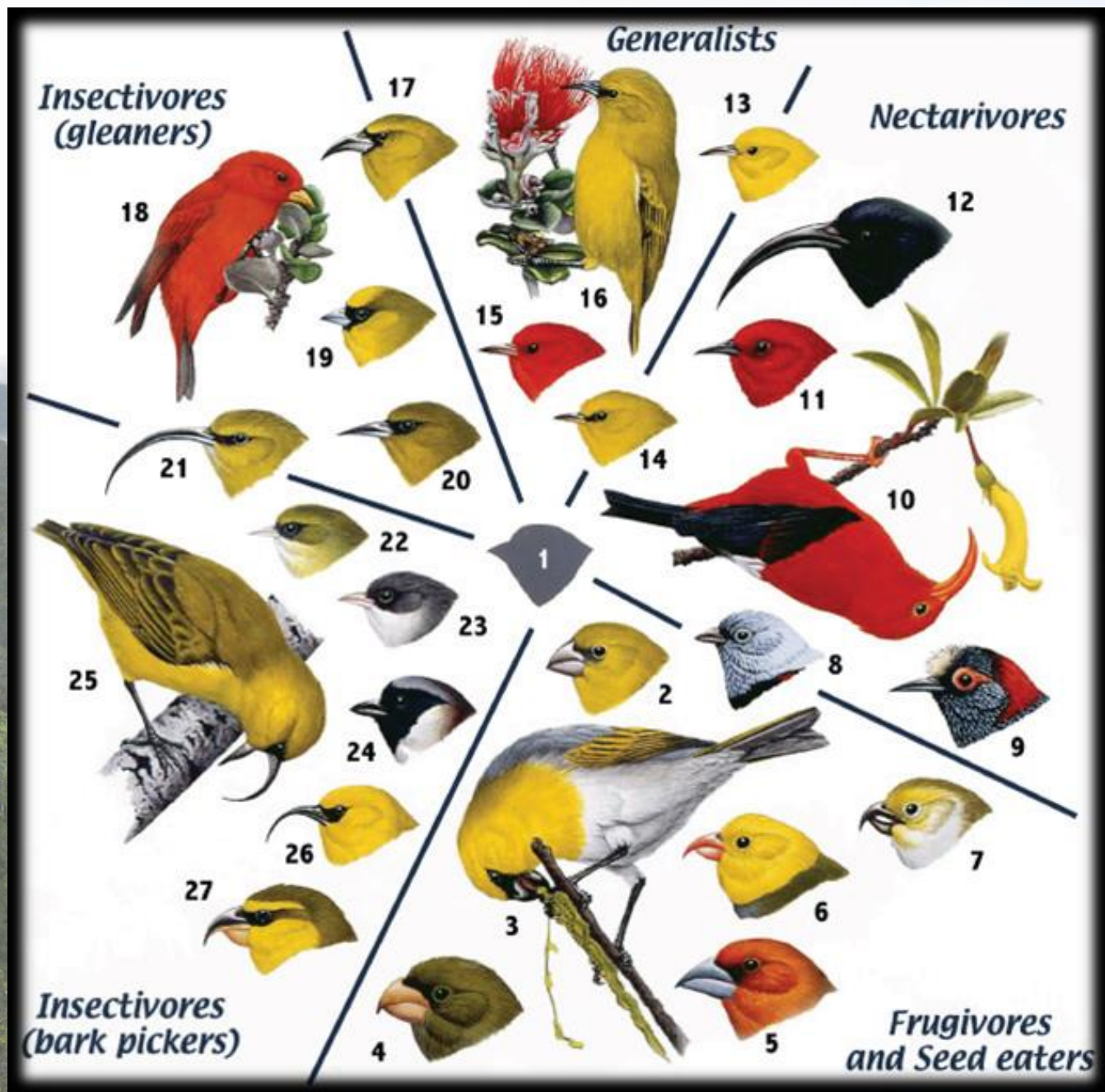


Paradise Found!

