



Photo: Eric Nishibayashi

Forest Birds

'Apapane

Himatione sanguinea

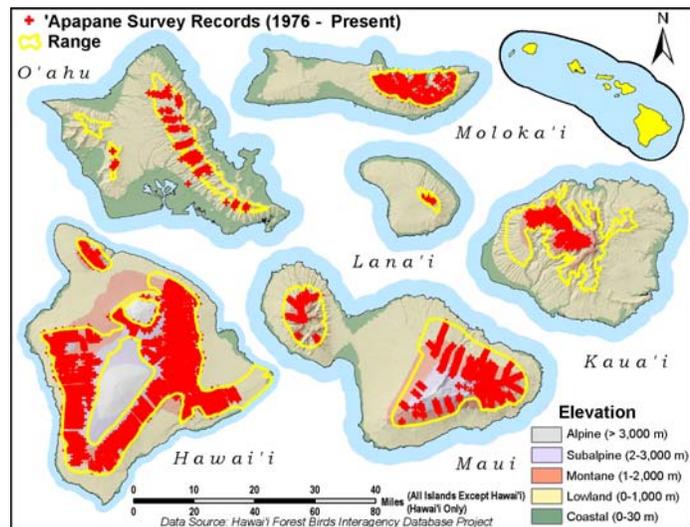
SPECIES STATUS:

State recognized as Endemic
NatureServe Heritage Rank G4 – Apparently secure

SPECIES INFORMATION: The 'apapane is a small, crimson, primarily nectarivorous Hawaiian honeycreeper (Family: Fringillidae) and is an important 'ōhi'a (*Metrosideros polymorpha*) pollinator. 'Apapane are the most abundant and widely distributed Hawaiian honeycreeper, and they are often seen flying above the canopy in search of patches of flowering 'ōhi'a. The wide-ranging movements of 'apapane may facilitate disease transmission among native forest birds. 'Apapane often forage in conspecific flocks, likely to overwhelm 'i'iwi (*Vestiaria coccinea*) and 'ākohekohe (*Palmeria dolei*), which often defend flower-rich trees. Outside the breeding season, 'apapane also join mixed-species flocks. 'Apapane also eat insects, which they glean from outer foliage and twigs in the upper- and mid-canopy. Sexual chasing and courtship feeding often precede nest building, a task shared by both male and female. Pairs defend small territories around their nests. Females incubate three eggs and brood young; males feed females away from the nest. Both parents feed nestlings, and fledglings may remain with their parents for up to four months.

DISTRIBUTION: 'Apapane occur in native forests above 1,250 meters (4,100 feet) elevation on the islands of Hawai'i, Maui, and Kaua'i. On O'ahu, 'apapane occur in the Ko'olau Range from 300 meters (975 feet) elevation to summit at 946 meters (3,075 feet), and are less common in the Wai'anae Range above 600 meters (1,950 feet) elevation. Currently, rare or absent on Moloka'i and Lāna'i. Historically, 'apapane were common at low elevations on all islands with appropriate habitat.

ABUNDANCE: The following island population estimates are based on Hawaiian Forest Bird Surveys (1976-1981): 1,080,000 ± 25,000 (95% CI) individuals on island of Hawai'i, 110,000 ± 9,000 individuals on Maui (86% on Haleakalā), 39,000 ± 5,000 individuals on Moloka'i, 540 ± 213 individuals on Lāna'i, and 30,000 ± 1,500 individuals on Kaua'i. On Kaua'i, populations declined after the 1992 hurricane but have significantly increased since. The 2000



Kaua'i Forest Bird Survey estimated the population at $64,972 \pm 2,014$ (SE) individuals. O'ahu was not included in the Hawaiian Forest Bird Survey. Rare or absent on Moloka'i and Lāna'i.

LOCATION AND CONDITION OF KEY HABITAT: 'Apapane occur in mesic and wet forests dominated by 'ōhi'a and koa (*Acacia koa*), primarily at elevations greater than 1,250 meters (4,100 feet) elevation. The primary reason for this limitation is the high density of cold-intolerant *Culex* mosquitoes, an important disease vector, below this elevation. Occupied habitats also support kōlea (*Myrsine lessertiana*), naio (*Myoporum sandwicense*), and hapu'u tree ferns (*Cibotium* spp.). Māmāne (*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 management effort directed at habitat protection and restoration varies considerably.

THREATS: Although 'apapane populations appear stable on the islands of Hawai'i, Maui, and Kaua'i, they 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 'apapane populations the following is of particular concern:

- Diseases. Of Hawaii's native forest birds, 'apapane have the highest prevalence of avian malaria (*Plasmodium relictum*). Individuals infected with avian pox (*Poxvirus avium*) also are more likely to be infected with malaria. Foraging movements may increase their exposure to disease. 'Apapane do breed in mid-elevation forests, suggesting that some individuals may be developing disease resistance.

CONSERVATION ACTIONS: 'Apapane likely have benefited from management activities designed to conserve other endangered forest birds on northeastern Haleakalā, Hakalau Forest National Wildlife Refuge, Hawai'i Volcanoes National Park, the 'Ōla'a/Kīlauea Watershed Partnership, and Alaka'i Wilderness Preserve and surrounding areas. 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 actions specific to the protection of 'apapane populations may include the following:

- Mosquito control in degraded habitats.
- Public education and outreach.
- Continue protection and management of wildlife sanctuaries and refuges.

MONITORING: Continue forest bird surveys and habitat monitoring on all islands. This information is useful in assessing the efficacy of habitat management efforts.

RESEARCH PRIORITIES: Research priorities for most Hawaiian forest birds include developing improved 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 'apapane include the following:

- Determine if disease resistant individuals exist and if so determine if resistance is passed to offspring. Disease-resistant individuals could be used as founders of new populations.
- Determine the role of 'apapane in transmitting disease between high and low elevation habitats.

- Conduct life history studies to quantify the population structure, dispersal patterns, survivorship, nesting phenology and success of this poorly known species.

References:

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