

AT-SEA SIGHTINGS OF CHATHAM PETREL *PTERODROMA AXILLARIS* CONFIRM USE OF WATERS OFF NEW ZEALAND

ROBERT L. FLOOD¹, ANGUS C. WILSON² & KIRK ZUFELT³

¹14 Ennor Close, Old Town, St Mary's, Isles of Scilly TR21 0NL, England (live2seabird@gmail.com)

²4 Washington Square Village, New York, NY 10012, USA

³1001 Third Line E, Sault Ste. Marie, ON P6A 6J8, Canada

Received 23 February 2016, accepted 1 June 2016

The Chatham Petrel *Pterodroma axillaris* is an endangered tubenose, endemic as a breeding species to the Chatham Islands, New Zealand. Nesting is limited to three locations: (1) Rangatira/South East Island (44°21'S, 176°10'W, ~250 pairs), (2) small colonies on nearby Pitt Island (up to 18 pairs) and (3) Sweetwater Conservation Covenant, a private reserve on the main Chatham Island (eight pairs); the latter two colonies were established by translocation of chicks from Rangatira (Gummer *et al.* 2015). The conservation status of the species was amended from "Critically Endangered" to "Endangered" in 2013 and "Vulnerable" in 2015 following successful conservation management (Birdlife International 2016).

Although the range of Chatham Petrel is certainly important to conservation efforts, it had been very poorly known until a one-year (2009–2010) bio-logging study involving 18 tagged birds provided insights into its at-sea occurrence patterns (Rayner *et al.* 2012). Kernel density distributions (see Rayner *et al.* 2012, figs. 2 and 3) showed that during the non-breeding period (May–October) adults centered along the Nazca Ridge about 1500 km off South America (supporting sightings by Force *et al.* 2009); in the pre-laying exodus (November–January) they ranged east of the Chatham Islands as far as the mid-South Pacific (supporting sightings by Rogers 1980, West 1994); in the incubation period (January–February) they were concentrated closer to the Chatham Islands with some still ranging eastward; and during chick rearing (February–May) they were concentrated around the Chatham Islands and south to the Bollons Tablemount.

Otherwise, Chatham Petrels in New Zealand waters have been reported mainly between the Chatham and Bounty islands, predominantly in January and February (after the pre-laying exodus); sightings usually involved one or two birds, though 11 were reported on 1 January 2000 (at the start of egg laying; Shirihai 2007, Force *et al.* 2009, Morris 2014). This note provides results from a ship-based expedition in January 2016 intended to investigate more thoroughly the occurrence of Chatham Petrels in New Zealand waters, and to follow up on what was learned from the recent bio-logging effort. Having made extensive sightings of the species, we also provide tips on how best to identify it at sea.

METHODS AND EXPEDITION DATES

We departed Tauranga, NZ, by vessel on 11 January, arriving at the Chatham Islands on 13 January and departing late on 18 January for Bollons Tablemount 667 km to the south; we spent two days over the tablemount, heading northwest late on 21 January to spend two days over the Bounty Plateau, sailing northwest early afternoon on 25 January for two days over the Mernoo Bank

185 km east of Kaikoura, and disembarking late on 28 January at Kaikoura. Expedition dates took into account the moon phase (more petrels would be expected to remain at sea during fuller phases), the breeding cycle of both Chatham Petrel and our second target species, the rare Magenta Petrel *P. magentae*, and availability of the ship. Our dates coincided with the end of Chatham Petrel's pre-laying exodus and the start of the Magenta Petrel hatching period, when breeding adults begin to return to their nests more frequently.

We ran a fish-oil drip continuously during daylight hours (unless at anchor). We chummed using three methods (determined by a combination of sea state and travelling speed): (1) steaming at 4 knots while throwing fish products off the stern; (2) drifting while increasing fish-oil flow and throwing fish products off the stern; and (3) running back and forward (into/with swell) along a 1 km line while ladling out fish oil mixed with rice bubbles and throwing fish products off the stern. The first method was carried out while travelling between locations, and the other two methods were used off breeding sites and when concentrating search over sea features (mounts and canyons). Chumming locations and distances from land/colonies were mainly selected on the basis of anticipated direction and timing of the petrels' return from sea.

RESULTS

This section summarizes sightings of Chatham Petrels during our expedition:

12 January. One bird was seen while we were steaming and dripping oil, at 11h35 at 39°39.5'S, 179°58.6'E in 3000 m of water (Figs. 1c, 2d), 264 km east of Napier, 610 km northwest of Rangatira, and close to the Mahia Seamount. The bird was first seen at about 400 m from the ship, flying up the oily wake toward the stern. It flew to about 50 m off starboard. This is the first documented at-sea record west of the Chatham Islands and the first from the eastern hemisphere.

