

## LAYSAN ALBATROSS

## *Phoebastria immutabilis*

Other: *Moli*

monotypic

### **breeding visitor, indigenous**

Virtually all (99%) of the world's Laysan Albatrosses breed in large colonies in the *Northwestern Hawaiian Islands* (Rice and Kenyon 1962, USFWS 2005b Awkerman et al. 2009, ACAP 2010a). Much smaller and in some cases more tenuous colonies exist in the *Southeastern Hawaiian Islands*, islands near Japan and Mexico (AOU 1998), Wake Atoll (Jones 1995, Rauzon et al. 2008), and formerly on Johnston Atoll (Amerson and Shelton 1976). A population of about 1 million birds also formerly bred on Marcus Island but were extirpated near the turn of the century (Rice and Kenyon 1962). Although undoubtedly seen by naturalists and ornithologists during 18<sup>th</sup> and 19<sup>th</sup> century ocean crossings, Laysan Albatross was not described until Palmer's first visit to its island namesake in 1892 (Rothschild 1893a), testimony to the lack of at-sea collecting during this period. Isenbeck (*in von Kittlitz* 1834) had earlier noted two species of albatross on Laysan in 1828 but thought the white one might be a Wandering Albatross (*Diomedea exulans*). During the summer of 1876, Theodore Bailleu collected a specimen of a Laysan Albatross on Hawai'i Island that went to the Paris Museum (Wilson and Evans 1899:217) but he missed the opportunity to name the new species.

The Laysan Albatross was placed with the other albatrosses in the genus *Diomedea* until 1997 (AOU 1997). In the Northwestern Hawaiian Islands, adults arrive in late Oct-Nov, chicks fledge in Jun-Jul, and they spend the rest of the year in the central North Pacific (rarely S to 15° N; King 1967, Sanger 1974a, Hyrenbach et al. 2002), being completely absent from colony sites and Hawaiian waters in late Jul-mid Oct. Evidence from satellite tracking suggests that individuals from Northwestern and Southeastern islands may forage in different parts of the Pacific (Young et al. 2009a). Bailey (1952, 1956), Whittow (1993a), and ACAP (2010a) provide comprehensive reports on the life history of the Laysan Albatross, and Blackman (1944), Fisher (1948a), McKee and Pyle (2002), and Rutt (2013) discuss aberrant plumages in Laysan Albatross (e.g., [HRBP](#) 0015-0016, 0171-0173, 5024-5025) and hybridization of Laysan and [Black-footed](#) albatrosses in Hawaii. There are at least 9 specimens of hybrids (2 at BPBM and 7 at USNM) collected in the Northwestern Hawaiian Islands. Many photographs of hybrids have been taken; e.g., in *E* 41:81 ([HRBP](#) 0139), *E* 43:2 ([HRBP](#) 0174-175), Bailey (1952, 1956), McKee and Pyle (2002; [HRBP](#) 1394-1395 of a breeding individual), and elsewhere.

The total breeding population of Laysan Albatross in the Northwestern Islands was approximately 1.7 million birds (over 850,000 breeding pairs) in the mid 2010s (Fefer et al. 1987, Harrison 1990, McDermond and Morgan 1993, Rauzon 2001, USFWS 2005b, Naughton et al. 2007, Flint 2008, Arata et al. 2009, ACAP 2010a, Hartzell 2012, Saunter and Worcester 2016; [Table](#)), which extrapolated to 4+ million birds when non-breeders and pre-breeders are factored in. As with the [Black-footed Albatross](#), populations were decimated at the turn of the 19th century, when well over a half-million individuals were killed by plume hunters (Bryan 1906, 1911; Hadden 1941, Munro 1944, Rice and Kenyon 1962, Spenneman 1998, Rauzon 2001; *E* 3:12-13, 16). Populations

rebounded consistently through the 1900s; some data indicate that populations declined between 1992 and 2002 but then rebounded through 2016, perhaps reaching sizes recorded before the plume harvest (BLI 2016). Differences in annual counts may reflect number of birds breeding overall in a given year (reduced in some years by birds skipping breeding when resources are not sufficient) as opposed to true population-size shifts (Pyle 2000, Arata et al. 2009, BLI 2016). A large tsunami and two other winter storms in Jan-Mar 2011 killed hundreds of adults and thousands of chicks on Kure, Midway, and Laysan, where biologists were stationed at the time (*NAB* 65:536). Chick counts were reduced on Kure between Dec and May 2011 by >85% (DOFAW 2012), and it is likely that populations were similarly affected on other breeding atolls.