- Predator-free islands rich in resources and a huge variety of habitat types
- Just a few species made it to the islands
- More habitats = more niches to fill = diversification
- Adaptive radiation
- Coevolution with some plants



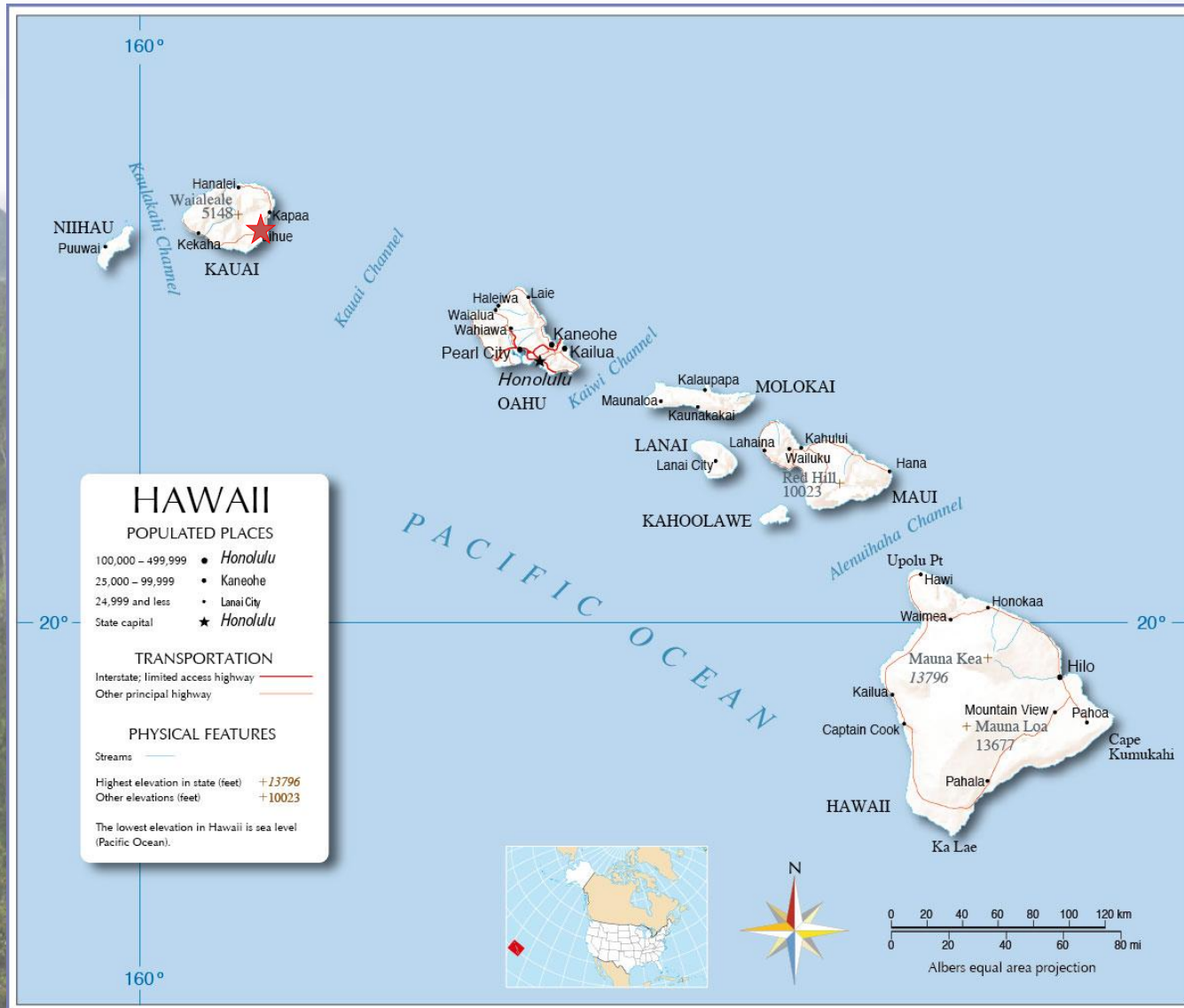




Why Kauaʻi?



Why Kaua'i?



Why Kaua'i?

- Kauai is the oldest of the main Hawaiian Islands
- It is the most isolated
- More time + Isolation = Greater diversity
- At one point, Kaua'i was home to 16 different forest bird species, half of which have already been lost
- Currently home to more endemic species than the other islands

Kaua'i's Forest Birds



Kauai's Forest Birds

- 8 extant species
 - 6 are **Endemic** to Kaua'i
 - 3 are critically endangered
- Most rely on healthy 'ōhi'a-lehua forests



'Apapane

(*Himatione sanguinea*)

- Generalist, abundant honeycreeper
- Large vocal repertoire
- Found on all main Hawaiian Islands



'I'iwi

(*Vestiaria coccinea*)



- Everybody's favorite!
- Nectarivore
- Distinct molt pattern
- Abundant on Big Island and Maui; mostly extirpated on Oahu, and declining on Kaua'i



Kaua'i 'Elepaio

(*Chasiempis sandwichensis sclateri*)



- Monarch flycatcher, insectivorous
- Vocal and gregarious
- Different species on Big Island, Oahu, and Kaua'i



