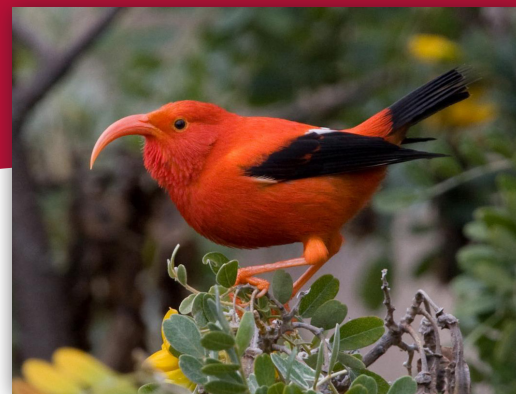


THE HEAT IS ON

Species feeling the effects of climate change



© ROBBY KOHLEY/CC BY 4.0

Hawaiian Honeycreepers

Multiple species

Region:

Pacific

Area affected:

Hawaiian Islands

Climatic change:

Warmer temperatures

Impact:

Disease spread

ABOUT THESE SPECIES

Hawaiian honeycreepers belong to a group of bird species descended from one or more flocks of Asian finches that colonized the Hawaiian Islands about 6 million years ago. Finding a wide array of unoccupied habitats, these finches, much like the ones described by Darwin in the Galapagos, eventually diversified into more than 50 species across the various islands, with bills adapted for eating nectar, insects or seeds. Unfortunately, the birds' isolation, specialization and lack of predators made them highly susceptible to the threats that accompanied human colonization of the islands—particularly habitat loss and the introduction of predators and diseases. Of the 41 Hawaiian honeycreeper species that have been described scientifically, 17 are extinct, six are likely extinct, and 18 are imperiled (ranging from vulnerable to critically endangered). Only three species are considered secure.

DESCRIPTION OF IMPACT

One of the introduced diseases that has hit Hawaiian honeycreepers particularly hard is avian malaria, which is transmitted by mosquitoes. Development and transmission of this deadly parasite are temperature-dependent, and the disease has already wiped out many birds at lower elevations where temperatures are warmest. Historically, forests above about 5,000 feet in elevation were cool enough to provide a mosquito-free refuge, but **climate change is shrinking this safe haven from avian malaria with devastating results for honeycreepers.** On the Big Island, warmer temperatures contributed to a spike in malaria prevalence at elevations up to 6,000 feet in 2001 to 2002. Similarly, on Kauai, warming temperatures and changes in stream flow have led to an increase in malaria transmission at medium- and high-elevation sites over the past 20 years.

References

Atkinson, C.T. et al. 2014. Changing climate and the altitudinal range of avian malaria in the Hawaiian Islands—an ongoing conservation crisis on the island of Kaua'i. *Global Change Biology* 20: 2426–2436. <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12535/abstract>

Freed, L.A. et al. 2005. Increase in avian malaria at upper elevation in Hawai'i. *Condor* 107(4): 753-764. https://www.jstor.org/stable/4096477?seq=1#page_scan_tab_contents

VanderWerf, E.A. 2012. Hawaiian Bird Conservation Action Plan. Pacific Rim Conservation. Honolulu, HI; U.S. Fish and Wildlife Service. Portland, OR. http://www.pacificrimconservation.org/wp-content/uploads/2013/10/HBCAP_complete.pdf



DEFENDERS OF WILDLIFE

1130 17th Street, NW
Washington, DC 20036-4604

For more information on other wildlife affected by climate change, visit our website at www.defenders.org/climatechange