# Northwestern Hawaiian Islands Passerines

Photo: Craig Rowland, USFWS

# Nihoa Finch

*Telespiza ultima*

**SPECIES STATUS**:
Federally listed as Endangered
State listed as Endangered
State recognized as Endemic
NatureServe Heritage Rank G1—Critically imperiled
IUCN Red List Ranking—Critically endangered
NWHI Passerines Recovery Plan—USFWS 1984

**SPECIES INFORMATION:** The Nihoa finch is an omnivorous, ground-nesting Hawaiian honeycreeper (Family: Fringillidae) endemic to Nihoa Island in the Northwestern Hawaiian Islands. Nihoa finches have black legs, large feet, and sturdy bills suitable for seed-eating, but in all body dimensions they are smaller than the congeneric Laysan finches. Male and female Nihoa finches have different plumage, with adult males being a brighter yellow over a larger proportion of their head and body than females. Nihoa finches are known to feed on seeds, fruits, leaves, flowers, stems, seedlings, roots, carrion, invertebrates, and eggs. Although their social behavior has not been thoroughly studied, Nihoa finches are thought to be similar to Laysan finches in being non-territorial outside of the breeding season. During breeding season, males defend nest sites in rock crevices, while females construct nests and incubate eggs. Females rely upon males for nuptial feedings during the incubation period.

**DISTRIBUTION:** Nihoa finches are restricted to the approximately 63 hectare (156 acre) area of Nihoa Island. An introduced population at Tern Island, French Frigate Shoals, was extinct by the early 1980s.

**ABUNDANCE:** The U.S. Fish and Wildlife Service has conducted transect surveys at Nihoa Island during most years since 1966. Based on these surveys, the average population size is estimated to have been 3,196 ± 925 (SD). The 1996 population size estimate was 2,362, which is within the typical range of variation observed since the 1960s. Density estimates have averaged 51 birds per hectare (21 birds per acre).

**LOCATION AND CONDITION OF KEY HABITAT:** Nihoa finches reside year-round on the steep-sided, rocky, and shrub-covered island of Nihoa. Finches prefer open but vegetated habitat and are reported to forage in all areas of the island. Finches frequently congregate around Nihoa's five to seven small freshwater seeps, or at ephemeral puddles of fresh water. About 25 species of plants comprise Nihoa's vegetation community; the four most abundant are (in descending order of abundance): the shrub *Chenopodium oahuense*, the shrub *Solanum nelsonii*, the shrub *Sida fallax*, and the bunchgrass *Eragrostic variabilis*. Finch presence is positively correlated with *Sida fallax* height and percent cover, and also with mean and maximum *Solanum nelsoni* height. The entire range of this species occurs in the Hawaiian Islands National Wildlife Refuge.

**THREATS:** Limiting factors for Nihoa Finches are primarily weather (i.e., drought and storms), variations in food supply (typically due to weather), and availability of appropriate nest sites. During population highs, the proclivity of Nihoa finches to break conspecific eggs might increase, but this has not been studied. Additional threats include:

- Invasive alien plants. Habitat quality could be degraded by weed invasions. While the finches, being omnivorous, would likely integrate some invasive plants into their diet, native plant populations could be adversely affected by competition with invasive alien plants such as *Miconia calvescens* or *Clidemia hirta*. To the extent that such alien plants would be lower-quality food resources, the finch population would be affected.
- Arthropod irruptions. Nihoa is currently experiencing an irruption of a native grasshopper, which is reducing island plant cover to unusually low levels. Although this sort of fluctuation is natural, it can lead to declines in population levels of other species.
- Population size. Small populations are plagued by a variety of potentially irreversible problems that fall into three categories: demographic, stochastic, and genetic; the former are usually most problematic. Demographic factors include skewed sex ratios and stochastic factors include natural disasters. Habitat fragmentation exacerbates demographic and genetic problems.
- Introduced mammals. The risk of rat (*Rattus* spp.) introduction via transport (i.e., ships, planes) is of concern as rats are known to have decimated passerine populations in the NWHI in the past as a result of shipwrecks.

**CONSERVATION ACTIONS:** Nihoa finch persistence requires that the integrity of the island's small, remote ecosystems be maintained. This requires excluding and removing any introduced non-native insects, plants, passerine birds, avian disease, and mammalian and reptilian land animals. Quarantine measures and visitation restrictions in place for researchers appear to be controlling the rate of new introductions, but species that do become established may be extremely difficult to eradicate. Thus, rigorous statewide reduction or elimination of non-native invertebrate and plant introductions through stricter quarantine and reduction of ship groundings are necessary. In addition to these efforts, future management specific to the recovery of Nihoa finches may include the following:

- Aggressive weed control and native plant restoration to stabilize habitat quality.
- Prevent the introduction of rats and other possible predators.

**MONITORING:** Continue current program of transect counts and habitat monitoring. This information is needed to assess population trends and the efficacy of habitat management.

**RESEARCH PRIORITIES:** More research is needed on best quarantine techniques, best methods for early detection of alien species, and best eradication methods. Research priorities specific to Nihoa finches include the following:

- Additional demographic studies to further refine estimates of population structure, dispersal, survivorship, nesting phenology and success, and other life history and behavioral characteristics.
- Assess which management options (e.g., translocation) would be most beneficial in terms of extinction risk reduction.

**References:**

Morin M., Conant S. 2002. Laysan finch (*Telespiza cantans*) and Nihoa finch (*Telespiza ultima*). *In* The Birds of North America, No. 639 (Poole A, Gill F, editors.). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

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