Photo: DOFAW

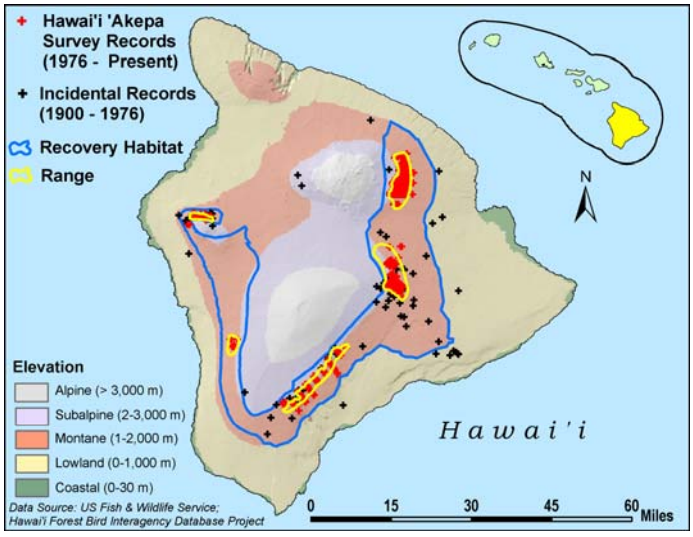
Forest Birds

Hawai‘i ‘Ākepa

Loxops coccineus coccineus

SPECIES STATUS:
Federally listed as Endangered
State listed as Endangered
State recognized as Endemic
NatureServe Heritage RankG1—Critically imperiled
IUCN Red List Ranking—Endangered
Draft Revised Recovery Plan for Hawaiian Forest Birds—USFWS 2003

SPECIES INFORMATION: The Hawai‘i ‘ākepa is a small, insectivorous Hawaiian honeycreeper (Family: Fringillidae) endemic to the island of Hawai‘i at the subspecies level. ‘Ākepa also are known from Maui (*L. c. ochraceus*) and O‘ahu (*L. c. rufus*); both of which are likely extinct. Currently, all ‘ākepa are considered one species, although they are recognized as critically imperiled at the subspecies level. After three years, males obtain their bright orange adult plumage; subadult plumage is dull brownish orange, although individual variation is high. Females are grayish green with a yellow breast band. The lower mandible of the ‘ākepa is slightly bent to one side which results in the mandible tips being offset; a characteristic shared with the ‘akeke‘e (*L. caeruleirostris*). The bend can be to the left or right, and depending on the direction of the bend, individuals also possess an accompanying leg asymmetry; the leg opposite the curve in the mandible is slightly longer than the other leg. Together, these adaptations likely improve the species foraging efficiency. Hawai‘i ‘ākepa often join mixed-species foraging flocks, particularly those with Hawai‘i creepers (*Oreomystis mana*). The species feeds mainly on ‘ōhi‘a (*Metrosideros polymorpha*) leaf clusters, but also on koa (*Acacia koa*) leaves and seed pods, where it uses its bill to pry open leaf and flower buds in search of small arthropods. ‘Ākepa are obligate cavity nesters, with most nests placed in natural cavities found in old-growth ‘ōhi‘a and koa trees. Females build nests, incubate eggs, and brood nestlings, and males deliver food to the female on and off the nest. Both parents feed the young, which remain with their parents for two to three months after fledging.



DISTRIBUTION: Hawai‘i ‘ākepa occur in five disjunct populations all above 1,300 meters (4,300 feet) elevation on the windward side of the island of Hawai‘i. Original range likely included all forested regions of the island.

ABUNDANCE: The Hawaiian Forest Bird Survey (1976-79, 1983), estimated the population at 14,000 ± 2500 (95% CI) individuals. The south Kona and Hualālai populations were estimated at

660 ± 250 birds and are apparently declining.

LOCATION AND CONDITION OF KEY HABITAT: Hawai'i 'ākepa occur in 'ōhi'a and 'ōhi'a/koa forests above 1,300 meters (4,300 feet). Density appears to be related to the number of available cavities, and because cavities primarily occur in older, large trees, old-growth forests may be preferred. The highest density of 'ākepa occurs in the Pua 'Ākala tract of Hakalau Forest National Wildlife Refuge, which has numerous large trees but a degraded understory. Many areas occupied by the species have been degraded by feral ungulates. Most of the current range of the Hawai'i 'ākepa is managed for conservation by State and Federal agencies or private conservation partnerships.

THREATS: Hawai'i 'ākepa are likely susceptible to the same factors that threaten other native Hawaiian forest birds, including: loss and degradation of habitat, predation by introduced mammals, and disease. For 'ākepa populations, the following are of particular concern:

- Habitat degradation and loss. Logging and ranching has fragmented and reduced the amount of suitable habitat. Breeding density may be limited by nest-site availability and current levels of food availability may limit populations. In forest fragments, the large trees required for nesting may be more susceptible to windfall and desiccation. The slow growth rate of 'ōhi'a complicates management for 'ākepa. In addition, habitat fragmentation may prevent or restrict natural re-colonization of former range.
- Disease. The Hawai'i 'ākepa is not found below 1,300 meters (4,300 feet) elevation. This suggests that it is particularly susceptible to mosquito-borne diseases.
- Predation. The cavity nests of 'ākepa may be vulnerable to rat (*Rattus* spp.) predation. However, nest-success is high at Pua 'Ākala in the Hakalau Forest NWR, where rat densities are high.

CONSERVATION ACTIONS: Completed or ongoing conservation efforts specific to the Hawai'i 'ākepa include the following: demographic and reproductive studies have determined the importance of old-growth trees for nesting and that the species will use artificial cavities for nesting, and captive propagation techniques have been developed. In addition, Hawai'i 'ākepa likely have benefited from management activities designed to conserve other endangered forest birds in Hakalau Forest National Wildlife Refuge, the Kona unit of the Hakalau Forest National Wildlife Refuge, 'Ōla'a/Kīlauea Watershed Partnership, Kapāpala Forest Reserve, and Pu'u Wa'awa'a Wilderness Sanctuary. These efforts include fencing, ungulate and small mammal control, forest restoration, habitat monitoring, and studies of disease and disease vectors. In addition to these efforts, future management specific to the Hawai'i 'ākepa may include the following:

- Aerial broadcast of rodenticides would likely increase nestling and adult female survival for this and other species.
- Public education and out reach.
- Continue protection and management of wildlife sanctuaries and refuges.

MONITORING: Continue forest bird surveys and habitat monitoring. This information is needed to assess the efficacy of habitat management efforts.

RESEARCH PRIORITIES: Research priorities for most Hawaiian forest birds include developing improved methods for controlling rats 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 the Hawai'i 'ākepa include the following:

- Continue studies designed to refine the suitability of artificial cavities and evaluate their potential to facilitate the establishment of new populations.
- Determine the factors affecting the growth form of regenerating 'ōhi'a and potential methods for protecting old-growth trees from wind and desiccation.
- Identification of disease resistant individuals. Determining if genetic markers or genotypes are associated with resistance would allow targeted translocations of individuals possessing this genotype into populations currently lacking disease resistance.

References:

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