



Photo: W.C. Gagne

Waterbirds

Laysan Duck

Anas laysanensis

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

Draft Revised Recovery Plan for the Laysan Duck (*Anas laysanensis*) - USFSW 2004

SPECIES INFORMATION: The Laysan duck is a small dabbling duck (Family: Anatidae) endemic to Hawai'i, and until recently was restricted to Laysan Island (370 hectares/911 acres) in the NWHI. Even after a recent successful translocation effort to Midway Atoll, the species still has one of the smallest geographic ranges of any duck. Adults are dark brown overall with a prominent white eye-ring and varying amounts of white feathers on the head and neck; the sexes are similar. Unlike many other duck species, Laysan ducks have low fecundity, are nocturnal, very terrestrial, and highly sedentary; the species also is relatively long-lived. During the day, ducks take cover under vegetation such as bunchgrass or shrub. Individuals forage mainly at night around and in a large hypersaline lake, feeding primarily on larvae, pupae, and adult Dipteran brine flies (*Neoscatella sexnotata*), the larvae and pupae of a noctuid moth (*Agrotis dislocatae*), and brine shrimp (*Arternia* spp.); seeds, leaves, algae, and other invertebrates also are taken. Most common method of foraging is running through swarms of adult brine flies while moving head back and forth snapping up flies. Moth larvae and pupae are taken by "filter feeding" in sand under low vegetation. The species also dabbles along the lake shore. Long-term pair bonds are not formed and males do not participate in brood-rearing. Nesting occurs between February and November, although most eggs are laid between April and August. Nests are well concealed and typically are placed at the base of dense vegetation, especially bunch grass (*Eragrostis variabilis*). Nests are shallow scrapes lined with dead grass and some down. Typically three to five eggs are laid, and they hatch after 28 days. Ducklings are precocial and are not fed by the female. Due to the fact that the species evolved with avian predators, when surprised, individuals tend to walk away rather than fly, and freeze rather than flush.

DISTRIBUTION: Until 2003, the Laysan duck was restricted to Laysan Island in the NWHI. In 2004, 20 ducks were successfully translocated to Midway Atoll, also in the NWHI. As late as 1844, Laysan ducks were still extant on Lisianski. Fossil and subfossil evidence indicates that Laysan ducks were widespread in the NWHI and MHI prior to the arrival of Polynesians and occurred on the islands of Hawai'i, Moloka'i, O'ahu, Maui, and Kaua'i.

ABUNDANCE: On Laysan, the Laysan duck population is somewhat variable, but generally does not exceed 500 individuals; surveys conducted in 2005 estimated the population at 459 individuals. In 1911, the population fell to between six and 12 individuals. By the early 1990s

the population had grown to 450 individuals; however, by early 1994, the population fell to 100. As of July 2005, there were 32 individuals on Midway Atoll National Wildlife Refuge.

LOCATION AND CONDITION OF KEY HABITAT: Two habitats are critical to the survival of Laysan Duck: vegetated uplands and wetlands. Uplands supporting vegetation such as beach naupaka (*Scaevola taccada*) and bunch grass provide ducks with shelter and nesting habitat. The hypersaline lake provides ducks with foraging habitat. The importance of upland vegetation was demonstrated by the severe decline of ducks at the turn of the last century when rabbits (*Oryctolagus curriculus*) denuded Laysan and by the species' subsequent recovery after the rabbit population was eradicated and the vegetation recovered. Similarly, the number of ducks varies considerably depending on lake water levels; in 1987, there was a total breeding failure due to a drought and a lack of brine flies. The entire range of the Laysan duck occurs in the Hawaiian Islands National Wildlife Refuge and Midway Atoll National Wildlife Refuge.

THREATS: Historic threats included the introduction of rabbits which subsequently denuded the island's vegetation (see above), sport hunting, and guano mining. Habitat degradation related to the filling of the lake by sand is a current concern given the importance of the lake to the duck. Other current threats are mostly related to the species' limited population size and small geographic range. 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. The species' limited geographic range exacerbates the risk of extinction due to stochastic events such as hurricanes or droughts.

CONSERVATION ACTIONS: The goals of conservation actions are not only to protect current populations and key breeding habitats, but also to establish additional populations, thereby reducing the risk of extinction. Rabbits were eradicated from Laysan in the 1920s. In 1967, the USFWS translocated 12 ducks to Pearl and Hermes Reef. This translocation attempt was not successful and the ducks were not subsequently seen. The USFWS has successfully controlled the non-native grass, *Cenchrus echinatus*, and has begun replanting native vegetation and installing snow fences to stabilize sand dunes near the lake. In the fall of 2004, the USFWS and USGS translocated 20 hatch-year Laysan ducks to reclaimed habitats (artificially created seeps) on Midway Atoll. To date, 19 of the 20 ducks have survived and as of July 2005, five females produced 13 ducklings. Another translocation is planned for the fall of 2005. In addition to common statewide and island conservation actions, specific management directed toward Laysan ducks should include:

- Restoration of habitat with native plants as well as continued maintenance of existing habitat (e.g., weed control, stabilization of dunes and vegetation to prevent sand from filling the lake).
- Restoration of invertebrate species to increase food availability.
- Prevention of the establishment of additional non-native plants and animals.
- Continue efforts to establish additional populations.

MONITORING:

- Continue surveys of the population, and attempt to establish a year-round monitoring program that will allow for better population estimates.
- Monitor for invasive species.

RESEARCH PRIORITIES:

- Conduct long-term demographic studies to determine basic reproductive biology, population trends, and survival rates.
- Conduct additional studies to better understand the species foraging needs.
- Improve population monitoring methods.

References:

IUCN Red List of Threatened Species. Available at: <http://www.redlist.org>.

Moulton DW, Marshall AP. 1996. Laysan duck (*Anas laysanensis*). In *The Birds of North America*, No. 242 (Poole A, Gill F, editors). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

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