

BAND-RUMPED STORM-PETREL

Oceanodroma castro

Other: Hawaiian Storm-Petrel, Harcourt Storm-Petrel,
Madeiran Storm-Petrel, 'Ake'ake, 'o'e'o'e,

monotypic

breeding visitor, indigenous, endangered (State)

The Band-rumped Storm-Petrel breeds in localized populations and disperses widely throughout the world's tropical and subtropical oceans (Harrison 1983, AOU 1998), although there were suggestions during the 2000s to split it into numerous cryptic species (USFWS 2015). In the Pacific, breeding has been documented at the Galapagos and Hawaiian Is, in Japan, and possibly on Cocos I off Costa Rica (Spear and Ainley 2007). Small breeding colonies currently exist in the *Southeastern Hawaiian Islands* (summarized in Banko *et al.* 1991, *E* 50:47-51, Wood *et al.* 2002, USFWS 2005c, Raine *et al.* in press). Bones of Band-rumped Storm-Petrels have been found commonly in Polynesian midden sites of most or all of the Southeastern Hawaiian Islands (Olson and James 1982b, Harrison *et al.* 1990), including Kaho'olawe (Gon *et al.* 1992, Olson 1992a), indicating greater abundance as a breeding species before the introduction of rats and other mammalian predators (Slotterback 2002, Wood *et al.* 2002). Calling birds are heard in May-Jul and grounded fledglings are found in Aug-Nov, suggesting that breeding occurs during the spring and summer without evidence for an additional winter breeding season as has been documented elsewhere (Raine *et al.* in press). There are as yet no confirmed records from the Hawaiian Islands between late Nov and early Apr, numerous reports of this species not eliminating [Leach's Storm-Petrel](#) (Pyle *et al.* 2016). Based on suspected small colony sizes and threats from introduced mammalian predators, the Hawaiian population of Band-rumped Storm-Petrel was listed as a state endangered species by the State of Hawaii (USFWS 2005c, 2015) and as a Federally Endangered Species in Sep 2016.

Dole (1869, 1879) makes reference to "an unnamed species [of storm-petrel, *Thalassidroma*] from the Hawaiian Islands in the Smithsonian collection", which undoubtedly refers to two specimens apparently collected in 1864-1865 by W.T. Brigham, probably on Moloka'i (Olson 1992), and accessioned in 1866 (USNM 41949-50). Later in the 1800s, Valdemar Knudson and/or his son collected two fledgling Band-rumped Storm-Petrels near Waimea, Kaua'i, and sent them to USNM where they were accessioned in 1872 (USNM 61260-61). These specimens were eventually identified (Ridgway 1882, Stejneger 1887, Henshaw 1902a) as "*O. c. cryptoleucura*", an endemic Hawaiian subspecies of Band-rumped Storm-Petrel, but all described subspecies were later synonymized by Austin (1952) and Harris (1969). Other birds were collected on Kaua'i in the 1890s (BPBM 6155, 156975; USNM 115461-62) and live birds were reported from suitable nesting habitats on mountainous cliff faces (Bryan and Seale 1901). Specimens were also reportedly collected on Ni'ihau around this time (Wilson and Evans 1899) but the whereabouts of these are unknown.

Through the 2000s a few more specimens were collected (Crossin 1974; USNM 496572; BPBM 177906, 185162) and birds observed (Munro 1944, Richardson and Bowles 1964, Gould 1983) on or near *Kaua'i* and *Ni'ihau*, including, more recently, at least 36 grounded fledglings found 1 Oct –23 Nov, in 1978-2016 on Kaua'i or on cruise

ships off Kaua'i ([SOS data](#); *E* 41:72; Harrison et al. 1990, Rana Productions 2004, Holmes and Joyce 2009b, Pyle et al. 2016; BPBM 177906; [HRBP](#) 0032-0037, 1133-1134, 5879-5880, 6264-6265). One individual banded and released as a fledgling 19 Sep 2014 was turned in again on 1 Aug 2016 and again released ([SOS data](#)). Several observations of birds just off shore were recorded in Jun and Jul, 2011-2015. During recent extensive surveys, Wood et al. (2002; see also USFWS 2005c, 2015; Holmes and Joyce 2009b) identified several potential nesting locations and found one nest site in Waimea Canyon, along the Napali Coast, in the Awa'awapuhi region of Kokee SP. Extensive follow-up surveys by Raine et al. (in press) found highest concentrations in remote upper valleys along the Napali Coast with sporadic detections in other valleys and canyons throughout the island (*cf.* [HRBP](#) 6261-6262). Nesting areas are on steep rugged cliffs or talus slopes where nest crevices are extremely difficult to locate (Wood et al. 2002, Raine et al. in press). Breeding population size for Kaua'i is thus very difficult to determine but has been estimated at 171-221 pairs, with probably additional breeding along other sections of the remote Napali Coast ([Table](#); Wood et al. 2002, USFWS 2015). Rafts of perhaps up to 100 birds (if not [Leach's Storm-Petrels](#)) have been observed offshore Kaua'i (see below), suggesting that the breeding population may be larger than this or increasing. They also appear to breed in small numbers on Lehua Islet off Ni'ihau (Wood et al. 2002, USFWS 2005c, VanderWerf et al. 2007, Raine et al. in press), where a skeleton was recovered, up to six birds were observed at dusk in Jun 2003 (USFWS 2005c), and numerous calling birds were detected in 2013-2015 (Raine et al. in press). Confirmation of breeding on Lehua is needed, especially in light of an explosion of the rat population there following failed eradication attempts in 2008.

