

## LAYSAN DUCK

*Anas laysanensis*

Other: Laysan Teal

monotypic

**native resident, endemic, endangered**

The Laysan Duck has the most restricted range and (often) population of any of the world's waterfowl species. Through most of its known history it has been endemic to *Laysan* in the *Northwestern Hawaiian Islands*, although it occurred throughout the Southeastern Hawaiian Islands prior to Polynesian contact (James 1987, Cooper et al. 1996, Burney et al. 2001, Rauzon 2001, Ziegler 2002), and a small population of ducks found on *Lisianski* in 1828-1859 (Isenbeck in Kittlitz 1834, Rothschild 1900, Clapp and Wirtz 1975) was later confirmed to be of this species through genetic evidence (Olson and Ziegler 1995, Rauzon 2001); reduction of habitat by introduced rodents and perhaps over-harvest by shipwrecked mariners are mentioned as causes of extirpation on Lisianski (*HE* 18[3]:1-3). Beginning in the mid-2000s, introductions of Laysan Ducks to Midway and Kure resulted in successful breeding populations by the mid-2010s.

Laysan Duck has sometimes been considered a subspecies of the [Hawaiian Duck](#) or [Mallard](#) (see [Synonymies](#)) but recent genetic evidence suggests it is not closely related to Mallard (Browne et al. 1993, Cooper et al. 1996, Rhymer 2001) and may be closer to the Pacific Black Duck (*A. superciliosa*) of s. Polynesia (Fleisher and McIntosh 2001). Oberholser (1917) felt that it "certainly did not belong in [*Anas*]" and placed it in the monotypic genus *Horizonetta*. See Fisher (1903a, 1903b), Warner (1963), Greenway (1967), Ely and Clapp (1973), Moulton and Weller (1984) and Moulton and Marshall (1996) for summaries of the natural history and conservation of Laysan Duck, and Reynolds (2004), USFWS (2004b), Reynolds and Work (2005), Reynolds et al. (2006, 2007a, 2011, 2012), Seavy et al. (2009), and VanderWerf (2013a) for updated information. Banko (1979) summarizes 66 known specimens, including the type series collected by Palmer in Jun 1891 (Rothschild 1892b).

No historic population estimates of Laysan Ducks were obtained before the late 1800s, when Laysan began to be altered to the detriment of endemic avifauna, but it was likely close to the carrying capacity, which appears to be 500-700 individuals according to several population estimates of this magnitude between 1963 and the 2000s (Warner 1963, Moulton and Weller 1984, HAS 1984-1996, Scott and Kepler 1985, Marshall 1992, Reynolds and Citta 2007, BLI 2009, Seavy et al. 2009; *E* 25:90). Between 1891 and 1910 populations declined due to disturbance from a mining operation, hunting for food and plumes, and denuding of habitat by the introduction of European Hares (see Ely and Clapp 1973 and [Laysan Rail](#)). Subsequently, populations dropped, possibly to as low as 7-20 individuals, between 1911 and 1936 (Dill and Bryan 1912, Wetmore 1925, Munro 1944, Bailey 1956, Ely and Clapp 1973), and there is one report that it had perhaps dwindled to just one gravid female in 1930 (Zimmerman 1974). Populations slowly recovered after rabbits were removed in 1923 (Brock 1951a, 1951b; Warner 1963; Ely and Clapp 1973; *E* 12:17-18, 22:22-23, 33:9, 48:15-16), reaching a peak of 688-746 in 1961 (Warner 1963), and despite occasional die-offs or reproductive failures (Morin 1992, Moulton and Marshall 1996, Reynolds et al. 2007) it reached near carrying capacity of 400-600 individuals through most of the 2000s and early-to-mid 2010s

(Reynolds and Citta 2007; Reynolds et al. 2011, 2013a; VanderWerf 2013a; [HRBP](#) 0759-0761, 0819, 0822, 0921); a high count of 264 was recorded during Sep 2011-Mar 2012 (Rutt, in press). In Aug-Dec 1993, Laysan Ducks suffered die-offs related to drought and a nematode infestation reducing numbers by 75% in 1993-1994 (Work et al. 2004), an avian botulism outbreak reducing numbers by 40-50% in 2008, and a tsunami in Mar 2011 possibly reducing populations by 50% (BLI 2016) but in each case numbers rebounded within a year or two.

Because of the vulnerability of the Laysan Duck population to disease, tsunamis, and rising sea-levels due to global climate change, captive populations have been maintained for propagation purposes since 1957 (Ripley 1960; Berger 1972, 1981; USFWS 1982, Cooper et al. 1996, Reynolds and Kozar 2000; *E* 19:22). Wildfowl centers, zoos, and private individuals currently hold over 200 individuals for propagation should it become necessary, although there are drawbacks to relying on captive birds for propagation (USFWS 2004b). Introduction of 14 birds to Pearl and Hermes in 1967 resulted in one nesting attempt, but all birds had disappeared by 1969 (Amerson *et al.* 1974).

In Oct 2004 and Oct 2005, USFWS transported 42 wild Laysan Ducks from Laysan to Midway, where rats had been removed and wetlands had been created or enhanced specifically for establishment of an introduced "insurance" population (USGS 2005; Reynolds et al. 2007, 2008; [HRBP](#) 5246, 6003, 6018, 6528, 6684). The ducks bred during ensuing breeding seasons and by 2008-2010 had established a population of 473-500 adults (Reynolds et al. 2013a). Despite low genetic diversity (Reynolds et al. 2015a), outbreaks of botulism during the summer of 2008 (when 181 carcasses were recovered) and in 2011 (combined with a tsunami in Mar) which reduced populations by 40-50 individuals, and predation from [Peregrine Falcons](#) in 2006-2008 resulting in the loss of at least 12 birds (Reynolds et al. 2015b), as on Laysan I, populations on Midway appear resilient. The population size there is expected to exceed the population size on Laysan within 10 years of the translocation, if there are no other catastrophes, and the botulism outbreaks can be managed (Reynolds et al. 2008, 2013a; Seavy et al. 2009). Laysan ducks fly between Eastern and Sand islands of Midway Atoll, whereas flights over the ocean are uncommon on Laysan. Buoyed by the success on Midway, wetlands were created on Kure and 28 Laysan Ducks were translocated there from Midway by DOFAW in the fall of 2014 ([HRBP](#) 6004). These had produced at least 19 ducklings by May 2015, and totaled 35-42 birds by 2016, with continued successful breeding.

A group of large, flightless, grazing waterfowl found in the subfossil record of Laysan, Kaua'i, O'ahu, and Maui Nui, the moa-nalos (Olson and James 1991, Sorenson et al. 1999, Burney et al. 2001, Ziegler 2002), appear to be highly modified descendents of *Anas* ducks unrelated to [Hawaiian Duck](#) or Laysan Duck (Sorenson et al. 1999, Fleisher and McIntosh 2001).

## [Acronyms and Abbreviations](#)

## [Literature cited](#)

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