

Photo

Forest Birds

Hawai'i 'Akepa

Loxops coccineus (coccineus)

SPECIES STATUS:

Federally Listed as Endangered

State Listed as Endangered

State recognized as endemic

Hawaii Natural Heritage Ranking G1;T1 —Critically imperiled,
subspecies critically imperiled globally

SPECIES INFORMATION: The Hawai'i 'akepa is a small, sexually dichromatic, insectivorous, Hawaiian honeycreeper endemic to Hawai'i island. 'Akepa have a slight crossbill, or laterally-curved lower mandible, which allows them to feed by prying apart leaf buds in the terminal leaf clusters of 'ohi'a trees. They sometimes feed among koa leaves and seedpods, and have been observed occasionally in other tree species. Small invertebrates are their primary prey year-round. 'Akepa are obligate cavity nesters. Females build the nests, incubate and brood. Males feed females on and off the nest. Both parents feed the young, which remain with their parents for 2-3 months post-fledging. 'Akepa, including juveniles, are known to join mixed-species feeding flocks in the post-breeding season.

DISTRIBUTION: 'Akepa are found in five distinct populations in 'ohi'a/koa forests on Hawai'i island. The birds are restricted to elevations above 1300 meters (4300'), though their historic range included forests from 600 meters (2000') to timberline and their presumed prehistoric range extended to all forested parts of Hawai'i island.

ABUNDANCE: The Hawai'i Forest Bird Survey estimated the 'Akepa population to include $14,000 \pm 2500$ (95% CI) individuals in 1980. South Kona and Hualalai populations contained just 660 ± 250 birds and have apparently declined in the intervening years.

LOCATION AND CONDITION OF KEY HABITAT: 'Akepa prefer 'ohi'a (*Metrosideros polymorpha*) and 'ohi'a/koa (*Acacia koa*) forests above 1300 meters (4300'). They are thought to prefer old-growth forests because their densities appear to depend on the density of available nest cavities, which occur primarily in large trees. The highest density of 'Akepa occurs in the Pua 'Akala tract of Hakalau Forest National Wildlife Refuge where the forest has numerous large trees but a degraded understory. It appears that breeding densities may be limited by nest-site availability and that the population may be at or near carrying capacity with respect to food availability. Most of the current range of the 'Akepa is managed as state Forest Reserve, USFWS National Wildlife Refuge, or is in conservation partnerships. 'Akepa habitat is therefore

considered stable, although there is degradation as a result of grazing ungulates or feral pigs across much of its range

THREATS: Hawai'i 'Akepa are subject to the same threats as other Hawaiian forest birds, but because of their dependence on cavities in old-growth forest, they may be particularly vulnerable. Of particular concern are the following:

- Habitat degradation, caused primarily by grazing ungulates, fragments suitable forest habitats. The large trees required for nesting may be more susceptible to windfall and dessication in degraded areas. Additionally, this fragmentation may be a barrier to dispersal and recolonization of former range.
- Disease probably limits the Hawai'i 'Akepa to its current high elevation range. Its absence below 1300 meters (4300 feet) may indicate that it is particularly susceptible to mosquito-borne avian disease.
- Predation by rats may limit 'Akepa populations. Presumably, cavity nests would make easy targets, though nest-success is high at Pua 'Akala, Hakalau Forest NWR, where rat densities are also known to be high.
- Competition with the ubiquitous Japanese white-eye (*Zosterops japonicus*) may negatively affect Hawai'i 'akepa.

CONSERVATION ACTIONS: Protection and management of high-elevation native forests are the primary conservation actions benefitting 'akepa. These management steps have included the following:

- Establishment of Hakalau Forest NWR for the protection of native forest birds. Forty-five percent of the refuge has been fenced and is nearly ungulate-free.
- Fencing and ungulate removal in the 'Ola'a/Kilauea Partnership, Kapapala Forest Reserve, and Pu'u Wa'awa'a Forest Bird Sanctuary have enhanced habitat.
- Research on 'Akepa demography with respect to forest structure and availability of nest cavities and on food availability has been completed.
- Experiments with 'akepa use of artificial nest cavities have been completed. Increased use of artificial nest cavities across a broader range may enhance 'akepa reproductive success and long-term survival.
- Captive propagation techniques for the Hawai'i 'akepa have been developed.
- Rodent control might increase nestling and adult female survival. Aerial broadcast of rodenticides would be the most effective means to treat broad areas.
- Increase public education efforts to engender support for conservation of forest birds.
- Restore high-elevation forest habitat—plant trees, control ungulates.

MONITORING:

- Continue surveys of Hawai'i forest bird populations and habitat conditions.
- Monitor effects of predator control on populations.
- Monitor use and nest success rates in areas where artificial nest cavities have been placed.

RESEARCH PRIORITIES:

- Factors affecting growth form of regenerating 'ohi'a and the development of nest cavities in both 'ohi'a and koa trees.
- Identification of disease resistant individuals, if present, and their genotypes. These individuals could be important sources to maintain populations should the range of mosquitoes extend to higher elevations.

- Effects of rodent control should be studied in an experimental way. Registration of rodenticides for aerial broadcast with the EPA should be pursued.

References:

U.S. Fish and Wildlife Service. 2003. Draft Revised Recovery Plan for Hawaiian Forest Birds. Region 1, Portland, OR. 428pp.

Lepson, J. K., and L. A. Freed. 1997. 'akepa (*Loxops coccineus*). In The Birds of North America, No. 294 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and the American Ornithologists' Union, Washington, D.C.