

OBSERVATIONS OF LEUCISTIC ‘UA‘U (HAWAIIAN PETREL *PTERODROMA SANDWICHENSIS*) ON LĀNA‘I, HAWAI‘I

ANDRÉ F. RAINE¹ & RACHEL S. SPRAGUE²

¹Archipelago Research & Conservation, PO Box 81, Hanapepe, Kaua‘i, Hawai‘i 96741, USA (andreraine@arckauai.com)

²Pulama Lāna‘i, PO Box 630310, Lāna‘i City, Hawai‘i 96763, USA

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ABSTRACT

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The ‘Ua‘u (Hawaiian Petrel *Pterodroma sandwichensis*) is an endangered petrel endemic to the Hawaiian Islands. In this short paper, we describe two cases of Hawaiian Petrels with leucistic plumage recorded on the island of Lāna‘i. In both cases, the birds were chicks that fledged successfully in different years from the same burrow. There is only one other documented case of leucism recorded for this species in the Hawaiian Islands despite intensive monitoring of petrel burrows on Kaua‘i, Lāna‘i, and Maui over the last few decades, highlighting the rarity of this plumage aberration.

Key words: Hawaiian Petrel, leucism, seabird, Lāna‘i, *Pterodroma*

We report on two cases of leucism (a genetically induced partial or total lack of two types of melanin causing color aberration in plumage) in ‘Ua‘u (Hawaiian Petrel *Pterodroma sandwichensis*) on Lāna‘i, one of the main Hawaiian Islands. The species is endemic to the islands, where it is predominantly found on Kaua‘i, Lāna‘i, Maui and Hawai‘i (Pyle & Pyle 2017).

Monitoring of Hawaiian Petrel colonies on Lāna‘i has been underway for several years. From 2016 onward, efforts concentrated on a ~200 ha (2 km²) core breeding area in the native mesic forest on the island’s volcanic rim: Lāna‘i Hale (Fig. 1). Monitoring has been focused on colony attendance patterns, call rate trends, reproductive success, and effectiveness of measures to control introduced

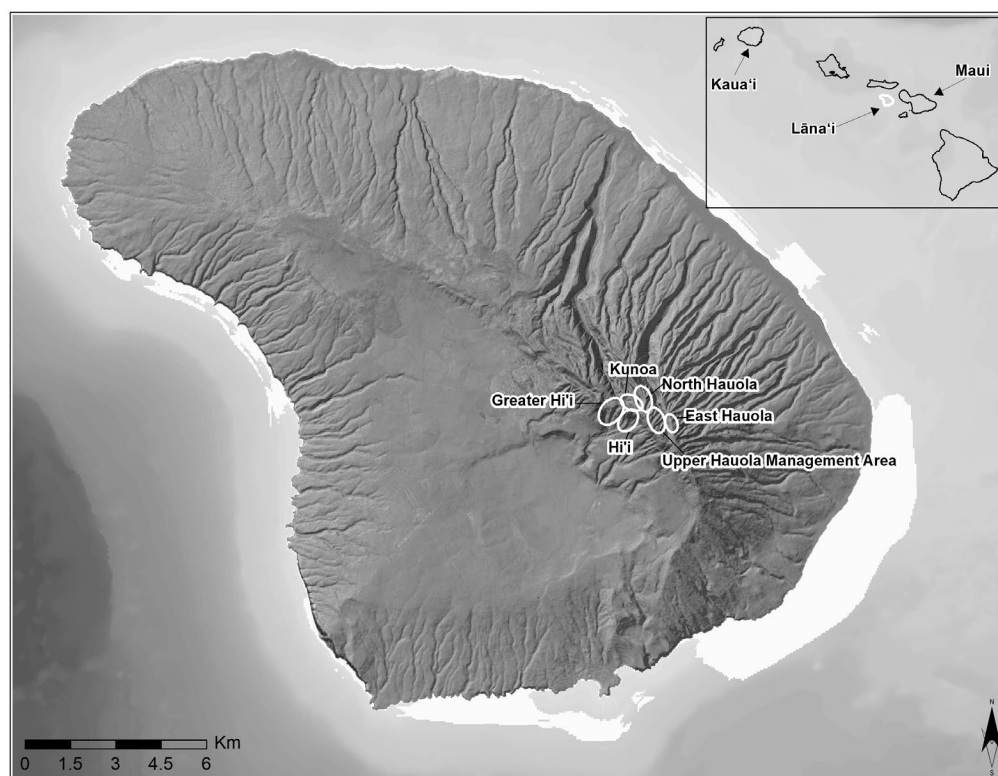


Fig. 1. Map of Lāna‘i, Hawai‘i, USA showing the location of Hawaiian Petrel *Pterodroma sandwichensis* management sites. The inset shows location of the Lāna‘i (white outline) within the main Hawaiian Islands.