Kaua'i 'Amakihi

(*Hemignathus kauaiensis*)



- Generalist, will take advantage of nectar, fruit, and insects
- Largest 'Amakihi species. Others on Big Island and Maui

'Anianiau

(*Hemignathus parvus*)



- Smallest honeycreeper in existence!
- Generalist feeder. Will nectar-rob if flowers are too big
- Calls can be almost identical to 'Akikiki and 'Akeke'e

'Akeke'e

(*Loxops caeruleirostris*)



'Akeke'e

(*Loxops caeruleirostris*)



Puaiohi

(*Myadestes palmeri*)



- Critically endangered, estimated less than 500 individuals remaining in the wild
- Only remaining thrush species on Kauaʻi
- Frugivore, preferring native species
- Nests in “pukas” on streamside cliff walls



<http://www.soundshawaiian.com/mp3/kauai-puaiohi.mp3>

Puaiohi

(*Myadestes palmeri*)



'Akikiki

(*Oreomystis bairdi*)



- Critically endangered, less than 500 individuals remain in the wild
- Creeper, forages similarly to mainland nuthatches and creepers
- Often in small family groups
- Insectivore

'Akikiki

(*Oreomystis bairdi*)



A close-up photograph of a brown mouse with a black eye, sitting in a nest made of dry grass and twigs. The mouse is holding a piece of light-colored food in its mouth. The background is dark with some green leaves visible.

Threats and Declines

Trouble in Paradise

- Hawaiian bird populations continue to decline because of habitat loss, climate change, and stochastic events
- Introduced predators and diseases to which native birds are naïve
 - Avian pox, avian malaria
 - Rats, cats
- 4 of Kauai's forest birds have already gone extinct since European arrival

Recently Lost Kaua'i Birds

- Akialoa (1965)



Recently Lost Kaua'i Birds

- Akialoa (1965)
- Kaua'i O'o (1987)



Recently Lost Kaua'i Birds

- Akialoa (1965)
- Kaua'i O'o (1987)
- Kama'o (1989)