The largest breeding colony by far was at *Midway*, where atoll-wide censuses of nests by USFWS in 1992-2015 ranged from a low of 284,600 in 2000-2001 to a high of 666,044 in 2014-2015 (Flint 2008, USFWS data) which extrapolates to a breeding population in 2014-2015 of over 2 million birds. It has been estimated that over 500,000 individuals were killed on Midway by plume hunters around the turn of the 19th century (Bryan 1906, 1911; Hadden 1941, Munro 1944; *E* 3:12-13, 16), and 1000's more during well-publicized efforts by the U.S. Navy to eradicate populations around the runways (Kenyon et al. 1958, Rice 1959, Robbins 1966, Arata et al. 2009). Only 2,800 breeding pairs were estimated in 1923 (Rice and Kenyon 1962), but populations steadily climbed thereafter, to 55,000 pairs in 1946 (Fisher and Baldwin 1946, *E* 6:12), 70-100,000 pairs during the late 1950s and early 1960s (Rice and Kenyon 1962, Robbins 1966), 400,000 pairs during the late 2000s (VanderWerf 2013a), and the high count of 666,000 pairs in 2014-2015 (see above). During the tsunami of Mar 2011 an estimated 110,000 Laysan and Black-footed albatross chicks (41% of those alive at the time) and 2000 adults were killed (*NAB* 65:536, VanderWerf 2013a), and many additional chicks subsequently perished due to being displaced from their nest sites to locations where their parents could not locate them.

One notable record is that of a female Laysan Albatross (named "Wisdom"; [HRBP](#) 6323) banded on Midway by Chandler Robbins in 1956 when it was incubating an egg, and recaptured tending a nest on Midway by the same ornithologist 46 years later (*NAB* 56:237). Wisdom was still present, successfully fledged a chick during the 2015-2016 breeding season, and returned again to lay an egg in Dec 2016, at a minimum age of 66 years (surviving the tsunami of March 2011; see above). Old worn bands had been replaced with new bands several times during the interim period. Given the chance at which such a bird could be documented and the number of birds in the breeding population it is possible that some of the birds there in the 2010s had witnessed the Battle of Midway in 1942.

The next largest population occurs on *Laysan*, where USFWS censuses from 1992-2009 ranged from 44,186 during the poor reproductive 2000 season and 103,689 in 2002, to 199,724 in 1997; the mean for these counts was about 150,000 (Flint 2008). This compared with estimates of 90,000 on Laysan in 1911 and 52,000 in Jun-Jul 1951 (Dill and Bryan 1912, *E* 12:18). At *French Frigate*, censuses from 1980-2011 showed a generally increasing trend, ranging from lows of 973 in 1980 and 1088 during the poor 2000 season to a high of 3899 in 2007 (Flint 2008, Keller et al. 2009, Hartzell et al. 2012, VanderWerf 2013a, Reynolds et al. 2013b). On *Kure*, numbers of chicks censused in June increased from 2924 in 2000 to 10,957 in 2006 (VanderWerf and David 2000,

Vanderlip 2005, 2007) indicating an increasing breeding population of an extrapolated (assuming 75% success) total of 14,609 pairs by 2006; a total population estimate of 20,255 pairs was recorded in 2011 (Vanderlip 2011) and around 25,000 were counted in each of the 2013-2016 seasons, with an abnormally high count of 38,000 nests in Dec 2014 (Saunter and Worcester 2016). Population estimates from other Northwestern Islands from 1982-2006 (Naughton et al. 2007, Flint 2008, VanderWerf 2013a) ranged from none on *Nihoa* (where breeding of up to 5 pairs has been observed in the past) to 26,500 on *Lisianski* (Table). Populations generally have increased throughout the 1900s and 2000s, despite harassment and disturbance from Naval activities on Midway and substantial mortality in the longline fisheries of Alaska through the 1990s (McDermond and Morgan 1993, Cousins and Cooper 2001, USFWS 2005b, Arata et al. 2009). Information on the history of the species and data on breeding phenology for each Northwestern Island, compiled as part of the POBSP, can be found in the Atoll Research Bulletins for each breeding locality (see [Seabird Page](#)).

In the *Southeastern Hawaiian Islands* about 780 pairs of Laysan Albatrosses were breeding on Ni'ihau, Kaua'i, and O'ahu in the mid-2010s, and occasional birds had been observed landing on most of the other islands (Table). On *Ni'ihau*, occasional breeding was reported on by Munro (1944) and Fisher (1951). During aerial surveys in the 1980s, Harrison (1990) indicated that 150-200 pairs bred on Ni'ihau and a count of 190 pairs in 2002 was obtained by the USFWS (Flint 2008), but this may have been reduced to 25 pairs by 2010 (E. VanderWerf, pers. comm.). On Kaula Rock SW of Ni'ihau, 20-50 pairs bred prior to the mid-1980s (Fefer et al. 1987, Harrison 1990), a count of 63 eggs was made there in mid-Nov 1998 (Flint 2008), and similar numbers of adults were recorded through 2016 (USNC 2016). On Lehua Islet just N of Ni'ihau, up to 89 pairs were observed in 2002-2016 (VanderWerf et al. 2007, Flint 2008, VanderWerf 2013a, USFWS data) although none fledged during the reduced-food-availability 2010-2011 season.

