



Photo: Eric VanderWerf

Forest Birds

'I'iwi

Vestiaria coccinea

SPECIES STATUS:

State Listed as Endangered on O'ahu, Moloka'i, Lāna'i

State Recognized as Endemic

NatureServe Heritage Rank G4/T1/TH – Apparently Secure/

Critically Imperiled Globally on O'ahu and Moloka'i/Possibly Extinct on Lāna'i

IUCN Red List Ranking – Vulnerable

SPECIES INFORMATION: The 'i'iwi is one of the most beautiful of the extant Hawaiian honeycreepers (Family: Fringillidae). Both males and females are vermillion red, with a black tail and wings, and a long, decurved pink bill. Native Hawaiians created feather capes using hundreds of thousands of 'i'iwi feathers; such capes signified power and prestige. Like 'apapane (*Himatione sanguinea*), 'i'iwi often fly long distances in search of flowering 'ōhi'a (*Metrosideros polymorpha*) trees and are important 'ōhi'a pollinators. Their diet consists primarily of nectar from a variety of native and non-native flowers and the presence of non-native flowers may have contributed to increases in some populations. In addition to nectar, 'i'iwi also eat small arthropods. Both sexes defend small nesting territories and may defend important nectar resources. Courtship chases and feeding may precede breeding. Nest sites are in terminal branches of 'ōhi'a trees and both sexes build the open-cup nest. Only females incubate eggs (typically two) and brood young. Young are mostly provisioned by female; males feed females off the nest. Despite their widespread distribution, little is known about their life history.

DISTRIBUTION: Occurs above 1,250 meters (4,100 feet) elevation on the islands of Hawai'i, Maui, and Kaua'i; and may occur at reduced densities below. Relict populations occur on O'ahu and Moloka'i. Historically, 'i'iwi were common down to low elevations on all the Main Hawaiian Islands.

ABUNDANCE: The following island population estimates are based on Paxton et al. (2013): 543,009 ± 26,697 (95% confidence interval) birds on island of Hawai'i, 59,859 ± 5,290 on east Maui, 176 on west Maui, 80 on Moloka'i, and 2,551 ± 617 on Kaua'i. O'ahu supports a population of less than 50 birds. The population is probably declining, but the species' wide-ranging foraging complicates population estimates and the determination of long-term trends.

LOCATION AND CONDITION OF KEY HABITAT: Mesic and wet forest dominated by 'ōhi'a and koa (*Acacia koa*). Loss and degradation of habitat and high densities of cold-intolerant *Culex* mosquitoes, an important disease vector, in lowland areas restrict most birds to elevations above 1,250 meters (4,100 feet). Habitats with the highest 'i'iwi densities also support kōlea (*Myrsine lessertiana*), nāio (*Myoporum sandwicense*), and hapu'u tree ferns (*Cibotium* spp.). Māmane (*Sophora chrysophylla*) is common in high-elevation foraging habitat. Although much of the species' current range is under State or Federal jurisdiction, habitat quality and habitat protection and restoration varies considerably.

THREATS: Although populations appear stable on the islands of Hawai'i and Maui, they are likely susceptible to the same factors that threaten other native Hawaiian forest birds, including habitat loss and degradation, predation by introduced mammals, and disease. For 'iwi, the following is of particular concern:

- Disease. 'Iwi are very susceptible to avian malaria and avian pox. Nine of ten individuals died within 37 days after receiving a single bite from mosquitoes infected with *Plasmodium*. Individuals infected with pox also are more likely to be infected with malaria. Because the highest points on Moloka'i and O'ahu are below 1,250 meters (4,100 feet), this susceptibility likely explains the severe population declines noted on these islands. Foraging movements may increase their exposure to disease.

CONSERVATION ACTIONS: 'Iwi likely have benefited from actions to conserve other endangered forest birds on northeastern Haleakalā, Hakalau Forest National Wildlife Refuge, Alaka'i Wilderness Preserve and surrounding areas, Hawai'i Volcanoes National Park, and the 'Ola'a/Kīlauea Watershed Partnership. These efforts include fencing, ungulate and small mammal control, forest restoration, habitat monitoring, and studies of disease and disease vectors. Future actions specific to the protection of 'iwi may include the following:

- Control mosquitos in degraded habitats.
- Conduct public education and outreach.
- Continue protection and management of wildlife sanctuaries and refuges.

MONITORING: Continue forest bird surveys and habitat monitoring on all islands.

RESEARCH PRIORITIES: Research priorities for most Hawaiian forest birds include improving methods for controlling rats (*Rattus* spp.) and feral cats (*Felis silvestris*) in native forests, determining the ecological requirements of *Culex* mosquitoes at mid- and high-elevation forests, and developing methods to control mosquito populations. Research priorities specific to 'iwi include the following:

- Determine if disease-resistant birds exist, and if so, determine if resistance is passed to offspring. Disease-resistant birds could be used to establish new populations.
- Determine the role of 'iwi in transmitting disease between low and high elevations.
- Conduct life history studies to quantify the population structure, dispersal patterns, survivorship, nesting phenology and success of this poorly known species.

References:

Fancy S G, Ralph CJ. 1998. 'Iwi (*Vestiaria coccinea*). In *The Birds of North America*, No. 327 (Poole A, Gill F, editors.). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

Foster JT, Tweed EJ, Camp RJ, Woodworth BL, Adler CD, Telfer T. 2004. Long-term population changes of native and introduced birds in the Alaka'i swamp, Kaua'i. *Conservation Biology* 18:716-725.

IUCN Red List of Threatened Species. 2015. Version 2014.3. Available at: www.iucnredlist.org. (Accessed May 2015).

Paxton, EH, Gorresen, PM, Camp RJ. 2013. Abundance, distribution, and population trends of the iconic Hawaiian Honeycreeper, the 'Iwi (*Vestiaria coccinea*) throughout the Hawaiian Islands: U.S. Geological Survey Open-File Report 2013-1150.

VanderWerf EA, Rohrer JL. 1996. Discovery of an 'Iwi population in the Ko'olau Mountains of O'ahu. 'Elepaio 56:25-28.