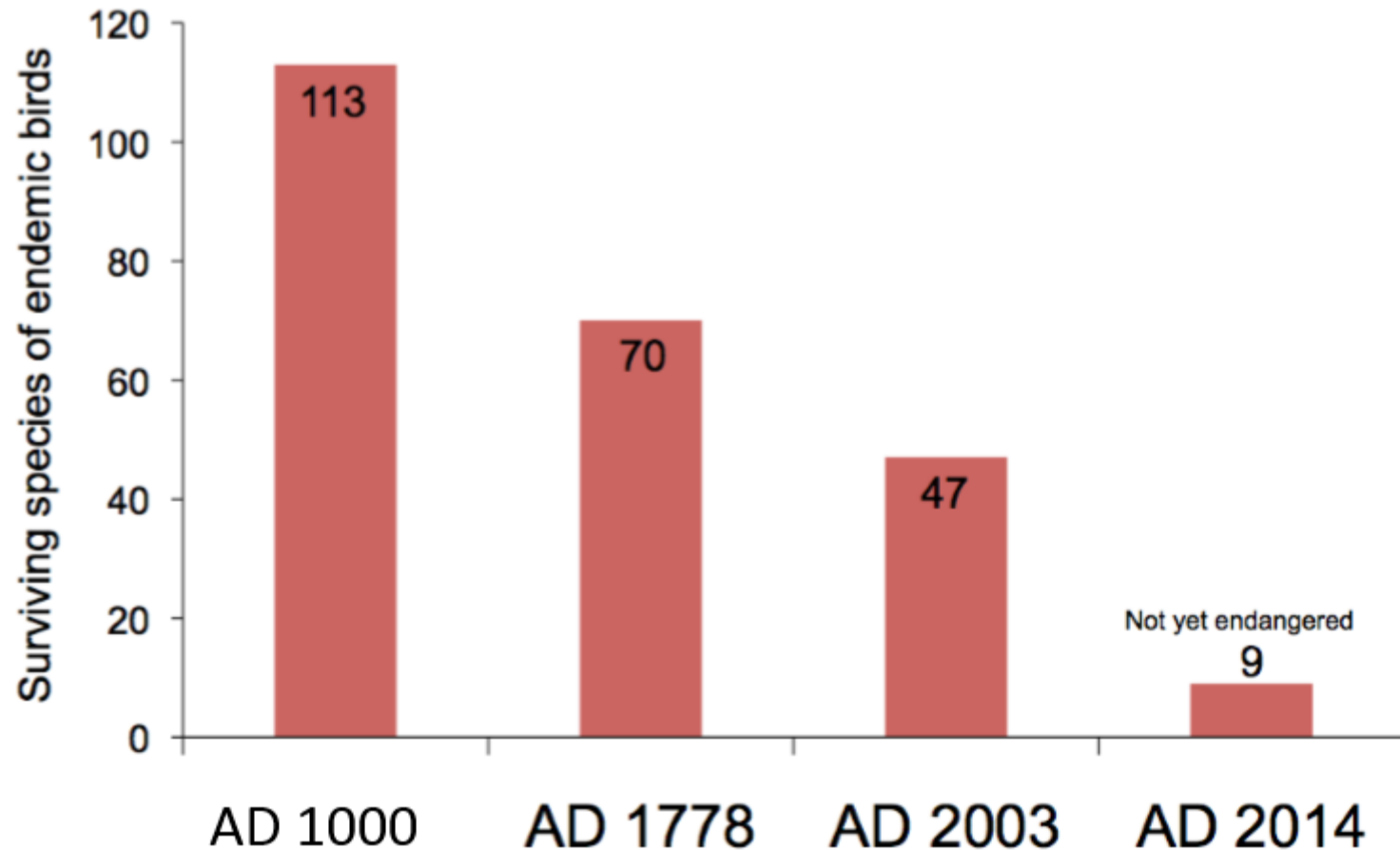


Recently Lost Kaua'i Birds

- Akialoa (1965)
- Kaua'i O'o (1987)
- Kama'o (1989)
- Nukupu'u (1998)



Decline of Hawaiian Avifauna



Invasives

