

## HAWAIIAN PETREL

## *Pterodroma sandwichensis*

Other: Dark-rumped Petrel (<2002) 'Ua'u, 'Uwa'u

monotypic

### **breeding visitor, endemic, endangered**

Hawaiian Petrel was split from Galapagos Petrel (*P. phaeopygia*) by the AOU (2002; see [Synonymies](#)) following Tomkins and Milne (1991) and Broirown et al. (1997); the combined species formerly being known as "Dark-rumped Petrel *P. phaeopygia*". Hawaiian Petrel thus became an endemic breeding species, nesting in small colonies on most of the Southeastern Hawaiian Islands (Banko 1980a). Subfossil records (Olson & James 1982a, Giffin 1993) and reports from the 1800s by early ornithologists (e.g., Bloxam 1827a, Finsch 1880; cf. Henshaw 1902a, Perkins 1903, *E* 2:24-27, *E* 16:46; Banko 1980a; Simons and Simons 1980) indicate that Hawaiian Petrels occurred abundantly on the *Southeastern Hawaiian Islands* prior to and during Polynesian settlement, with large colonies still extant on most islands at the start of the 20th century. But by the mid 1900s colonies were restricted to high elevations, usually in steep terrain where population sizes have been difficult to estimate (Simons 1984, 1985). Habitat destruction of colony sites, consumption by native Hawaiians, and disturbance from mammalian predators were likely the primary reasons for the declines.

Based on statistical modeling of pelagic observations in 1980-1994, Spear et al. (1995) estimated 3750-4500 breeding pairs among a total population of 19,000 individuals, but only about 2900 pairs have been estimated based on observations at colony sites documented thus far ([Table](#)). Birds arrive at colonies in Feb and young fledge in Oct-Nov. When not at breeding colonies they apparently disperse into a wide area of the Pacific, to the SE as far as 125° W, N into the s. Gulf of Alaska, and E as far as the California Coast (Pitman 1986, Spear et al. 1995, CBRC 2007), although our understanding of at-sea distribution has been clouded by difficulty in separating Hawaiian and Galapagos petrels based on morphology and plumage (Force et al. 2007). Additional information on biology and historical and current distribution of this species in Hawaii can be found in Banko (1980a), USFWS (1983b), Simons (1983, 1984, 1985), Bartle et al. (1993), Ainley et al. (1995, 1997a), Simons and Hodges (1998), BLI (2009), and Holmes and Joyce (2009a). Banko (1979) summarized 72 known specimens, the earliest collected at an unspecified location in Apr 1862.

On *Kaua'i*, Hawaiian Petrels were observed and collected by the Knudsens in the 1800s at various locations (Stejneger 1887, *E* 2:24-27, Banko 1980a). Based on these specimens, Ridgway (in Baird et al. 1884) hesitatingly named it *sandwichensis*, being uncertain whether or not it was conspecific with the Atlantic Black-capped Petrel (*P. haesitata*) until he could compare specimens of the two species side-by-side (Ridgway 1886, 1888). It had earlier been referred to as "*Procellaria alba*" by Bloxam and Dole ([Synonymies](#)), assuming it to be the same as [Phoenix Petrel](#) (cf. Loomis 1920). Damon (1931) reported Hawaiian Petrels breeding commonly in Kilohana Crater NW of Lihue. During the 1990-2000s the island-wide breeding population was estimated in the high 100s to 1600 pairs based on numbers of birds flying onshore near dusk, primarily along the N shore of the island (Ainley et al. 1995, 1997a; Day and Cooper 1995). As many as 900 individuals have been recorded by radar at Hanalei Bay in one evening (14 Apr

1993), and multiple individuals (up to 70) have been observed from shore near sunset at Haena, Kilauea Point, Lihue, Wailua River mouth, Poipu, Hanapepe, and Waimea Canyon. Fledglings are picked up annually in the Save-Our-Shearwaters program (see [Newell's Shearwater](#)) during Oct-Dec along roadsides throughout the island, generally <10 per year since 1979 with peaks of 15-29 in five years since 1990 (Rana Productions 2004; *HFW* 5[4]:9). Of 305 brought in during 1979-2008, 278 were released and 27 perished (Holmes and Joyce 2009a). Observations of multiple calling birds (*e.g.*, Gon 1988, and 20 in the vicinity of the Mt. Waialeale summit on 2 May 1999) suggested breeding in the central mountains of the island. During surveys in 2006-2008 colonies were located in the Upper Limahuli Preserve and at Hono a Napali near the ne. coast, and at Kahili-Kapalaoa in the sc. portion of the island (Holmes and Wood 2007, Deringer and Holmes 2009, Holmes and Joyce 2009a). There is little evidence for population change on Kaua'i during the 1980-2000s. One observed 15 Jul 2004 near Lehua Islet off *Ni'ihau* suggested the possibility of its breeding there (VanderWerf et al. 2007).