Subfossil bones of Laysan Albatrosses found in deposits on *Kaua'i* (Olson and James 1982b) suggest that these birds may have been breeding there when Polynesians first settled the island. More recently, two appeared on the ground at Makahuena Point near Koloa in March 1945 and returned 31 March 1946 (*E* 5:70, 6:80-81). At the Pacific Missile Range Facility (PMRF), Barking Sands, 4-10 were reported annually from at least the winter of 1967-68. Eggs were first documented in 1977-78 (*cf.* [HRBP](#) 0029), and adults increased to 25 and 30 individuals over the next two winters (Byrd and Telfer 1979, 1980a). In the following winters 20 or more Laysan Albatrosses were present and eggs were laid each year, but in the 1980s reproductive success at the colony was reduced or negated primarily because of dog attacks, human disturbance, and inexperience of the young adults, who were likely involved in initial breeding attempts (Byrd and Telfer 1980a, Moriarty et al. 1986). On 21-22 Feb 1984, dogs killed 30 adults and courting individuals (*AB*:38:359), representing nearly 75% of the colony (Telfer 1984). Increasing conflict with range activities resulted in control measures of the albatross colony by installation personnel through the 2000s, and in 2006 through the early 2010s up to 36 viable eggs and chicks (of about 75 attempts total) per year were trans-located from PMRF and swapped with infertile eggs at the Kilauea Point NWR and surrounding colonies (see below), resulting in many successfully fledged chicks. Beginning in 2014, eggs were also translocated to JCNWR on O'ahu (see below). At Kilauea Point NWR, Laysan Albatrosses began landing during the winter of 1974-75. A nest was discovered in

February 1977 on nearby Crater Hill (Zeillemaker and Ralph 1977), and by 1979 three chicks had fledged successfully there (Byrd and Telfer 1979, 1980a; Byrd and Zeillemaker 1981, Moriarty et al. 1986; *AB* 33:898). Despite increasing numbers of adults present each year ([Graph](#)), reproductive success languished in the 1980s for many of the same reasons cited above for the Barking Sands colony. Experimental fencing erected at Kilauea Point NWR resulted in 14 fledged chicks in 1990 (*AB* 44:333), and continued increases in population and success ([Graph](#)), to 95 eggs and 50 fledged chicks at the Kilauea Point colony and 200 eggs and 101 fledged chicks overall at Kilauea Point and surrounding properties in 2008. In 2011-2015 populations at Kilauea Point NWR averaged 132 breeding pairs (USFWS 2016, unpubl. data). During the 1990s-2010s pairs had also begun breeding on private golf courses and residential lands along the N coast on either side of Kilauea Point, from Princeville to Anahola. By the 2013-2014 breeding season, populations had increased to 87 eggs and 59 fledged chicks counted on these lands. Although domestic dogs killed at least 25 adult birds during the 2012-2013 season, increased efforts at fencing colonies and educating local residents during the early-to-mid 2010s was successful in protecting these colonies and resulted in increases in both the population sizes of breeding birds and their reproductive success.