16 January. One bird was seen at ~15h30 while we were steaming from Waitangi to Rangatira while dripping oil. During the evening chumming session 9 km south of Rangatira Island, 11 were seen, with eight after 20h00 (Fig. 2c).

18 January. One bird was seen during the evening chumming session 9 km south of Rangatira Island (Fig. 1b).

19 January. While we were steaming and dripping oil, two birds were seen between 06h00 and 08h00 about 220 km south of Rangatira Island, and one was seen between 08h00 and 10h00 about

222 km south of Rangatira Island, in 5000 m of water. We noted during our expedition that *Pterodroma* activity over pelagic waters was greatest in the first few hours of the day.

20 January. While we were steaming and dripping oil, one bird was seen at 05h50 at the northwest point of Bollons Tablemount in 2000 m of water.

25 January. A Magenta Petrel was observed while we were chumming about 30 km northeast of the Bounty Islands.

On the basis of the bio-logging study, we expected that the majority of our sightings would be near to the Chatham Islands, and this was largely the case. The sightings *en route* to the Bollons Tablemount and the sighting at the northwest end of the tablemount fall within the range identified by data-logging studies. However, the sighting 264 km east of Napier, North Island, lies beyond the 95% density

contour of data-logging studies. This provides evidence for the distribution of Chatham Petrel toward mainland New Zealand.

IDENTIFICATION

Chatham Petrel is a “cookilaria petrel,” a group that poses identification problems because of their small size, fast flight and similar but distinctive overall plumage patterning (see Brooke 2004, Onley & Scofield 2007 for further details).

The underwing pattern of Chatham Petrel is diagnostic. It has a thick, blackish leading edge to the inner forehand, and a long, broad diagonal ulnar bar, which, uniquely, extends to the wing base because of the blackish axillaries (Figs. 1a–c, 2c). Photographs of birds in the hand show that the forearm has whitish feathering restricted to a fine triangle of marginal and shorter lesser coverts along the inner half (base of triangle at the body), and the rear of the arm has a wider-based triangle of mainly median and greater



Fig. 1. Chatham Petrels: (a) Sweetwater Reserve, main Chatham Island, 15 January 2016 (Photo: Kirk Zufelt); (b) 9 km south of Rangatira Island, Chatham Islands, 18 January 2016 (Photo: Kirk Zufelt); (c) 39°39.5'S, 179°58.6'E, 264 km east of Napier, North Island, NZ, 12 January 2016 (Photo: Martin Gottschling).

coverts along the outer half (base of triangle at the wrist) (Fig. 1a). These photographs also show dark secondaries and white “fingers” extending along the primaries beyond the underwing coverts. At range, this simply looks like a dark trailing edge and wing tips (Figs. 1b, 1c, 2c).

Other plumage features that we noted at sea were the broad, grey neck tabs, giving the appearance of a broken collar, dark “panda” eye patches, and short whitish fore supercilia (Figs. 1a–c, 2c, 2d). The impression of a well-defined white throat was particularly noticeable on birds approaching head on.