Although subfossil bones indicate abundant populations of Hawaiian Petrels prior to European contact, primarily on the Ewa plains, sw. *O'ahu* (Olson and James 1982a, 1982b), no breeding has subsequently been recorded on the island (*E* 2:24). Ten individuals found in various localities around O'ahu since 1991 have been turned into SLP for rehabilitation. Individuals have also been regularly observed since 1966 during single-day offshore trips in Apr-Oct. On *Moloka'i*, Hawaiian Petrels were commonly observed and confirmed to be breeding in the late 1800s and early 1900s in upper valleys (primarily Pelekunu Valley) and in lowlands including Moku Ho'oniki Islet off the east end of Moloka'i (*E* 16:46-47, Banko 1980a). Bryan (1908, 1914) collected 51 specimens (BPBM 4662 et seq., AMNH 193238-41) at Wailau Valley, Oloku'i Plateau, and Moanui in 1907-1917 (Banko 1979). Small numbers heard in 1980 in upper Wailau Valley (Simons and Hodges 1998) may indicate continued breeding. Radar studies in June 2002 suggested that some Hawaiian Petrels were moving at night into several valleys on the N coast of Moloka'i, E of Kalaupapa Peninsula, and they may be breeding there (Day et al. in review).

Hawaiian Petrels were reported to breed in the northern portion of *Lana'i* in the 1800s (Munro 2007; *E* 2:26). Wings and humeri of five birds killed by cats were collected in Kaiholena Gulch, NE of Lanai City 11 Sep 1896, possibly including BPBM 7186 accessioned in 1926 (Munro *in* Gregory 1927). No subsequent observations were reported from Lana'i until a juvenile was caught, photographed, and released on Munro Trail above Kaiholena 26 Oct 1973 (*E* 35:19), 50-100 calling birds were estimated near the crest of Kunoa Gulch, NW of Lana'ihale Peak, in June 1976 and May 1977 (Hirai 1978a, 1978b), and up to 100 individuals were recorded at this site during the early 1980s. Four juveniles attracted to bright lights were turned in for rehabilitation in Oct-Nov of 1980-1987 (*e.g.*, *AB* 41:148). In spring 2007 USFWS and University of Hawaii researchers discovered a large colony of Hawaiian Petrels breeding in cloud forest of Lana'ihale Peak (*HE* 18[3]:4). Preliminary population estimates for this colony were of 500-750 pairs, perhaps comparable in size to that on Mt. Haleakala (see below). Management efforts were immediately taken to control mammalian predators. On *Kaho'olawe*, Hawaiian Petrels were heard in flight at the island's summit in July 1982 (Conant 1983a) and a nest with chick was reported from Aleale Islet during the summer of 2000.

Banko (1980a) summarizes historical evidence of Hawaiian Petrels breeding on *Maui*, primarily on the western slope of Haleakala. During the 1980-2000s breeding populations occurred around the rim of Haleakala Crater in Haleakala National Park (*E* 12:32, 20:41-42; Richardson and Woodside 1954, Richardson 1954a, Dunmire 1961, Buxbaum 1972, van Riper and Barbee 1978, Kjargaard 1978, Conant and Stemmermann 1979) and in the W Maui Mts (Cooper and Day 2003, BLI 2009). The Haleakala population was estimated to number 450-650 breeding pairs and 1,800 individuals in the 1980-1990s (Simons 1985, Simons and Hodges 1998), and the W Maui populations may number around 100 (BLI 2009), although radar observations suggest that this island-wide estimate may be low (Cooper and Day 2003), and it may be increasing due to increased reproductive success in response to predator-control in the colony areas (Scott et al. 1988, Hodges and Nagata 2001, BLI 2009). Beginning in 1953, up to 10 individuals per year have been attracted to bright lights on Maui and recovered or rehabilitated during Aug-Nov (Richardson 1954, Gassman-Duvall et al. 1988; BPBM 6651).

On *Hawai'i I*, Hawaiian Petrels were first noted by Bloxam (1827; *cf.* Olson and James 1984) and reported to breed abundantly in lava beds between Mauna Loa and Mauna Kea in the 1800s (Henshaw 1902a). Beginning in 1948 (Baldwin and Hubbard 1949) observations of calling, nesting, and recovered individuals have indicated continued breeding of smaller numbers in this area, near Kilauea Crater and on the se. slopes of Mauna Loa (at 2,400-2,900 m elevation), and on Hualalai, perhaps totaling 100-200 pairs (Richardson and Woodside 1954, Eisenmann 1961, van Riper and Barbee 1978, Banko 1980a, Conant 1980a, Hu and Glidden 1997, Hu et al. 2001, Day et al. 2003a; *E* 21:13; *HFW* 6[1]:8; see also Giffin 1993). On the upper slopes of Mauna Loa they often breed in pits that were apparently constructed by native Polynesians to capture Dark-rumped Petrels; population viability analyses suggest that this population may not persist (Hu et al. 2001).

Hawaiian Petrels are often recorded from shore and from research vessels *at sea* around the Southeastern Hawaiian Islands (King 1970, Spear et al. 1999, Rowlett 2002; [HRBP](#) 0781-0783, 5617, 5801-5803, 5855-5856, 5908), commonly in Apr-Nov and in smaller numbers in Dec-Mar (e.g., [HRBP](#) 5801-5803). Only a few observations exist west of Ni"ihau, the westernmost being one observed 92 km N of Laysan on 28 Aug 2002 (Rowlett 2002).

### [Acronyms and Abbreviations](#)

### [Literature cited](#)

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