

WEDGE-TAILED SHEARWATER

Puffinus pacificus

Other: 'Ua'u kani

monotypic

breeding visitor, indigenous

Wedge-tailed Shearwaters are found abundantly throughout the tropical Pacific and Indian oceans (Harrison 1983, AOU 1998, Wiles 2005, Whittow 1997) and are the most ubiquitous Procellariiform in the Hawaiian Islands. They breed commonly on almost every island in the archipelago and on many small offshore islets, adults arriving at the colonies in Mar, departing primarily during Sep-Nov, and remaining away from colonies and being scarce in Hawaiian waters for a short time in Jan-Feb (Richardson and Fisher 1950, King 1974, Byrd et al. 1983, Whittow 1997); young fledge primarily in Nov and are found in Hawaiian waters through Dec. Populations in the north Pacific, including Hawaii and Wake Atoll (Rauzon et al. 2008), are primarily light morph, with whitish underparts. Those in the equatorial and S Pacific generally south of 10° N latitude are primarily dark morph, with uniform sooty brown underparts and upperparts. Low proportions (< 1%) of dark-morph and intermediate-morph birds are found in Hawaiian waters (e.g., King 1974; [HRBP](#) 5624, 5799-5800) and rarely among breeding colonies in Hawaii (*cf.* Stejneger 1889, Rothschild 1900). Leucistic individuals (e.g., [HRBP](#) 1334-1337) are occasionally encountered, and an unidentified albino shearwater photographed off Hawai'i I in May 1990 ([HRBP](#) 0924-0927) was most likely a Wedge-tailed.

An estimated 230,000 pairs of Wedge-tailed Shearwaters bred in the *Northwestern Hawaiian Islands* during the 2000s ([Table](#)); in descending order, the largest colonies are found on *Laysan*, *Nihoa*, *Lisianski*, *Kure* and *Pearl and Hermes*, *Midway*, *Necker*, *French Frigate*, and *Gardner Pinnacles*, where lack of suitable nesting habitat limits the population to at most 50 pairs ([Table](#)). On Midway, they were abundant on Eastern I in 1902 (Bryan 1906) and a population of 33,000 pairs was estimated in 1945 (Fisher and Baldwin 1946). The population size decreased to a low point of 1-3000 pairs during the 1960-1980s due to disturbance by rats and human activities (King 1974, Fefer et al. 1987), but has recently increased again, perhaps to 5,000 pairs, but a systematic survey is needed. On Kure, burrow surveys in 2000 (VanderWerf and David 200) resulted in an extrapolated estimated 7,500 pairs on the island, up from an estimate of 1,000 in 1984, and likely representing an actual increase there due to removal of rats in 1994 and lessening of human disturbance since the LORAN station was closed in 1992. On the other islands, populations of this species appear to have changed little from historical counts, the "scanty numbers" reported by Rothschild (1900) based on Palmer's expedition in June-July 1891 perhaps related to the species' nocturnal habits and burrowing tendencies. 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*, Wedge-tailed Shearwaters probably bred in large numbers prior to human settlement. Many bones have been found at fossil sites on Kaua'i, O'ahu, Moloka'i, and Hawai'i (Olson and James 1982b). In historic times, human disturbance and predation by dogs, cats, and other non-native mammals has severely restricted successful nesting on inhabited main islands. Larger colonies have fared better on small offshore islets relatively free from mammalian predators and human disturbance, although, even here, Hawaiian fishermen would visit these islands in the

early 1900s to catch them in nets (Northwood 1940b), and visitation from fisherman and kayakers through the 2000s continued to cause some disturbance to colonies. During the 2000s breeding populations existed on all eight islands (and nearby islets) with a population estimate of about 67,000 breeding pairs, ([Table](#)).

No current population estimates are available for Wedge-tailed Shearwater breeding colonies on *Ni'ihau*; Fisher (1951) could not find evidence of breeding in Aug 1947. Fisher (1951) and Richardson (1963) did observe them breeding abundantly on Lehua Islet off the N end of Ni'ihau, and VanderWerf et al. (2007) estimated 23,000 pairs breeding there in 2002-2005. Harrison (1990) indicated that 1500-2500 pairs bred on Kaula Rock SW of Ni'ihau. On *Kaua'i*, a 1978 survey of 18 coastal sites found 3855 burrows of which about 2800 were in the Kilauea Pt. area (Byrd and Boynton 1979). Fledging success that year at Kilauea Pt. was ~50%, but was less at other sites where disturbances from dogs, humans, horses, and cattle were major threats to the colonies. With improving protection the colony at Kilauea Pt. had 1600 active burrows with eggs and chicks on 30 July 1999, most of which probably fledged successfully, and nesting burrows increased to several thousand by 2004. Another extensive colony flourishes in bluffs along the S shore of Kaua'i from Spouting Horn to Port Allen.

Apart from that on Lehua I, the largest islet colonies in the Southeastern Islands are found on islets off the ne. shore of *O'ahu*, where DOFAW conducted population surveys during 1995-2007 ([Table](#)) Largest colonies occur on Manana, the two islets of Mokulua, Moku'auia, and Mokumanu islets, with smaller colonies present on several other islets ([Table](#)). On Manana disturbance by humans (including the collection of birds and eggs for eating) and military activity resulted in extirpation of the shearwater colony during the early 1900s (Fefer et al. 1987; *E* 1[8]:1-4) but breeding had resumed there by the 1950s. On Mokoli'i Islet rats were removed in 2002, resulting in an increase in chick production from 1 in 1999-2001 to 185 in 2003. On the island of O'ahu, a thriving colony in Kaena Pt. Natural Area Reserve has grown, with adequate protection, to an estimate of about 1,500 burrows in 2007. Smaller colonies with minimal but growing protection have been reported at Black Point in E Honolulu (*E* 67:1-2), at Mokapu Peninsula, and at Malaekahana N of Laie. At the last site 40 predated carcasses were found 16 Jun 2000.