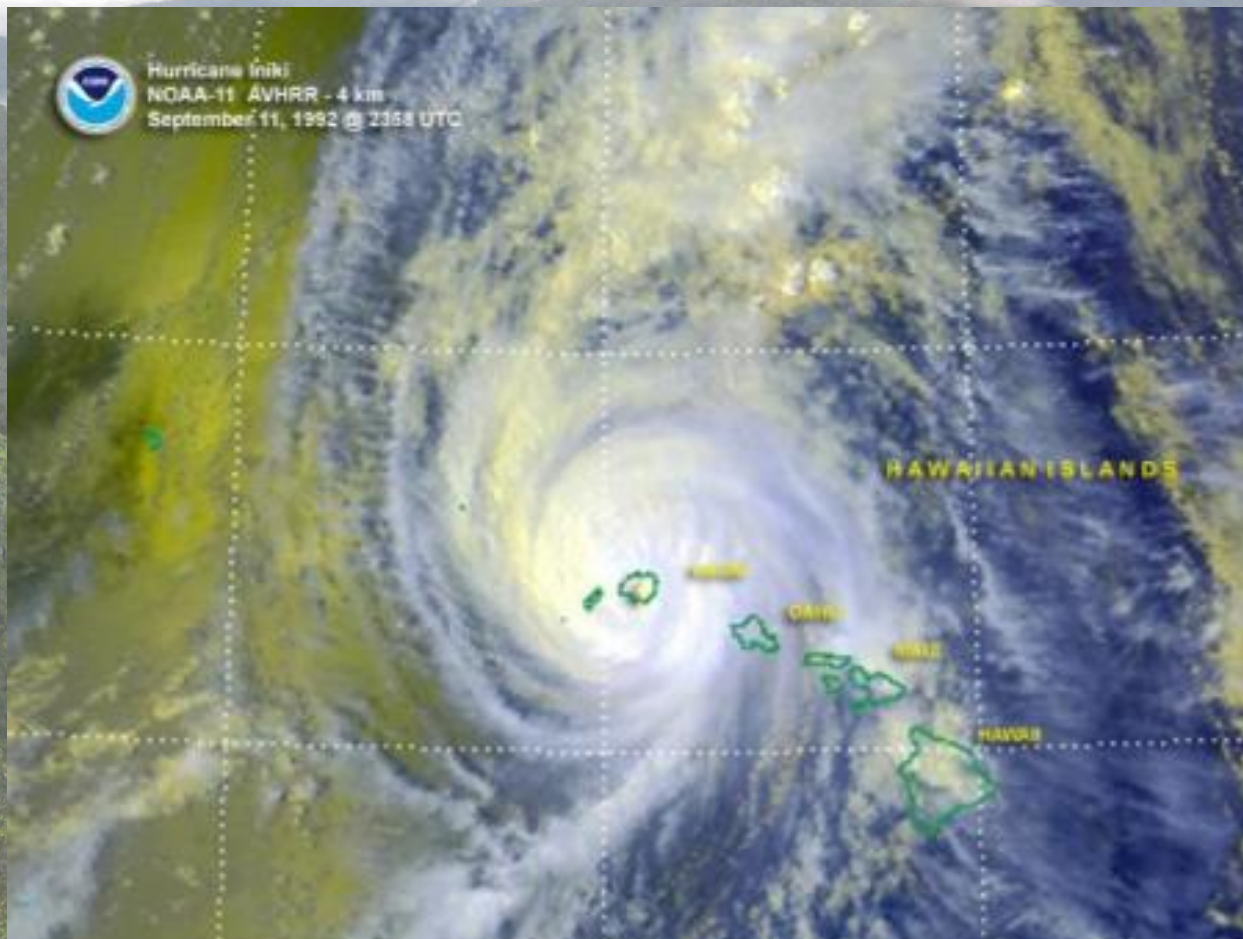
- Hawaii is riddled with invasives!
- Non-native predators
 - Rats, cats, mongoose
- Exotic plants
 - Strawberry guava, Kahili ginger, Australian tree fern





