

## Forest Birds

# O'ahu 'Elepaio

*Chasiempis sandwichensis ibidis*



Photo: DOFAW

### SPECIES STATUS:

Federally listed as Endangered

State listed as Endangered

State recognized as Endemic

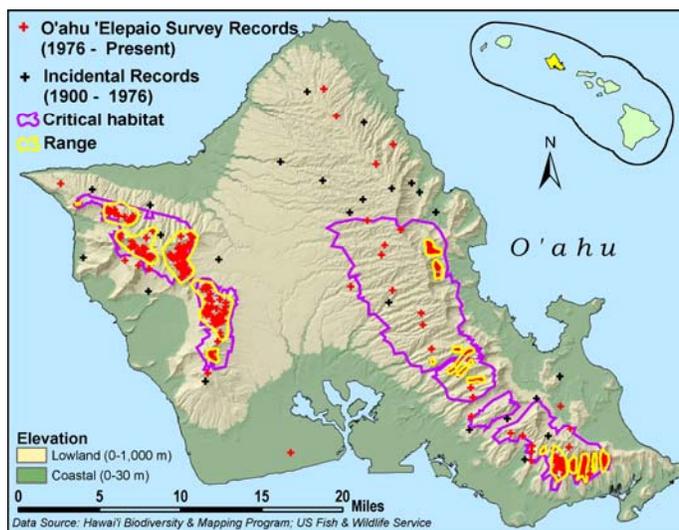
NatureServe Heritage Rank G3/T1 – Rare with restricted range/Subspecies critically imperiled globally

IUCN Red List Ranking – Vulnerable

Draft Revised Recovery Plan for Hawaiian Forest Birds

– USFWS 2003

**SPECIES INFORMATION:** The O'ahu 'elepaio is a small, adaptable monarch flycatcher (Family: Monarchiade) endemic to the island of O'ahu at the subspecies level. 'Elepaio also occur on Kaua'i (*C. s. sclateri*) and the island of Hawai'i (*C. s. sandwichensis*). Males and females are dark brown above and white below with variable light brown streaks on breast and conspicuous white wing bars, tail feather tips, and throat. Both sexes have variable amounts of blackening markings, but males tend to have more. The bird's name is derived from its primary song which is a shrill whistle given only by males. On the island of Hawai'i, 'elepaio use virtually all available substrates for foraging including the ground, logs, rock crevices, snags, and all parts of tress. Equally diverse in the use of foraging maneuvers, 'elepaio capture a wide range of arthropod prey by flycatching, gleaning while either perched or hovering, and direct pursuit; foraging maneuvers vary depending on plant species from which prey is being captured, and habitat. O'ahu 'elepaio use a variety of native and non-native trees for foraging. Pairs remain together throughout the year, and long-term pair bonds are common. Breeding season on O'ahu is January through July compared to March through August on the island of Hawai'i. Unlike Hawaiian honeycreepers, both males and females participate almost equally in all aspects of rearing. Finely woven cup nests are built in a variety of native and non-native trees. Clutch size is usually two and second and third nests are attempted after failures, but rarely is a second nest attempted if the first is successful. Fecundity is low even in areas where predators are controlled. Young are fed by parents for at least a month, but remain on their natal territory for up to ten months which may allow young birds to hone their foraging skills.



**DISTRIBUTION:** O'ahu 'elepaio occur in the Ko'olau Range between 100 to 550 meters (325 – 1,800 feet) elevation, and in the Wai'anae Range between 500 to 850 meters (1,625 – 2,775 feet) elevation. Dispersal between the ranges is unlikely. Each subpopulation consists of several populations; the amount of dispersal among these is unknown, but is likely low. Original distribution likely included all forested areas of O'ahu. Currently estimated to occupy four percent of their original range.

**ABUNDANCE:** In 2001, the O'ahu 'elepaio population was estimated at less than 2,000 birds. It had previously been estimated at between 1,200 and 1,400 birds. Although Audubon Christmas bird counts from the 1960s through the 1980s provided strong evidence of a dramatic population decline, numbers are now so low that the rate of decline since the 1990s cannot be determined.

