



Photo: Rachel Seabury, USFWS

## Seabirds

# Bonin Petrel

*Pterodroma hypoleuca*

### SPECIES STATUS:

State recognized as Indigenous  
North American Waterbird Conservation Plan -  
Moderate concern  
Regional Seabird Conservation Plan - USFWS 2005

**SPECIES INFORMATION:** The Bonin petrel is a small, nocturnal gadfly petrel (Family: Procellariidae) which breeds further north than any of its Pacific relatives. Like many pelagic seabirds, Bonin petrels mostly have dark upper parts and light underparts and the sexes are similar in appearance. Flight is fast, and compared to other petrels, the species is very maneuverable. Bonin petrels generally forage far offshore, and feed by seizing prey while sitting on the water or while hovering. Usually forages alone, but may join mixed species flocks. Unlike most of its congeners, Bonin petrels feed mostly on fish, primarily lantern fishes (Myctophidae) and hatchetfishes (Sternoptychidae), although squid (Ommastrephidae) also are important. Bonin petrels are winter breeders, and interestingly, the only other gadfly petrel that breeds in Hawai'i (i.e., 'ua'u or Hawaiian petrel [*P. phaeopygia*]) nests in the summer. Like most seabirds, Bonin petrels breed in their natal colonies, form long-term pair bonds, have high site fidelity, lay only one egg per season, and both parents participate in all aspects of raising young. Bonin petrels nest in burrows which they excavate in sandy soils. In Hawai'i, eggs are laid in mid January and chicks fledge by June. Competes with larger 'ua'u kani (or wedgetailed shearwater [*Puffinus pacificus*]) for burrows, and late fledging petrel chicks are sometimes killed by returning shearwaters. No information on age of first breeding. The oldest known Bonin petrel is 19 years old.

**DISTRIBUTION:** Bonin petrels breed on the NWHI from French Frigate Shoals to Kure. Historically bred on MHI. Outside of Hawai'i, breeding populations are restricted to Bonin and Volcano islands off of Japan. Outside the breeding season a few individuals remain in the waters surrounding the Hawaiian Islands, but most disperse widely mainly between Hawai'i and Japan.

**ABUNDANCE:** In the Hawaiian Archipelago, population estimated at between 270,000 and 395,000 breeding pairs, with the largest populations occurring on Lisianski (150,000 - 250,000 pairs), Laysan (50,000 - 75,000 pairs), and Midway Atoll (70,000 pairs). Prior the introduction of rats (*Rattus* spp.) in the 1930s, an estimated 250,000 pairs nested on Midway. Worldwide population is unknown.

**LOCATION AND CONDITION OF KEY HABITAT: Terrestrial:** Bonin petrels breed on predator free islands. Sandy soils are necessary for nest burrow excavation. Currently all breeding colonies in Hawai'i occur in the Hawaiian Islands National Wildlife Refuge or the Midway Atoll National Wildlife Refuge. **Marine:** Pelagic.

## THREATS:

- Non-native mammals. Historically, mammalian introductions to islands supporting nesting colonies resulted in declines or extirpations. On Lisianski and Laysan, rabbits (*Oryctolagus cuniculus*) denuded the island resulting in erosion which destabilized burrows. On Midway and Kure, rats (*Rattus* spp.) resulted in declines of breeding populations. Over a 40 year period, the Midway population declined from 250,000 to 5,000 pairs. Rabbits and rats have been eradicated from all NWHI.
- Collisions. Disorientation due to artificial lighting increases vulnerability to collisions with man-made structures.
- Invasive species. Non-native plants, specifically golden crown-beard (*Vervesina encelioides*) and sandbur (*Cenchrus agrimonoides*), degrades nesting habitat by providing poor soil stabilization. Introduced big-headed ants (*Pheidole megacephala*) at Kure may cause nestling mortality, but also facilitate the destruction of native vegetation by a non-native scale insect.

**CONSERVATION ACTIONS:** The following management goals are important to Pacific seabird conservation: maintain, protection, and enhance habitat; eradicate or control non-natives; minimize bycatch and other negative effects of fishing; improve the effectiveness of oil spill response efforts; identify contaminants and hazardous substances; and minimize the effects of powerlines, towers, wind turbines and lights (USFWS 2005). The goal of these management actions is not only to protect seabird populations and their breeding colonies, but also to re-establish former breeding colonies thereby reducing the risk of extinction. In addition to these efforts, future management specific to Hawaiian populations of Bonin petrels should include the following:

- Eradicate golden crown-beard on Pearl and Hermes Reef and Midway, and prevent its establishment on other islands.
- Continue protection and management of wildlife sanctuaries and refuges.

**MONITORING:** Continue surveys of population and distribution in known and likely habitats, and develop and implement a monitoring program to track recovering populations at Midway and Kure post rat eradication.

**RESEARCH PRIORITIES:** Most research priorities for seabirds are related to determining the most appropriate methods for achieving the above goals. Research priorities specific to the Bonin petrel include the following:

- Conduct long-term demographic studies to determine population trends, survival rates, and reproductive success.
- Determine the effect of non-native ants and scale insects on Bonin petrel populations and develop methods to eradicate or control ants and scale.

## References:

NatureServe. 2003. Downloadable animal data sets. NatureServe Central Databases. Available at: <http://www.natureserve.org/getData/vertinvertdata.jsp> (March 10, 2005).

Seto NWH, O'Daniel D. 1999. Bonin petrel (*Pterodroma hypoleuca*). In *The Birds of North America*, No. 385 (Poole A, Gill F, editors). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

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