#### **CAR.Committee**

From:	Christopher Warren <chris@mauiforestbirds.org></chris@mauiforestbirds.org>
Sent:	Friday, February 21, 2020 2:50 PM
То:	CAR.Committee
Subject:	CAR-1(4) Presentation for the 2/25 CAR Committee Meeting
Attachments:	Climate Resilience_MFBRP_2020.pdf

Please see the attached presentation.

Mahalo! Chris

--Chris Warren Avian Conservation/Restoration and Data Management Technician Maui Forest Bird Recovery Project 2465 Olinda Road Makawao, HI 96768-7138 USA Office: 808-573-0280, Cell: 808-866-7720 http://www.mauiforestbirds.org



## CLIMATE RESILIENCE: SAVING MAUI'S NATIVE BIRDS

February 25, 2020 www.mauiforestbirds.org chris@mauiforestbirds.org mounce@mauiforestbirds.org

# Climate Change is more than just sea-level rise

More Ex

no

2

0 0

#### **Environmental Degradation**

is Aemperatures Forced migration, civil conflict, mental health impacts, loss of jobs and income

**Extreme Heat** Heat-related illness and death, cardiovascular failure

Severe Weather Injuries, fatalities, loss of homes, mental health impacts

#### Water & Food Supply Impacts Malnutrition, diarrheal disease

Level

2

0

Guiseasoul

Adapted from CDC, J. Patz

IMPACT OF CLIMATE CHANGE ON HUMAN **HEALTH & EXACERBATION OF EXISTING INEQUITIES** 

#### **Degraded Living Conditions** & Social Inequities

Exacerbation of existing social and health inequities and vulnerabilities

#### Changes In Vector Ecology

Malaria, dengue, encephalitis, hantavirus, Rift Valley fever, Lyme disease, chikungunya, West Nile virus

## Air Pollution & **Increasing Allergens**

Asthma, cardiovascular disease, respiratory allergies

#### Water Quality Impacts

slavateas Cholera, crytosporidiosis, Campylobacter, leptospirosis, harmful algal blooms

### MAUI'S MOST AT-RISK RESIDENTS



- Maui's On-going Mass Extinction
  - 6 out of 20 native forest birds remain
  - 2 are critically endangered, <1500 individuals
- Avian Malaria

.

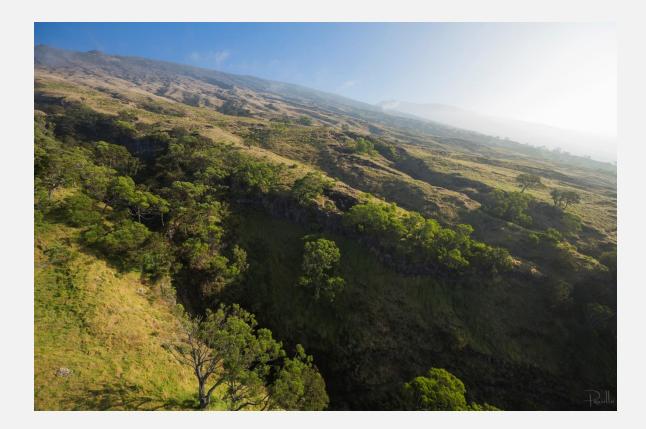
- Transmitted by non-native mosquitoes
- Mosquitoes 1826 Lahaina harbor
- Malaria parasite 1920s-1930s
- Mosquitoes and Climate Change
  - Birds only survive high-elevation, cold forests
  - Mosquitoes moving higher every year
  - Nowhere left to run
- Kiwikiu 150 individuals, only found on Maui

## REBUILDING HALEAKALĀ'S LEI

- Maui is a forest island, broken watersheds
- Restoring a "lei" of forest around Haleakalā
- >250,000 trees on Leeward Haleakalā
- Thousands of acres of private and public lands slated for restoration

#### This means

- Habitat for native organisms
- Soil Retention
- Water for all





• Reforesting high-elevations

• Creating new populations

• Safe-guard species in captivity

• Landscape-scale mosquito control



- Reforesting high-elevations
  - Controlling feral animals
  - Planting seedlings
- Creating new populations
- Safe-guard species in captivity

• Landscape-scale mosquito control



• Reforesting high-elevations

- Creating new populations
  - Translocations
  - Mosquitoes have swamped out many of these areas
- Safe-guard species in captivity

• Landscape-scale mosquito control



• Reforesting high-elevations

• Creating new populations

- Safe-guard species in captivity
  - Last-ditch effort
  - Temporary
- Landscape-scale mosquito control



• Reforesting high-elevations

• Creating new populations

• Safe-guard species in captivity

- Landscape-scale mosquito control
  - Upcoming in next few years
  - Need new techniques



"...as a few lost letters may make a sentence unintelligible, so the extinction of the numerous forms of life ...will necessarily render obscure this invaluable record of the past." – Alfred Russell Wallace