

O`AHU `ELEPAIO FIVE-YEAR RECOVERY WORK PLAN

Purpose. The long-term recovery goals, delisting criteria, recovery strategy, and a comprehensive list of recovery tasks for the O`ahu `Elepaio are provided in the Hawaiian Forest Bird Recovery Plan, which covers 21 species. The purpose of this five-year work plan is to identify interim recovery objectives for the Oahu `Elepaio that can be realized within five years, and to succinctly describe the actions needed to reach those interim objectives. Identification of interim recovery objectives will help ensure that initial conservation efforts by different agencies or groups are concerted toward the same ultimate goals, that limited recovery funding and effort are used efficiently, and provide milestones that can be used to track and evaluate progress toward recovery. Realization of these milestones will provide evidence that progress is being made toward eventual recovery. Failure in realizing these milestones may indicate that additional effort and funding are needed, or that the current recovery strategy is not effective.



Male O`ahu `Elepaio. Photo by E. VanderWerf.

Species Summary. The O`ahu `Elepaio (*Chasiempis sandwichensis ibidis*) is a monarch flycatcher endemic to O`ahu. The `Elepaio was once the most abundant forest bird on O`ahu, but it has declined seriously and now occupies less than 4% of its original range. Currently there are approximately 2000 birds, which are distributed in six large subpopulations and numerous small fragments.

`Elepaio are adaptable and occur in a variety of forest types, but they are most common in valleys with tall riparian forest and a dense understory. Forest structure is more important to `Elepaio than species composition of the forest, and `Elepaio readily forage and nest in a variety of trees, including many alien species.

Much of the historical decline in distribution of the `Elepaio was caused by clearing of forest for human development and agriculture, but declines also have occurred in intact forest due to a combination of poor reproduction and low adult survival. Nest predation by introduced black rats seriously diminishes nest success, and some females are taken at the nest by rats. Predation on females is greater, causing a skewed sex ratio.

Rodent control has been shown to increase `Elepaio reproduction by 112% and survival of female `Elepaio by 66%, and is the most effective method of stabilizing `Elepaio populations. Thus far all rodent control on Oahu has been conducted by ground-based methods using diphacinone bait blocks and bait stations. Larger scale rodent control is needed to manage `Elepaio populations on a more meaningful scale, which can be achieved more cost-effectively through aerial broadcast methods. Public outreach and education about the importance and benefits of controlling rodents and the safety of diphacinone is needed before aerial broadcast can be applied.

Each year approximately 14% of `Elepaio become infected with diseases carried by introduced mosquitoes, particularly avian poxvirus and possibly avian malaria. About 20% of infected birds eventually die, and the reproductive ability of additional birds is compromised while they are infected. Currently there is no effective and environmentally safe method of controlling mosquitoes in forested habitats, and it is not practical to treat infected birds.

Primary Threats.

- Nest predation by alien black rats
- Diseases carried by alien mosquitoes, particularly avian poxvirus and possibly avian malaria.
- Habitat loss due to development and fires caused by military training.

Interim Recovery Objectives. In order to meet the long range recovery goals for the Oahu `Elepaio, the following short-term goals should be accomplished first:

- Stabilize numbers of birds in the six remaining core populations.
- Prevent any further loss of forest habitat supporting the six remaining core populations.

If these objectives are met within five years, then new interim recovery objectives should be identified that will continue to guide progress toward full recovery. If these objectives are not met within five years, then the causes for failure should be examined and rectified if possible. If it is not possible to correct the causes for failure and the current strategy is not considered effective, then a new strategy should be developed.

Recovery Actions. In order to realize the interim recovery objectives described above, the following actions are necessary:

- Ensure/encourage continued support for ongoing rodent control programs and expand these programs to manage `Elepaio populations on a more meaningful scale
 - Honolulu Watershed State Forest Reserve in Wailupe Valley (State DOFAW)
 - Honouliuli Preserve (The Nature Conservancy of Hawaii)
 - U.S. Army Schofield Barracks West Range (U.S. Army)
 - Lualualei Naval Magazine (U.S. Navy)
- Begin public outreach about importance and benefits of controlling rodents and safety of diphacinone
- Conduct large scale rodent control by aerial broadcast of diphacinone in at least one site. Possible sites include Honouliuli Preserve, Schofield Barracks West Range, and Makua Valley.
- Contact private landowners and initiate rodent control in unmanaged core populations, through safe harbor agreements or partnerships
 - Moanalua Valley (Damon Estate)
 - North Halawa Valley (Kamehameha Schools)
 - Wiliwilinui Gulch (Kamehameha Schools)
 - Waikane Valley (SMF Enterprises)
 - Pia Valley (Hawaii Humane Society and J. Pflueger)
- Complete an effective fire management plan at Schofield Barracks West Range, ensure that Army provides adequate resources to implement that plan, and responds to fires in a timely manner (U.S. Army).
- Ensure access to Honouliuli Preserve for management by The Nature Conservancy of Hawaii. May require coordination with U.S. Army over condemnation of lands in northern portion of Preserve, and negotiation of lease or conservation easement with new owners if remaining land is sold by Campbell Estate.

References.

- U.S. Fish and Wildlife Service. 2002. Draft Revised Recovery Plan for Hawaiian Forest Birds. U.S. Fish and Wildlife Service, Region 1, Portland, OR. 424 pp.
- VanderWerf, E.A. 1998. `Elepaio (*Chasiempis sandwichensis*). In The Birds of North America, No. 344 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and the American Ornithologists' Union, Washington, D.C.
- VanderWerf, E.A. 2001. Rodent control reduces predation on artificial nests in O`ahu `Elepaio habitat. *Journal of Field Biology* 72:448-457.
- VanderWerf, E.A., A. Cowell, and J.L. Rohrer. 1997. Distribution, abundance, and conservation of O'ahu 'Elepaio in the southern, leeward Ko'olau Range. *'Elepaio* 57(4):99-106.
- VanderWerf, E.A., J.L. Rohrer, D.G. Smith, and M.D. Burt. 2001. Current distribution and abundance of the O`ahu `Elepaio. *Wilson Bulletin* 113:10-16.
- VanderWerf, E.A., and D.G. Smith. 2002. Effects of alien rodent control on demography of the O`ahu `Elepaio, an endangered Hawaiian forest bird. *Pacific Conservation Biology*.