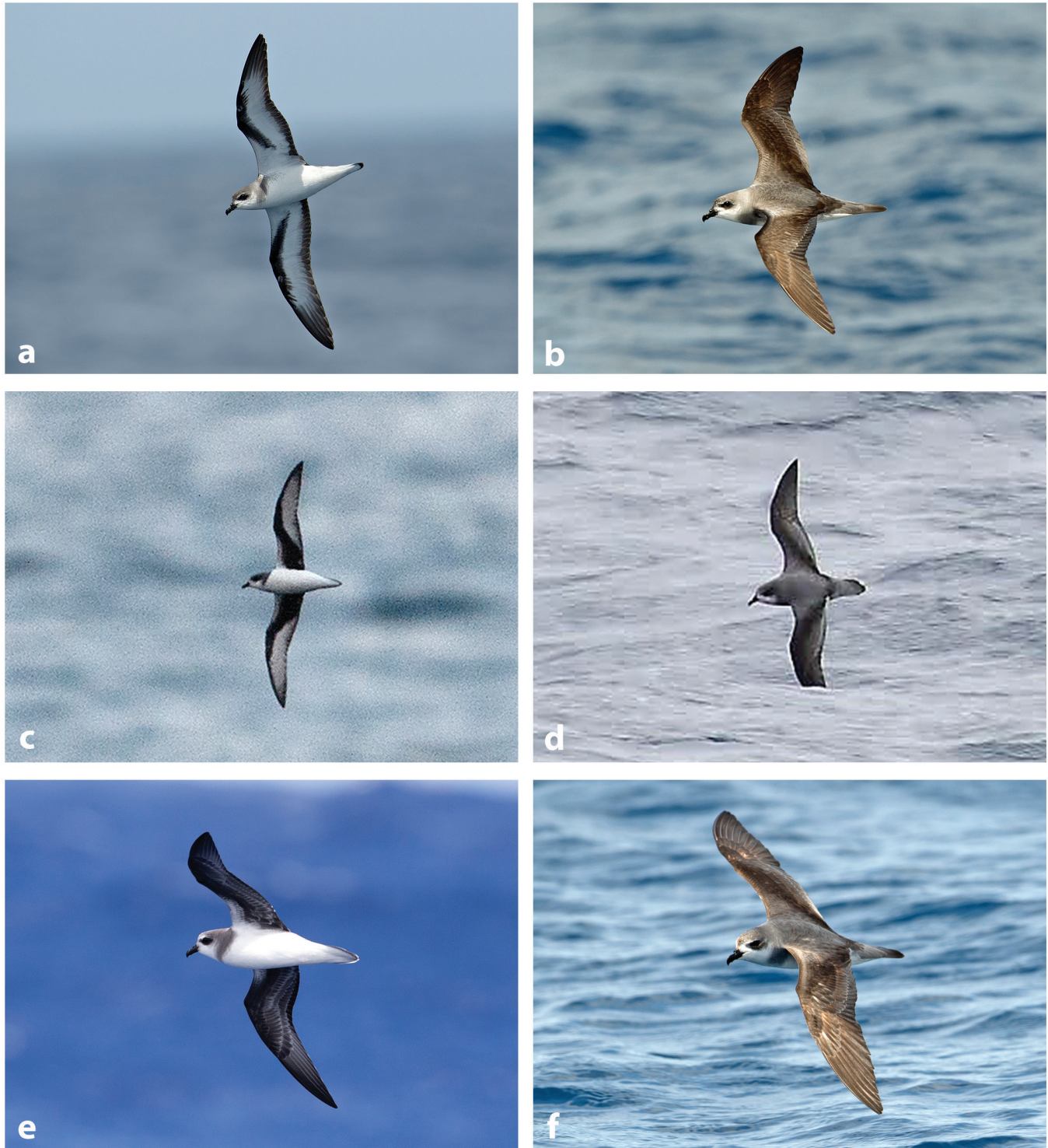


Fig. 2. Black-winged Petrels, off North Cape, NZ, (a) 2 March 2013 and (b) 3 March 2013 (Photos: Kirk Zufelt); Chatham Petrels: (c) 9 km south of Rangatira Island, Chatham Islands, 16 January 2016 (Photo: Kirk Zufelt); (d) 39°39.5'S, 179°58.6'E, 264 km east of Napier, North Island, NZ, 12 January 2016 (Photo: Colin Rogers); Soft-plumaged Petrels: (e and f) south of Pitcairn Island, southern Pacific, 4 September 2013 (Photos: Kirk Zufelt).

Chatham Petrels looked even more compact and bulky than Pycroft's Petrel *P. pycrofti*, also seen around the Chatham Islands. We noted that the structure of Chatham Petrels was similar to Black-winged Petrels *P. nigripennis*, another species seen in small numbers during the expedition. We concur with Shirihai (2007) that the principal confusion risk is with Black-winged Petrel, as the species have a very similar structure and both species have a broad blackish diagonal ulnar bar on the underwings (Figs. 2a-d). Judging the amount of blackish coloration in the underwings was sometimes difficult. However, if seen, the diagnostic blackish axillaries and adjoining feathers eliminate Black-winged Petrel from consideration (Figs. 2a, 2c).

We also found that Chatham Petrel and Soft-plumaged Petrel *P. mollis* could be confused (Figs. 2c-2f). Soft-plumaged Petrel is another compact *Pterodroma*, although it is larger. When flying low, Chatham Petrel can appear to have the dark underwings of Soft-plumaged Petrel (e.g. left wing of bird in Force *et al.* 2009, p. 277). Also, both are compact and have thick grey neck tabs. Confusion was usually sorted out by viewing the underwings more clearly, assessing flight behavior, establishing size, or a combination of these. A few more distant possible Chatham Petrels remained unidentified (as was the case for Force *et al.* 2009).

The Chatham Petrels we encountered tended to fly close to the sea surface in low arcs, whereas, in the same conditions, Soft-plumaged Petrels and other cookilaria consistently flew in higher arcs. This difference in flight behavior made photography of Chatham Petrels more challenging than for other cookilaria. In general, Chatham Petrels seemed reluctant to come close to the vessel, responding only briefly to the chum.