On Moku-ho'oniki Islet and Kanaha Rock off *Moloka'i*, 1,210 burrows were counted in 1981 (*E* 50:77), but no other information exists pertaining to this species on these islets. At Mo'omomi Dunes, predator control measures initiated in 1999 allowed a small colony to grow through the 2000s to about 400 pairs, although dogs are still a threat (50 adults were killed by a dog in Apr 2009). Offshore of *Maui*, recent (Apr 2005) visits to islets produced burrow counts of 1000s on Alau, 100s on Moke'ehia, about 100 on Moku Mana and Hulu, 75 on Keopuka, and 12 on Moku Pipi. Molokini islet also has an estimated 1000-1500 breeding pairs. On Maui itself small colonies have persisted at Hawea Point (estimated 275 burrows in 2005), Hakuhe'e Pt. and Waihe'e Pt. N of Wailuku, at Pauuwalu Pt. E of Keanae, and near Ho'okipa Beach Park E of Kahului. In 1999-2000 a study found that 65% of active burrows on Maui failed to fledge a chick successfully, while only 17% on Molokini Islet failed (Hurley 2002). The Ho'okipa colony was devastated during Aug 2002 when one or more feral cats killed >100 adults and destroyed 22 eggs, leaving only 15 of the original 73 burrows still active, most of which failed to fledge a chick. Wedge-tailed Shearwaters also breed sporadically in small numbers on *Lana'i* (Munro 2007), *Kaho'olawe* (e.g., Conant 1983a), and *Hawai'i I* (e.g. Honokohau 1998-2000), and small numbers are known to breed on one or more coastal islets off of the first two islands, at least (e.g., Hirai 1978b, Munro 2007). Over the years

Wedge-tailed Shearwaters probably have attempted to nest at other sites in the Southeastern Islands and may have established other small colonies not as yet reported.

Chicks fledging from offshore islets during late fall often become stranded on O'ahu beaches. Citizens pick up many for rehabilitation at SLP in Waimanalo, O'ahu (Sea Life Park 1990-2003, unpublished Annual Reports of birds received for rehabilitation). Hundreds of fledglings are turned in each year during Aug-Dec, and fewer than 30 adults are received each Jan-Jul. About 20% die, about 70% are released with bands. In 1994 a phenomenal 1,196 birds were turned in, probably reflecting high reproductive success that year; counts otherwise have varied from a low of 117 in 1992 to 575 in 1999. Year-to-year differences in totals received reflect citizen effort to retrieve birds and food and wind conditions during fledging, as well as breeding success.

Wedge-tailed Shearwaters are observed commonly from shore and from boats offshore (e.g., [HRBP 5793](#)), where they often feed in association with sub-surface schools of tuna (Hebshi et al. 2008). Occasionally much larger numbers are observed flying or rafting offshore; e.g. flocks of 1,000 or more reported just off Kilauea Point, Kaua'i in Aug 2000; in Kaula Kahi Channel W of Kaua'i 23 Apr 2000 and 2 Apr 2002; off Kaho'olawe on 24 Jul 2003; off O'ahu 18 Sep 2005; and off Kailua-Kona, Hawai'i I 6 May. During 25 Mar-1 Apr 2000 nearly 30,000 birds were counted in the evenings from two locations on Kaua'i (*AB* 54:330). After chick fledging ends in December, Wedge-taileds are rarely observed offshore until breeding adults return in early March, although scattered records of 1-3 individuals exist off all islands in Dec-Feb (e.g., [HRBP 5807](#)).

Farther *at sea*, Wedge-tailed Shearwaters are recorded commonly from research vessels out to 370 km (200 nmi) from the islands. During monthly surveys in 1964-1965 King (1970) found Wedge-taileds within 370 km of the Southeastern Islands in large numbers during Apr-Oct, fewer in Dec-Jan, and none in Feb. One flock of 700 birds was observed a few miles from O'ahu on 20 Sep 1964. Dark-morphed birds occurred more commonly S of 15 N latitude and appeared farther N in larger proportions in June and July. Ten birds E of Hawai'i I. during July 1964 were the only dark-morphed birds recorded within 370 km of the Hawaiian Islands (King 1970). During survey cruises out to 370 km SE and S of Hawai'i I. in 1984-1991 Spear et al. (1999) reported high densities of Wedge-tailed Shearwater in Apr-Jun. Densities were lower in Oct-Nov, and in both seasons they decreased consistently with distance out to 200 nmi. A few dark-morph birds were observed in both spring and fall. The HICEAS cruises surveying all Hawaiian waters out to 370 km during Aug-Nov 2002 recorded 40,066 Wedge-tailed Shearwaters (Rowlett 2002). These included 1001 intermediate morph birds and 128 dark morph birds, most of the latter in August. Wedge-taileds were missed on only 9 of 93 observing days, all at 240-370 km N of the central islands in late Sep-Oct.

We follow Clements (2007) in considering Wedge-tailed Shearwaters monotypic; populations breeding on islands off Mexico may warrant subspecies status, in which case Hawaiian breeding birds would be considered nominate ("*P.p. pacificus*"). Hawaiian breeding birds were referred to in the older literature as "*P. cuneatus*" or "*P.p. cuneatus*".

[Acronyms and Abbreviations](#)

[Literature cited](#)

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