

## HAWAIIAN GOOSE

## *Branta sandvicensis*

Other: Hawaiian Goose (<1998)

monotypic

### **native resident, endemic, endangered**

We refer here to the Hawaiian Goose by its Hawaiian name "Nene". The Nene, a species endemic to the *Southeastern Hawaiian Islands* and the official state (formerly territorial) bird of Hawaii (Bryan 1958), was well-known by the first European explorers to visit Hawaii; e.g., both wild and domesticated individuals were noted during Cook's voyage as early as 23 Dec 1778 (Ellis 1782; Cook and King 1784, and in Beaglehole 1967:630). Meares (1791) noted 12 geese being given as a gift to a passing ship in 1789, and Archibald Menzies (1794) reported them between Hualalai and Mauna Loa on Hawai'i I as "quite a new species not yet described". It was finally described by Vigors (1834) based on two birds sent from Hawai'i I to London in 1832 by the well-known N American botanist David Douglas (Wilson and Evans 1899, Olson 1989a), who met his mysterious death on the island two years later. Although placed in a monotypic genus ("*Nesochen*"; Salvadori 1895) until 1993 based on the lack of webbing to the toes (AOU 1993; see [Synonymies](#)), the Nene's closest relatives are the [Canada](#) and [Cackling](#) geese (Miller 1950, Livezey 1996, Quinn et al. 1991, Paxinos et al. 2002, AOU 2004), a species that infrequently occurs in Hawaii, and the Nene has since been placed in *Branta* (see also Delacour and Mayr 1945). Molecular data suggest that the Nene diverged from these taxa < 500,000 years ago (Fleisher and McIntosh 2001, Paxinos et al. 2002). At least two other species of *Branta*, closely related to Nene, are known from the subfossil record (Olson and James 1982b, 1991; Burney et al. 2001, Fleischer and McIntosh 2002; Paxinos et al. 2002, Ziegler 2002), including a very large species that may have been flightless on Hawai'i I and another large species on Kaua'i, O'ahu, and Maui. Another large fossil goose from Hawai'i I, named *Geochen rhuax* by Wetmore (1943), may or may not be related to the *Branta* assemblage.

At the time of description the range of Nene was probably restricted to the upper slopes of Maui and Hawai'i I (Peale 1848; Cassin 1858; Finsch 1880; Dole 1869, 1879; Wilson and Evans 1899; Perkins 1903; Brigham 1909; Baldwin 1945a), although remnant populations possibly persisted on Moloka'i through the 1920s (Munro 1952, Banko and Elder 1990). Declines were noted as early as 1850 and were precipitous during the second half of the 19th century (Henshaw 1902a, Baldwin 1946, Banko and Elder 1990). After nearly becoming extinct in the 1940s, Nene populations are currently persisting with the help of reintroductions and predator-control programs on Kaua'i, Maui, Moloka'i, and Hawai'i I (Berger 1972, 1978, 1981; Kear and Berger 1980; Black et al. 1991, 1997; USFWS 2004a), and in 2003 populations in the wild were estimated at 1200-1300 individuals, 620 on Kaua'i, 349 on Hawai'i I, 251 on Maui, and 55 on Moloka'i (USFWS 2004a); see below for updates. See Banko and Elder (1990) for a complete history of the Nene and its propagation in Hawaii, and Greenway (1967), Berger (1972, 1981), Zimmerman (1974), Kear and Berger (1980), Banko and Manuwal (1982), and Banko et al. (1999) for general summaries of the biology, natural history, and conservation strategies for the Nene; Banko (1979) summarizes 90 specimens known at that time.

Succumbing to pressures from hunting throughout the 1800s (*cf.* C. de Vargny in Korn 1981; *PoP* 14[7]:18), introduced predators, and habitat alteration, populations of Nene on *Hawai'i* plummeted from estimates of 25,000 in the late 1700s to a low of 20-30 birds in the wild and 13 in captivity in 1949-1951 (Baldwin 1945a, Schwartz and Schwartz 1949, Smith 1952, Dunmire 1961, Ripley 1965; *E* 17:7-10, 31:1-7, 34:123-124). The Legislature of the (then) Territory of Hawaii had been interested in saving the Nene from extinction as early as the late 1920s (Locey 1937; reports in *HFA* 1927-1933), and in 1949 they appropriated \$6,000 toward a recovery of the Nene. In the early 1950s propagation efforts were initiated at Pohakuloa, in Slimbridge England (*E* 16:66-67), and in Letchfield Connecticut, originating with birds from the only viable captive flock in existence, which had been maintained by Hilo rancher Herbert Shipman since 1918 (*E* 26:96-104, 28:103-106; Elder and Woodside 1958, Kear and Berger 1980). This captive flock had survived despite various setbacks, including an ill-advised political decision to break up the flock in 1935, and the tsunami in 1949 that killed all but 11 birds (Smith 1952).