CONCLUSIONS

Observations made during this expedition have added to our understanding of the at-sea distribution and field identification of one of the world's least-known petrels. Our sightings support the notion that, at the onset of the egg-laying period, Chatham Petrels feed in areas to the south of the Chatham Islands, although we could not establish whether these areas are centered over the Bollons Tablemount or Bounty Plateau, as indicated by the data-logging study (Rayner *et al.* 2012). Documentation of a Chatham Petrel across the 180° Meridian from the Chatham archipelago, and thus in the eastern hemisphere, further extends the known at-sea range. If this is a regular occurrence, it brings birds into closer proximity to commercial fishing and other human activities.

ADDITIONAL NOTES RELATED TO IDENTIFICATION

If seen well, the outstretched underwings of Chatham Petrel show the diagnostic long, broad diagonal ulnar bar, which, uniquely, extends to the wing base. We found the area of blackish coloration much greater than shown in Marchant & Higgins (1990) and Onley & Scofield (2007). Our photos indicate some variation. For example, the bird in Fig. 1b has more blackish markings in the primary and secondary coverts than the bird in Fig. 1c.

Confusing species that occur in the range of Chatham Petrel are Black-winged and Soft-plumaged petrels, as noted. Identification relies on good views of the underwings. Not only birds seen at range or in suboptimal lighting, but also birds flying away could

be difficult to identify, as the extent of dark in the underwings was hard to judge. At times, Black-winged Petrel appeared to have "too much dark," suggesting Chatham Petrel, and Chatham Petrel appeared to have all-dark underwings, suggesting Soft-plumaged Petrel. Soft-plumaged Petrel is larger, although judging the size of a lone bird at sea is notoriously difficult. That said, we consistently found the flight of Soft-plumaged Petrels to be more dynamic and aerial than the flight of the other two species. As a final note, we found it impossible to see the differences in head and neck patterns of cookilaria in the field.

ACKNOWLEDGEMENTS

We would like to express our thanks to Stoney Creek Shipping Company for supplying MV *Claymore II*, and to the entire crew, who excelled in their duties. A special thanks to Matt Jolly for his expedition skills in remote locations, and to Captain Hamish Thorpe for a safe passage. Ashore we were warmly welcomed by the hard-working members of the Chatham Islands Taiko Trust, and we extend a huge thanks to our generous hosts Bruce and Liz Tuanui, David Boyle and Mike Bell. Lastly, we warmly acknowledge our fellow team members Andrew Cleave, Elaine Cook, Mike Danzenbaker, Martin Gottschling, Peter Harrison, John Overfield, Colin Rogers, John Shemilt, Paul Sterry and Mark Yates for their companionship and sharing of photographs.

REFERENCES

- BIRDLIFE INTERNATIONAL. 2016. Chatham Petrel *Pterodroma axillaris*. IUCN Red List for birds, BirdLife International Species Factsheet. [Available online at: <http://www.birdlife.org/datazone/speciesfactsheet.php?id=3882>. Accessed 13 April 2016].
- BROOKE, M. 2004. *Albatrosses and Petrels Across the World*. Oxford, UK: Oxford University Press.
- FORCE, M.P., COTTON, J.M., ROWLETT, R.R. & BALANCE, L.T. 2009. First records of Chatham Island Petrel *Pterodroma axillaris* in the Eastern Pacific Ocean. *Marine Ornithology* 37: 277-279.
- GUMMER, H., TAYLOR, G., WILSON, K.-J. & RAYNER, M. 2015. Recovery of the endangered Chatham Petrel (*Pterodroma axillaris*): a review of conservation management techniques 1990 to 2010. *Global Ecology & Conservation* 3: 310-323.
- MARCHANT, S. & HIGGINS, P.J. (Eds.) 1990. *Handbook of Australian, New Zealand and Antarctic Birds*. Volume 1: ratites to ducks. Melbourne, Australia: Oxford University Press.
- MORRIS, R.P. 2014. The Tubenoses of the Sub-Antarctic Islands of New Zealand and Australia. *The Petrel*: 66-93.
- ONLEY, D. & SCOFIELD, P. 2007. *Albatrosses, Petrels and Shearwaters of the World*. London, UK: Helm.
- RAYNER, M.J., TAYLOR, G.A., GUMMER, H.D., PHILLIPS, R.A., SAGAR, P.M., SHAFFER, S.A. & THOMPSON, D.R. 2012. The breeding cycle, year-round distribution and activity patterns of the endangered Chatham Petrel (*Pterodroma axillaris*). *Emu* 112: 107-116.
- ROGERS, A.E.F. 1980. Seabirds observed between Sydney and Buenos Aires. *Notornis* 27: 69-78.
- SHIRIHAI, H. 2007. *A Complete Guide to Antarctic Wildlife: the Birds and Marine Mammals of the Antarctic Continent and the Southern Ocean*. 2nd edition. London, UK: A&C Black.
- WEST, J.A. 1994. Chatham Petrel (*Pterodroma axillaris*) – an overview. *Notornis Suppl.* 41: 19-26.