A Laysan Albatross chick discovered on Mokumanu Islet in Feb-May 1947 (Fisher 1948b, *E* 7:72-73) and an abandoned egg found there the following year (Richardson and Fisher 1950) represents the first known breeding on *O'ahu*. One on nearby Mokapu Peninsula 14 Dec 1947 was the last observation from O'ahu until an adult was found dead on the highway near Waikane 30 Mar 1978, and two alighted briefly on a golf course at Kahuku 1 Apr 1978 (*E* 39:61). Thereafter, Laysan Albatrosses were reported annually in winter and spring along the north coast of O'ahu; by 1985 pre-breeding individuals were congregating at Kaena Point, Kuaokala GMA, and Dillingham Airfield along the nw. coast, Kahuku Point, and Mokapu Peninsula, and perhaps Mokulaeia Islet, and egg-laying was recorded at all of these sites (Young et al. 2009b; *AB* 39:352). Feared interference with aircraft operations at Dillingham Airfield and KMCAS at Mokapu Peninsula led to programs of harassment control, fencing, and egg and adult removal and relocation during the 1980-mid 2000s (Murphy 1991, Young et al. 2009b), and thereafter only occasional birds were observed at these locations through the mid 2010s. At Kahuku Point, a half-grown chick with 3 adults was found 7 Mar 1996 but dogs subsequently killed the chicks and at least five adults. No additional breeding was reported here through the mid-2010s but a program was initiated in 2014 to translocate fertile eggs from Kaua'i (see above) to a fenced area at the Ki'i Unit of JCNWR in an attempt to establish a colony here. At Kaena Point nesting began in 1990-1991 and the first chick was fledged in 1992 (*HFW* 7[1]:10; *AB* 46:1181). Breeding at Kaena and nearby Kuaokala GMA has continued annually (Young et al. 2009b, VanderWerf and Young 2011) and, based on extensive banding and recapture studies, the number of birds at Kaena had increased to 555 individuals in 2015, consisting of 135 pairs (270 individuals), 231 pre-breeders, and 54 birds that likely had skipped breeding that year (VanderWerf and Young 2016). In Mar 2009 the fenced-in colony of 20-30 adults and 15 half-grown chicks at the Kuaokala GMA completely vanished in what could only be a human-caused event, and another similar event occurred at the Kaena Point colony in Dec 2015, when up to 17 adults were killed and 12 nests destroyed by one or more humans. In 2011, the entire Kaena Point colony was freed of predators and fenced

(Young et al. 2013), which should result in enhanced protection for breeding Laysan Albatrosses and continued population increases.

During 1990-2003 the seabird rehabilitation center at Sea Life Park in Waimanalo received 50 Laysan Albatross, most successfully released. A project during 1993-2000 at tiny Kaohikaipu islet 600 m off Makapu'u Point used decoys and sound recordings to attract Laysan Albatrosses in hopes of starting a nesting colony (*E* 56:4). Occasional birds landed on the islet each year for brief periods but none remained to breed. By the mid-1990s the Kaohikaipu project was disbanded. A similar project using decoys was initiated in the dune area at the Ki'i Unit of JCNWR in the mid-2010s.

The other Southeastern Islands (except Kaho'olawe) each have one or more records of Laysan Albatrosses on land but no substantiated evidence of breeding. On *Moloka'i* a pair (one of which may have been on a nest) was observed on a cliff top just south of 'Ilio Point 22 Mar 1986. Otherwise there have been sightings of at least 5-6 individuals on shore or flying over shore from 1988 to 2015, including on two or more occasions on Kalaupapa Peninsula (e.g., [HRBP](#) 0740) and along the island's western coast. On *Lana'i*, a dead Laysan Albatross was found on Hauola Beach 12 Mar 1980 (BPBM 157352). On *Maui*, one was picked up in a yard in Kihei 7 Mar 1996, banded, and released; two were observed circling low over coastal Waianapanapa State Park 16 Mar 1985; and two were flying over Ho'okipa Beach SP 10 Feb 2004. On *Hawai'i I*, after the specimen of 1876 (see above), single Laysan Albatrosses have been reported on land near Keahole 16-18 Apr 1981 ([HRBP](#) 0144-0146; *E* 42:29-30) and 8 Feb 1984, Loko Waka Pond near Hilo 11 Feb 1983 ([HRBP](#) 0331), Upolu Point 13 Apr 1984, Keokea Beach Park 5 May 1985 and (a pair) 28-29 Apr 2015, and on South Point 8 Jan 2011.

From the 1980s through the 2010s, flying birds were seen increasingly away from colony areas in Nov-Mar from the shores of all the Southeastern Islands including *Kaho'olawe* (Morin *et al.* 1998). At least 3 were foraging near a dead whale 30 km N of Kaua'i 16 Feb 2015 ([HRBP](#) 6923). *At sea*, Laysan Albatrosses are seen uncommonly during the breeding season and in northern Hawaiian waters and rarely during times of colony absence or in waters south of Hawai'i I, where one was photographed 7 km off Kipahohoe Bay 11 May 2012 ([HRBP](#) 6041) and several other singles were observed from different on-shore locations in 2008-2016. During monthly surveys near the Southeastern Islands in Mar 1964-Jun 1965, King (1970) recorded only 29 individuals, one in Nov and the remainder in Feb-Apr. Only three of these were south of 20° N. [HICEAS](#) surveys in 2002 and 2010 recorded only one bird during 168 days in Southeastern Hawaiian Island waters, on 28 Nov 2002 off Kaua'i. Spear et al. (1999) recorded none during surveys S to SE of Hawai'i I. in spring and fall, 1984-1991.

### [Acronyms and Abbreviations](#)

### [Literature cited](#)

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