Nene bred very successfully in captivity (*E* 17:47-48, 28:103-106, 31:41-43; Banko 1982, Banko and Manuwal 1982, USFWS 1983a), eventually resulting in the propagation of over 2,500 captive-reared birds throughout the state, between 1960 and 2000, by the Hui Manu and state and federal agencies (*E* 25:9, 34:135-142, 36:104-108, 37:129-130; Banko 1978; Stone et al. 1983a, 1983b). Productivity in the wild initially was low (Banko 1980, 1982; Devick 1982), but supported by continued reintroductions and predator-control measures (Stone et al. 1983b; Scott and Kepler 1985, Scott et al. 1985, 1986; Hoshida et al. 1990; Black et al. 1997; USFWS 2004a), wild populations on Hawai'i I have grown slightly from about 300 individuals in 1980 to 481 in 2006 (BLI 2009). Island-wide [DOFAW Waterbird Surveys](#) in 1980-2007 recorded a low of 230 individuals on Hawai'i in 1988 and a high of 550 in 1996. They breed and molt in scattered locations throughout Volcano NP (where numbers in winter apparently have declined since a peak in the 1990s; [Graph](#)), Hakalau NWR, elsewhere on the slopes of Mauna Kea, in the saddle between Mauna Kea and Mauna Loa, on Mt. Haulalai, on the Shipman Ranch at Ke'eau, and at Puuanahulu near Kailua-Kona, with highest densities found in dry subalpine scrub at 1600-2100 m elevation (Stone et al. 1983, Scott et al. 1986). They are occasionally noted in lowland areas after breeding; e.g., several near Honoka'a in early May 2005 and 5 at Waiakea Pond in Hilo 29 Mar 2008.

Following records suggesting that Nene nested in Haleakala Crater in the late 1800s and early 1900s (Finsch 1880, Banko and Elder 1991), they were reintroduced on *Maui* in 1962, when 35 birds were released in Haleakala Crater (Yocom 1968, Kear and Berger 1980). Continued introductions and predator-control measures through 1992 (*e.g.*, *E* 32:21-22, 33:33-34) have resulted in a breeding population estimated at 144 birds in 1990 (Hodges 1991) and about 360 birds in 2006 (BLI 2009). A second reintroduction effort commenced in 1994 at 1250 m elevation above Maalaea on the sw. slopes of the W Maui Mts, resulting in successful breeding and a population of about 55 birds in 1999. Several birds from this population have been found elsewhere on Maui, including at propagation sites on Haleakala from which returning birds had originated (Banko and Elder 1990, *E* 60:25-28). Nene are now observed commonly within Haleakala Crater year-round, and are occasionally found at lower elevations outside of the crater (*e.g.*, two W and down-slope of Makawao 18 Nov 2009).

In 2002, 55 Nene were released into open propagation pens on Pu'u O Hoku Ranch near the east end of *Moloka'i*, in proximity to the site of a second-hand reports of historical breeding (Munro 1952). It is hoped that a population of 200 individuals can be maintained on Moloka'i (USFWS 2004a) and by 2008, through continued propagation and predator-control measures the estimate was about 250.

On *Kaua'i*, several birds from a captive flock present on a ranch S of Lihu'e during the early 1980s escaped when pens were damaged by Hurricane Iwa in Nov 1982. These birds began breeding successfully along the coast from Maha'ulepu to Lihu'e, and had increased to an estimated 135 birds by 1996. Reintroduction programs, initiated at Kilauea NWR in 1991 (*HFW* 6[3]:9, 8[1]:11) and along the Napali Coast in 1995, resulted in successful breeding and increasing populations (Denny 1999) that had exceeded 100 and 50 birds, respectively, by 2002 (see [Graph](#), [HRBP](#) 5303). The population along The Napali Coast has recently expanded to Kokee SP, where breeding was reported in 2003. Island-wide [DOFAW Waterbird Surveys](#) in 1980-2007 also reflected this increase, from just one bird counted in 1989 to 175 in 2006. Success on Kaua'i suggests that lowland habitats, where food is lush and more abundant, may be preferred over upslope regions as long as predators such as mongooses (which are not yet a pest on Kaua'i) can be controlled (Baker and Baker 1996, *FN* 50:999). By 2003 the population of wild birds on Kaua'i had reached 620 individuals (USFWS 2004a), was still expanding (*AB* 59:102), and was considered one of the most robust populations in Hawaii (Denny 1999), probably due to the lack of mongooses on this island. Estimates for 2006 were of 829 birds (BLI 2009).

Breeding populations on Hawai'i I, Maui, and Kaua'i nest in Dec-Apr, generally in isolated pairs and often in upland areas. During May-Nov they often migrate down to mid-slope elevations and sometimes as far as the coast, e.g., Hapuna Beach, near South Point, the Hilo area, and along the Puna coast on Hawai'i, and near Hana and at Kihei on Maui (*E* 35:32, 60:25-28). Nene are capable of inter-island flights as evidenced by several records of banded birds flying between Maui and Hawai'i I during the 1960s and 1970s (Banko and Elder 1990); most of these involved birds returning ("homing") to propagation sites from which they originated. A widely cited report of three Nene on Moloka'i in 1950, possibly captive birds that escaped there in 1935, does not appear to be substantiated. A family of Nene including nest with three eggs discovered on private property in Wai'anae, O'ahu, in 1987 (*HWN* 2[1]:2) were undoubtedly transported there, and other unsubstantiated reports of isolated birds from the Southeastern Islands may have been of local escapees or resulted from misidentifications of migratory species. However, a very interesting record from *O'ahu* is of one observed at Kaena Point, 17 Apr 2008, which flew in from the direction of Kaua'i, circled around, and flew back out to sea in the direction of Kaua'i again. This bird presumably was a natural dispersant from Kaua'i, perhaps assisted by a storm located between the two islands at the time.

### [Acronyms and Abbreviations](#)

### [Literature cited](#)

Citation: Pyle, R.L., and P. Pyle. 2009. The Birds of the Hawaiian Islands: Occurrence, History, Distribution, and Status. B.P. Bishop Museum, Honolulu, HI, U.S.A. Version 1 (31 December 2009) <http://hbs.bishopmuseum.org/birds/rlp-monograph/>