Stochastic Events

- Hurricane Iniki (1992) and others

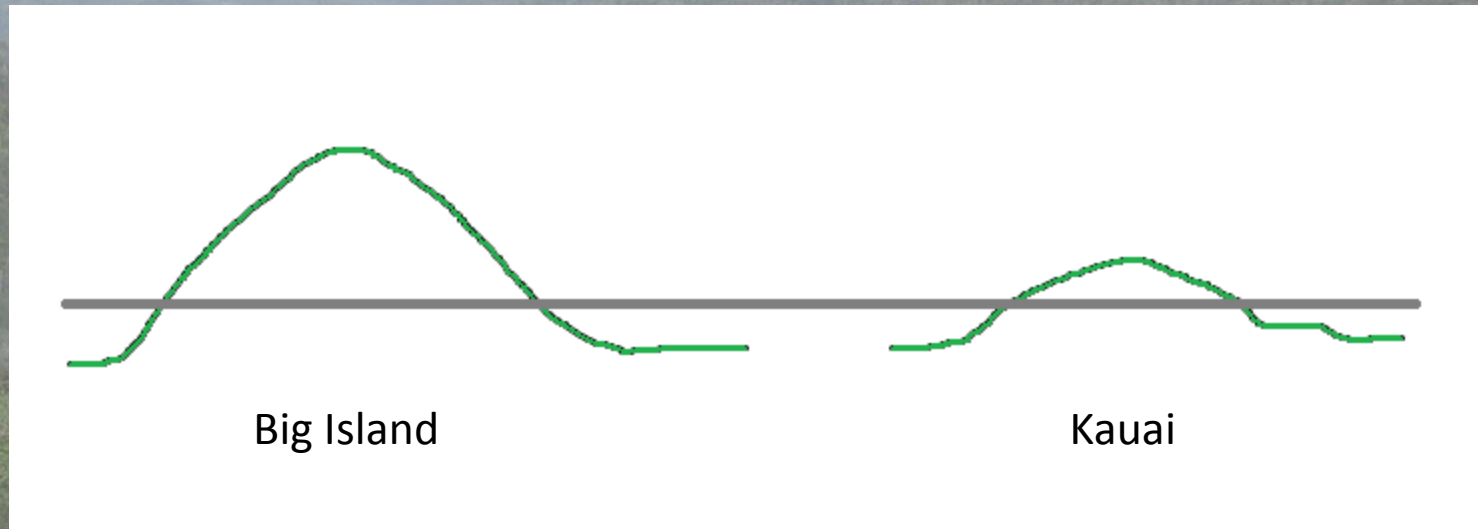


Mosquitoes and Disease

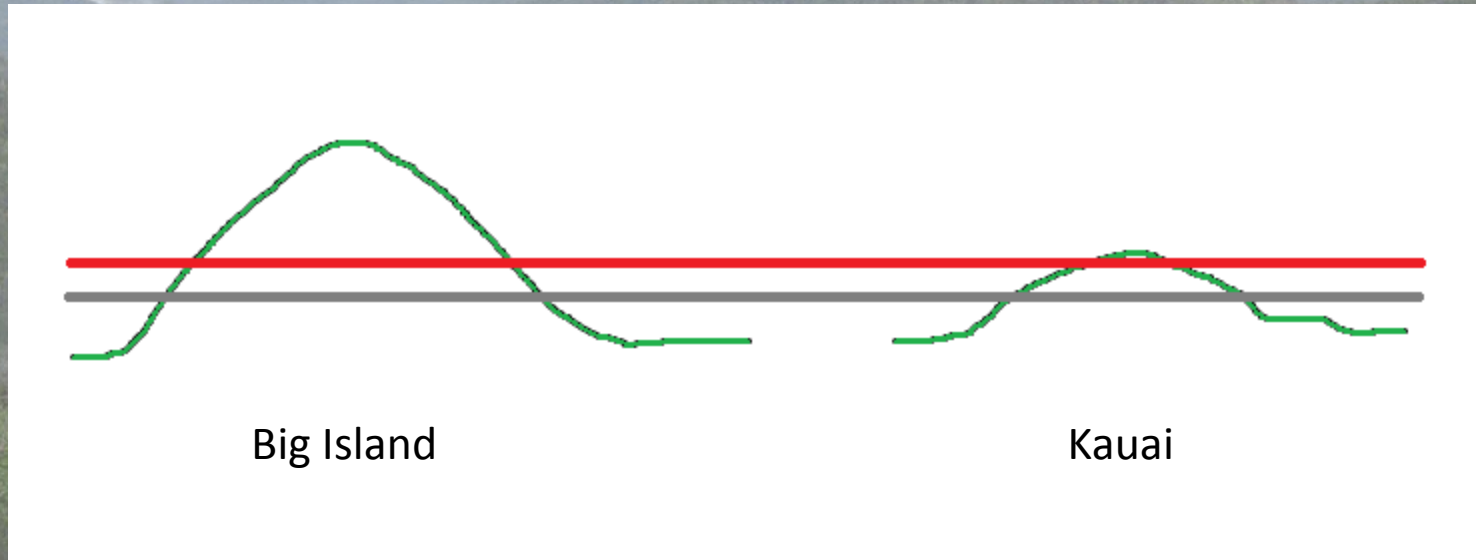
- Invasive mosquitoes (*Culex quinquefasciatus*), which transmit avian malaria (*Plasmodium relictum*), are one of the most serious threats
- Hawaiian species show little resistance to the disease