Breeding colonies of Band-rumped Storm-Petrel are also suspected of occurring on *Maui* and are confirmed for *Hawai'i I* (Slotterback 2002, USFWS 2005c, Galaise et al. 2016). On Maui, storm-petrels have been heard within Haleakala Crater in late June 1970, 8 Aug 1983, and Aug 1992 (Harrison et al. 1990, Wood et al. 2002) and there were further observations in the 2010s (USFWS 2015), although confirmed evidence for breeding is thus far lacking. On Hawai'i I (see Banko et al. 1991), downy chicks have been found near Volcano on 28 Oct 1949 (USNM 529770), near Kulani Correctional Facility on 20 Oct 1988 (BPBM 177920), and on the N to E slope of Mauna Loa 6 Apr 1994 (BPBM 183608), an adult was found dead at the last location 3 Sep 2001 (BPBM 184416), and an apparent inactive nest was found at 2600 m elevation on the se. slope of Mauna Loa (USFWS 2005c). Adults have also been heard calling along the southwest rift of Mauna Loa in 1968, 1973, and 1992; the latter observation involved "several dozen birds assumed nesting in the area" along the Upper Mauna Loa strip road on the nights of 22 and 23 Jun 1992 (see also Wood et al. 2002). Calling birds were also reported over Captain Cook on 13 Jul 1990, one was reportedly found dead in Hilo 28 Jul 1993, one was probably observed near Kaimu SB 17 Jul 2013, and several individuals were recorded during shore-based seawatches, primarily from Keahole Point, 24 Jun-1 Sep 2014. Radar surveys around the island have also detected birds beginning in the 2010s (Reynolds et al. 1997a; USFWS 2005c, 2015). Finally, multiple calling birds have been recorded along the S slopes of Mauna Kea at the Pohakuloa Training Facility, a storm-petrel was video-recorded entering a cavity and a predated chick was found there (Galaise et al. 2016). Based on the above evidence we presume at least 30 pairs breed on Maui and

50 pairs breed on Hawai'i ([Table](#)) but the numbers could easily be larger given how difficult nests of this species are to locate.

The only other records of Band-rumped Storm-Petrels ashore have been from *O'ahu*, where one was observed flying near the Honolulu Airport 18 Jul 1990 and one was rehabilitated at Sea Life Park 21-24 Jun 2005. There are as yet no confirmed recent records for Moloka'i, Lana'i, or Kaho'olawe, although it is possible that two specimens collected in 1864-65 came from Moloka'i (see above).

Offshore and *at-sea* reports of Band-rumped Storm-Petrels occur primarily in the vicinity of the suspected breeding colonies during Apr-Oct (King 1967, Crossin 1974, Pitman 1986, Spear and Ainley 2007). Most reports have occurred in the Kaulakahi Channel off Kaua'i and off Kona, Hawai'i (*cf.* Harrison et al. 1990, Banko et al. 1991, Pyle et al. 2016; [CRC data](#); [HRBP](#) 0766-0768, 0860-0862, 5229, 5361, 5771-5775, 6253-6254, 6257-6260, 6266-6272, 6745), with high counts in the Kaulakahi Channel of 27 on 28 Jul 1993, 18 (including 10 in one flock) 28 Jun 2005, and 14 on 15 Jun 2012. Crossin (1974) recorded "a considerable number" on 25 June 1966. Rafts of a few birds up to 25 (17 Apr 2009) and perhaps up to 100 have also been reported (USFWS 2005c), which might consist of adults awaiting nightfall to come ashore. They have been observed less frequently off Maui and O'ahu (7 birds in Apr-Jun, 1989-2001). Spear et al. (1999) recorded 2 in mid April SE of Hawai'i I during spring and fall surveys in 1984-1991 and King (1970) recorded none during his surveys but admitted that he may not have adequately distinguished them from Leach's Storm-Petrel. Spear and Ainley (2007) recorded 10 birds S of Hawaii during surveys in 1980-1995 and noted that fewer seemed to be present than during surveys in the 1960s (Crossin 1974). Observers on [HICEAS](#) cruises recorded 30 individuals in Aug-Oct 2002 within the vicinity of the Southeastern Islands in expected locales.

The only substantiated records of Band-rumped Storm-Petrels in *Northwestern Hawaiian Islands* waters were of five noted by [HICEAS](#) observers 90-370 km N of Nihoa and Necker in Aug-Sep 2002 (Rowlett 2002; [HICEAS data](#)), and one reported near French Frigate 19 Sep 2012, times of the year in which [Leach's Storm-Petrels](#) are absent or rare over Hawaiian waters. Crossin (1974) reported 10 or more observations in Northwestern waters by POSBP personnel, with a concentration of records around Laysan and one in the vicinity of Pearl and Hermes, the farthest NW report for the islands, but we consider these unsubstantiated, along with other sight reports from these areas and off Midway without descriptions in Dec 2009 and Apr and Oct 2012. Three reported landing on a ship at Midway in Nov 1907 (Mearns 1909) were later confirmed as Leach Storm-Petrels (Bartsch 1922), and Rothschild's initial report (in 1893) of Band-rumped Storm-Petrels from French Frigate was based on confusion with [Tristram's Storm-Petrel](#) (Rothschild 1900).

[Acronyms and Abbreviations](#)

[Literature cited](#)

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