predators (cats *Felis catus* and rats *Rattus rattus*, *R. exulans*, and *R. norvegicus*), which are the primary land-based threats to the species (Simons 1985, Hodges & Nagata 2001, Raine *et al.* 2020).

We located a total of 534 Hawaiian Petrel burrows on Lānaʻi between 2016 and 2021. We monitored a subset of them using cameras, the number of which increased incrementally, from 19 cameras in 2016 to 75 in 2017, then increasing rapidly to 150 units in 2021. On 11 November 2016, a camera recorded a leucistic chick (Fig. 2) at the Hiʻi colony on the southern slopes of Lānaʻi Hale (Fig. 1). The chick was subsequently photographed on multiple nights until it presumably fledged. Based on the time of year and behavior of the bird, which included bouts of wing flapping for exercise, the bird was identified as a chick despite the lack of obvious down. In 2018, a leucistic Hawaiian Petrel (Fig. 2) was again photographed at this burrow during the pre-fledging period (01–19 November). In this case, down was clearly visible on the bird’s back, confirming that it was a chick and not an adult. For comparative purposes, a Hawaiian Petrel chick exhibiting typical plumage characteristics is shown in Fig. 3.

In both instances the birds behaved normally and fledged successfully, as gauged by both the cameras and subsequent burrow checks. No leucistic petrels were recorded on camera in future years, and none were recorded elsewhere on Lānaʻi. The only other account of a leucistic Hawaiian Petrel of which we are

aware involved another bird recorded on Lānaʻi. In that case, it was a newly fledged bird (dubbed a “lavender plumaged” bird) found injured in the Pālāwai Basin on 19 November 2011; it subsequently died (Pyle & Pyle 2017, J. Penniman pers. comm.). Interestingly, the Pālāwai Basin is immediately below the Hiʻi colony. Therefore it is possible that all three leucistic chicks originated from the same burrow and were of the same parentage.

Leucism is caused by a genetically induced partial or total lack of two types of melanin: eumelanin, responsible for black, grey, and dark brown feathers; and pheomelanin, responsible for reddish-brown feathers (Mancini *et al.* 2010). Birds can be fully leucistic—as were the two Lānaʻi Hawaiian Petrels described here—or they can have white feather patches scattered across normal plumage. Although uncommon, leucism, albinism, and other color anomalies have been observed in several seabird species, including Black-browed Albatross *Thalassarche melanophris* and Cape Petrel *Daption capense* (Mancini *et al.* 2010), Cory’s Shearwater *Calonectris borealis* (Al-Abbar *et al.* 2019), Common Murre *Uria aalge* (Van Grouw *et al.* 2011), and Adeline Penguin *Pygoscelis adeliae* (Levinson *et al.* 2021). Records also exist of a partially leucistic Black Noddy *Anous minutus* photographed on Midway Atoll (Blyth 2020). To date, leucistic Hawaiian Petrels have not been reported elsewhere, despite intensive monitoring for many years at colonies on both Kauaʻi (thousands of birds observed via ~210 burrow cameras annually, 2011–2021; Raine unpubl. data) and Maui (400–2600 burrows monitored per year at Haleakalā National Park since 1986, C. Bailey & J. Tamayose unpubl. data). We thank the latter two persons for sharing their information and the reviewers for providing comments that helped to improve this paper.

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Fig. 2. Top, a leucistic Hawaiian Petrel *Pterodroma sandwichensis* chick recorded in 2016. Bottom, a second leucistic chick recorded at the same burrow in 2018.



Fig. 3. A nearly fledged Hawaiian Petrel *Pterodroma sandwichensis* chick exhibiting typical plumage, for comparison.

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