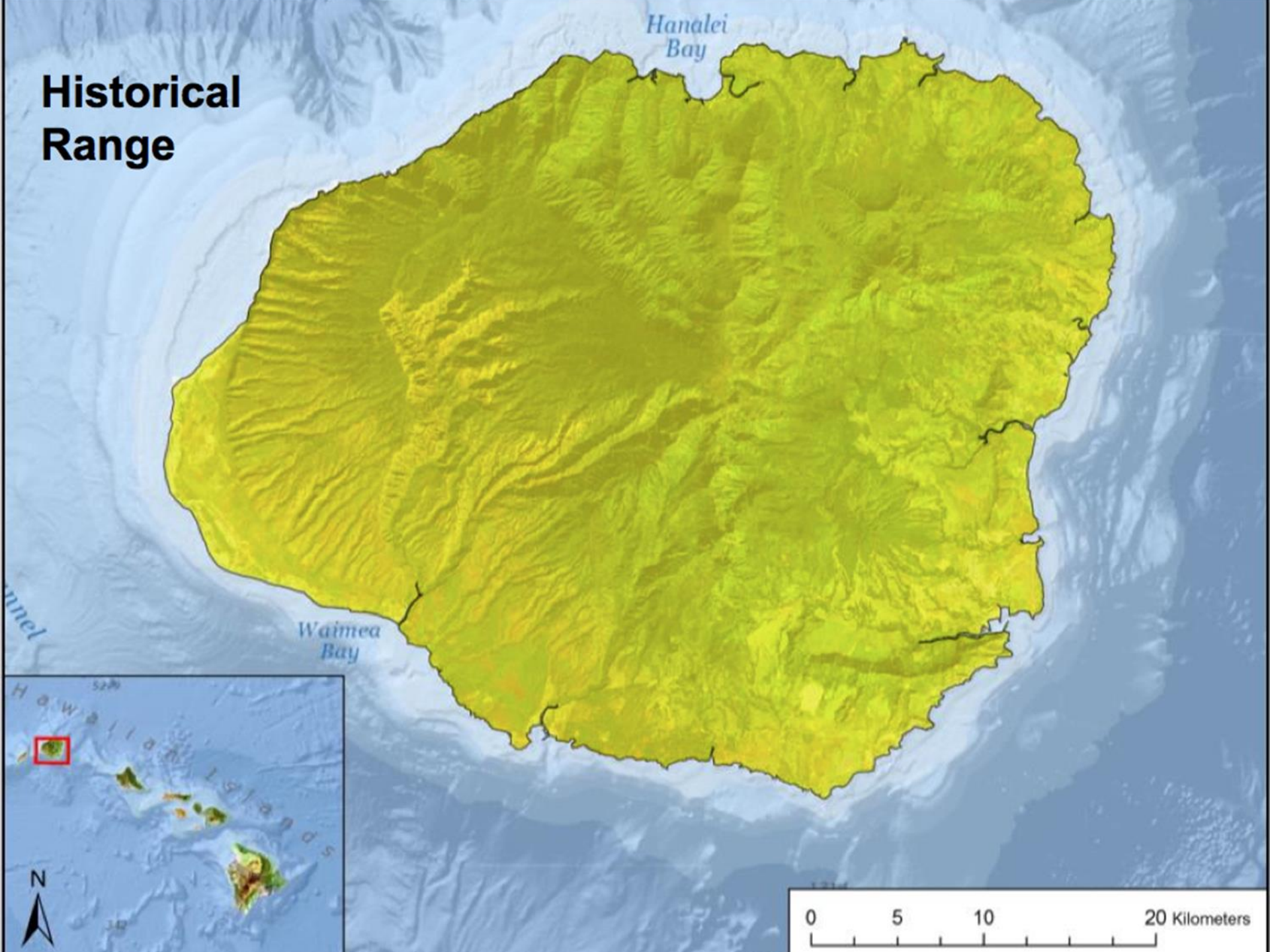
Climate Change



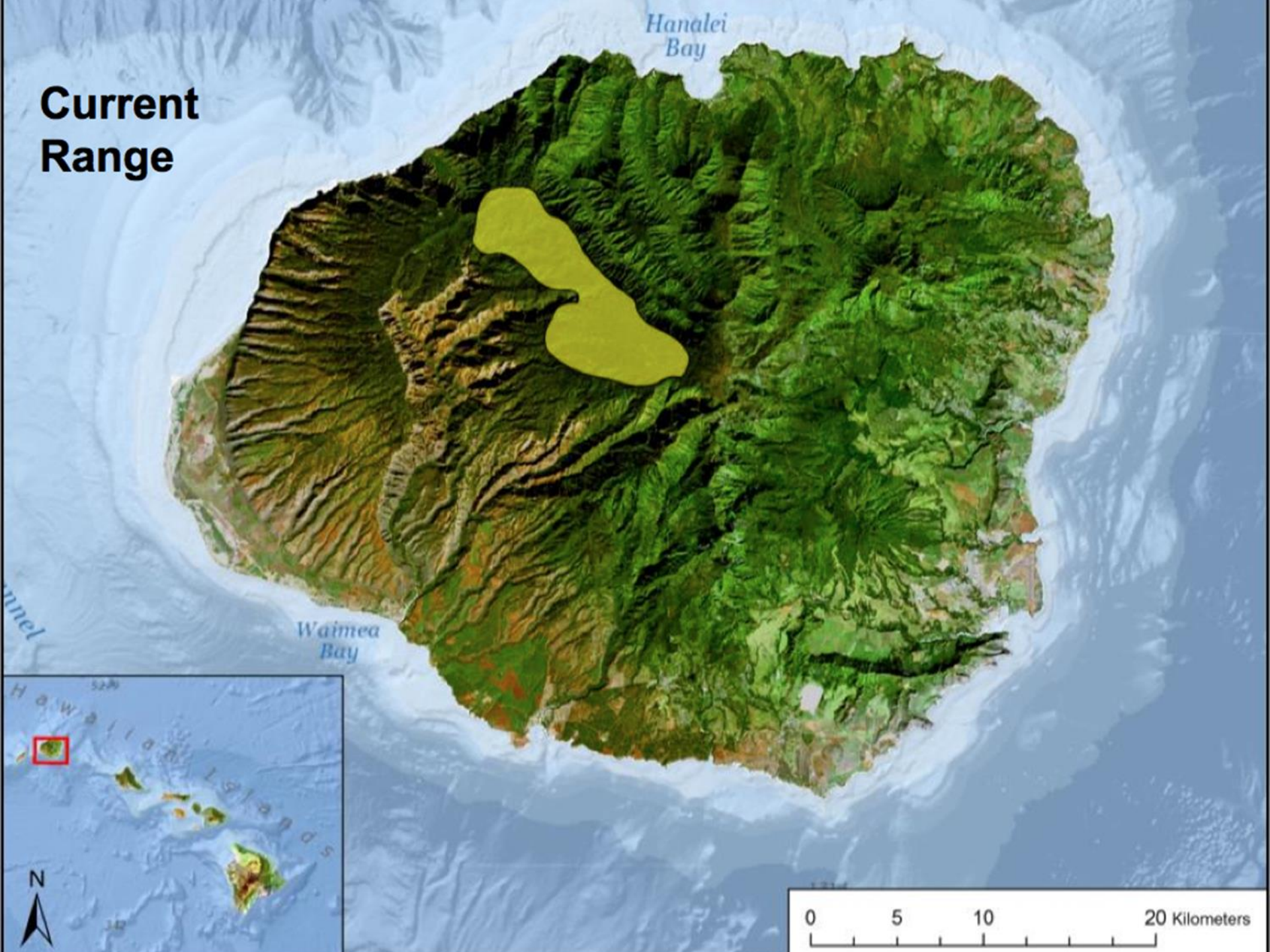
Climate Change



Historical Range



Current Range





Conservation Efforts



Kauai Forest Bird Recovery Project (KFBRP)

“The mission of the Kaua'i Forest Bird Recovery Project is to promote knowledge, appreciation, and conservation of Kaua'i's native forest birds. Our efforts focus on the three federally endangered species, with the goal of facilitating recovery of their populations in the wild.”



Conservation Efforts

- Many organizations are involved in conserving these birds and their habitats, through a variety of approaches
 - Habitat restoration
 - Predator trapping/exclusion
 - Captive propagation
 - Education
 - Research



Habitat Restoration

- Removing invasives in critical habitat areas especially
- Preventing spread of established and new invasives



Predator Control

- Rats and cats are trapped in many areas
- KFBRRP laid out a grid of 150 Goodnature Automatic Rat traps to protect critical habitat
- Goodnatures are the BEST



Exclusion Fences

- Non-native ungulates can damage forest understory and transport invasive seeds
- Fences to exclude ungulates from critical habitat



Captive Propagation

- In collaboration with San Diego Zoo Global, we are collecting wild eggs to be reared in captivity, to start a “safety net” captive population