**LOCATION AND CONDITION OF KEY HABITAT:** O'ahu 'elepaio occur in a variety of forest types and across a range of elevations, primarily in valleys and particularly those with tall riparian vegetation, a continuous canopy, and dense understory. Common native plant species where 'elepaio occur include papala kēpau (*Pisonia umbellifera*), lama (*Diospyros sandwicensis*), māmaki (*Pipturus albidus*), kaulu (*Sapindus oahuensis*) and 'āla'a (*Pouteria sandwicensis*). Common introduced plants in 'elepaio habitat include strawberry guava (*Psidium cattleianum*), common guava (*P. guajava*), kukui (*Aleurites moluccana*), mango (*Mangifera indica*), and Christmas berry (*Schinus terebinthifolius*). O'ahu 'elepaio are not found in very wet forests, on windswept summits, or in very dry scrubland. Much of their current range is managed by the U. S. military or by the State of Hawai'i.

**THREATS:** O'ahu 'elepaio 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 O'ahu 'elepaio populations, the following are of particular concern:

- Predation. Predation by black rats (*Rattus rattus*) have been implicated in the loss of nests and death of adult females. Rat control in O'ahu populations resulted in large increases in nest success and in the survival of adult females.
- Low reproductive potential. The species' low annual productivity, even in quality habitat, makes it very susceptible to factors that reduce population size.
- Disease. Avian pox (*Poxvirus avium*) reduces both annual survival and reproductive success of birds with active pox lesions compared to healthy birds; no information on the effect of avian malaria (*Plasmodium relictum*).
- 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.
- Fire. Wildfires resulting from military activities threaten two populations.

**CONSERVATION ACTIONS:** Conservation efforts already undertaken to protect the O'ahu 'elepaio include the following: listing as an endangered species by both the USFWS and the State of Hawai'i, the initiation of long term population and demographic surveys which have identified the most serious threats to its survival, and ongoing rat control at the Honolulu Forest Reserve (DOFAW), at Schofield Barracks West Range and Mākua Military Reservation (U.S.

Army Environmental Division), in Honouliuli Preserve (The Nature Conservancy), and in Lualualei Valley (U.S. Navy and USDA). In addition, the O'ahu 'elepaio also benefits from management activities designed to conserve other endangered forest birds including the establishment of the O'ahu Forest National Wildlife Refuge in the Ko'olau Mountains, fencing and ungulate control, forest restoration, habitat monitoring and studies on disease and disease vectors. In addition to these efforts, future management specific to the O'ahu 'elepaio should include the following:

- Continuation and expansion of rat control.
- Protection of remaining forests on O'ahu, including fire prevention.
- Public outreach about the importance and benefits of rodent control.
- Continue demographic studies, especially in the largest populations.
- 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 O'ahu 'elepaio include the following:

- Disease resistance and transmission. If resistant individuals are identified, translocation and/or captive propagation of these individuals may help recover populations.
- Determination of genetic population structure.
- Identify areas most suitable for re-introduction of populations or for creation of habitat dispersal links between existing populations.
- Continue efforts to develop techniques for captive propagation using surrogate species (e.g., Hawai'i 'elepaio (*Chasiempis sandwichensis sandwichensis*)).

**References:**

- VanderWerf EA. 1998. 'Elepaio (*Chasiempis sandwichensis*). In *The Birds of North America*, No. 344 (Poole A, Gill F, editors.). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.
- VanderWerf EA, Rohrer JL, Smith DG, Burt MD. 2001. Current distribution and abundance of the O'ahu 'elepaio. *Wilson Bulletin* 113:10-16.
- U.S. Fish and Wildlife Service. 2003. Draft revised Recovery plan for Hawaiian forest birds. Portland, (OR): U.S. Fish and Wildlife Service. 428 pp.