- Eggs are collected from wild pairs.... Which requires a 40 foot, 100 lb extension ladder
- Chicks are reared in SDZ facilities on Maui and Big Island



- Collecting eggs from canopy nesters is no easy task.....
- <https://www.youtube.com/watch?v=mFGfq383fwA>



Education

- Events, fairs, schools, camps, festivals... You name it, we're there!



Research

- We gather a huge amount of information about these birds every year, and carry out various research projects to learn even more
 - Banding and resighting
 - Telemetry
 - Vegetation surveys
 - Nest monitoring

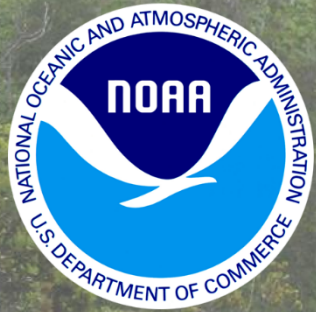
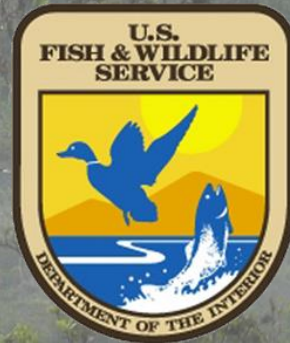
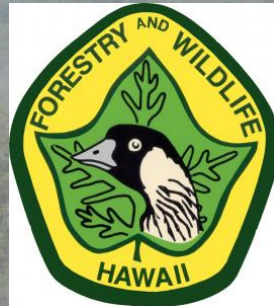
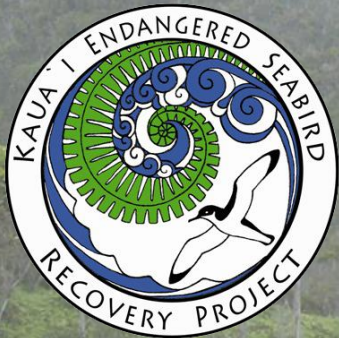


Sound like fun? Get Involved!

- Donate!
 - Birds not Rats! campaign to buy more traps
- Volunteer!
 - In the field, in the office.... We even need help sorting nest photos, which you can do from the comfort of your own home!
- Work!
 - Every year we hire several seasonal staff and interns to help us monitor the birds during the breeding season

Other Organizations Doing Good Stuff

- Even if you're not particularly interested in working with forest birds, there is a huge number of awesome organizations working to conserve Hawaiian species



Plant Extinction Prevention Program of Hawai'i



“Ho'okolo Aku I Ka Nui Manu”
Go Inquire of the Birds



MAHALO!

QUESTIONS?



o mahalos...

Contact:

Kayla@KauaiForestBirds.org

