

"DARK-FACED" ROCKHOPPER PENGUINS AT THE SNARES ISLANDS*

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INTRODUCTION

The Rockhopper Penguin (*Eudyptes chrysocome*) is a circumpolar species of subantarctic waters, breeding on islands in the southern Atlantic, Pacific and Indian Oceans. Two forms of Rockhopper Penguin were recognised by the Checklist Committee of the Ornithological Society of New Zealand (Kinsky 1980): *E. c. chrysocome* and *E. c. moseleyi*. However, most recent authors recognise three forms of Rockhopper Penguin (e.g. Falla & Mougín 1979, Harrison 1983, Lindsey 1986), with the following breeding distributions and distinguishing characteristics:

E. c. chrysocome (Western Rockhopper Penguin) breeds on islands off Cape Horn and at the Falkland Is (Falla & Mougín 1979). It has black skin at the base of the bill, short yellow crest feathers and a pale underflipper pattern (see e.g. Carins 1974, Plate 1a; Pettingill 1974, pp. 40, 66-70 & 72; Woods 1975, p.70; Strange 1982; Buxton & Price 1983, pp. 21, 27-30 & 63).

E.c. filholi (Eastern Rockhopper Penguin) breeds at Prince Edward, Marion, Crozet, Kerguelen, Heard, Macquarie, Campbell, Auckland and Antipodes Is (Falla & Mougín 1979, Roberston & van Tets 1982). It has pink fleshy margins at the base of the bill, short yellow crest feathers and a pale underflipper pattern (see e.g. Bailey & Sorensen 1962, pp. 103-106; Serventy *et al.* 1971, Fig. 21 & 128; Carins 1974, Plate 1b; Lindsey 1986, pp. 34-41).

E. c. moseleyi (Northern, Moseley's or Subtropical Rockhopper Penguin). This form is sometimes given full species status (Jouventin 1982). It breeds at Tristan da Cunha, Gough, Amsterdam and St Paul Is (Falla & Mougín 1979). This, the largest form of Rockhopper Penguin, has particularly long crest feathers. It has a comparatively large bill and long flippers, black skin at the base of the bill, and darker underflipper pattern (see e.g. HRH the Duke of Edinburgh 1962, Plate 26; Segonzac 1972, Plates 1-3; Moors & Merton 1984, Fig. 1).

Most Rockhopper Penguins that have occurred in New Zealand region are presumably of the *filholi*, which breeds locally at Antipodes, Auckland, Campbell and Macquarie Is. However, two examples of *E. c. moseleyi* have been recorded from New Zealand (Moors & Merton 1984) and this form is often recorded from Western Australia (Serventy *et al.* 1971, Condon 1975). Here, we report two birds of the nominate race *E. c. chrysocome* from the Snares Islands. True *E. c. chrysocome* have not been reliably recorded from the Australasian region before. Claims by Falla & Mougín (1979) and Lindsey (1986) that *E. c. chrysocome* has straggled to Australia and New Zealand have not been confirmed or were due to confusion over the taxonomic status of *E. c. filholi*.

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FIGURE 1a — Adult *Eudyptes chrysocome chrysocome*, HoHo Bay, Snares Islands, 4 November 1986 (bird A).

Photo Colin Miskelly



FIGURE 1b — Adult *E. c. filholi*, Station Cove, Snares Islands, 10 December 1985

Photo Alan Tennyson

SNARES ISLANDS SIGHTINGS

Rockhopper Penguins are frequent visitors to the Snares Islands (48°01'S 166°36'E), up to 20 being seen each summer (pers. obs.). At least 49 Rockhopper Penguins have been recorded at the Snares Islands during the seven University of Canterbury expeditions between December 1982 and December 1987. Most were immatures moulting during January and February, but some were in adult plumage. Of these birds, 47 were typical *E. c. filholi* with conspicuous pink fleshy margins at the base of the bill (Fig 1b.) The other two were immediately recognised as being different because they lacked these fleshy margins (Fig. 1a). Their descriptions are as follows.

Bird A: This penguin was standing at an empty nest in a colony of Snares Crested Penguins (*E. robustus*) above HoHo Bay on 20 December 1985. Although it resembled an adult *E. c. filholi* in having a black throat and well-developed superciliary and occipital crests, it did not seem to have exposed skin at the base of the bill, and the superciliary stripe in front of the eye was broad and triangular (Fig. 1a). When captured, this bird was found to have a 1-2 mm strip of black skin along the proximal edge of the ramicorn, gape, latericorn and culminicorn. The eyes were bright red-brown. The yellow tassels reached just past the black-white demarcation line on the upper breast if flattened (longest yellow plume 60.2 mm). Underflipper markings are shown in Fig. 2. Measurements were: culmen length (to skin at base) 44.9 mm, flipper length 165 mm, weight 3050 g.

This bird was not seen again, but the next season T.C. and C.S. Lamey saw presumably the same bird at exactly the same nest site in the colony on 26 October 1986. The bird was seen by all expedition members on at least 11 further days until 14 January 1987. On several occasions it was seen giving a bowing display and calling (Warham 1963: Fig. 4). The crest was the same size as when first measured. Measurements are given in Table 1. In addition, culmen length (to feathers) was 47.7 mm and bill depth at base was 28.3 mm. This same location was searched several times for Rockhopper Penguins between 7 November and 8 December 1987, without success.

Bird B: A similar 'dark-faced' Rockhopper Penguin was seen in Station Cove on 17 November 1986 by all members of the 1986-87 expedition. This bird was smaller than bird A, but was also black-throated, with bright red eyes and well-developed superciliary and occipital crests. The superciliary stripe in front of the eye was a narrow line. The underflipper pattern was similar to that of bird A (see Fig. 2). Measurements are given in Table 1. In addition, the culmen length (to feathers) was 42.2 mm and bill depth at base was 23.7 mm. This bird was marked with picric acid but was not seen again, whereas bird A was seen sporadically for a further two months.

DISCUSSION

The black throat, large bill and well-developed crests of bird A and its frequent display at its nest site indicated that it was an adult and probably a male. The black throat, small bill and well-developed crests of bird B were suggestive of an adult or subadult female, or possibly a subadult male.

TABLE 1 — Measurements of birds A and B from the Snares Islands compared with measurements of *E. c. chrysocome* from the Falkland Islands and Cape Horn. All measurements in millimetres. Bill length was measured from tip to skin at base of culminicorn. Method of measuring culminicorn width after Warham (1972) and Strange (1982). Neither Murphy (1936) nor Strange (1982) gave ranges for measurements other than the flipper length

	Males		Bird A	Females		Bird B
	Murphy (1936) n=3	Strange (1982) n=10	1986	Murphy (1936) n=2	Strange (1982) n=10	1986
Bill length	47.5	46.3	46.1	42.5	40.0	40.0
Bill width at base	22.8	-	22.1	21.0	-	18.8
Culminicorn width	-	10.4	9.8	-	9.4	8.8
Crest length	66.1	50+	60.2	63.0	50+	51
Flipper length (range)	173	176 (170-185)	179	162	168 (165-175)	166
Tail length	93.8	-	100	97.4	-	-

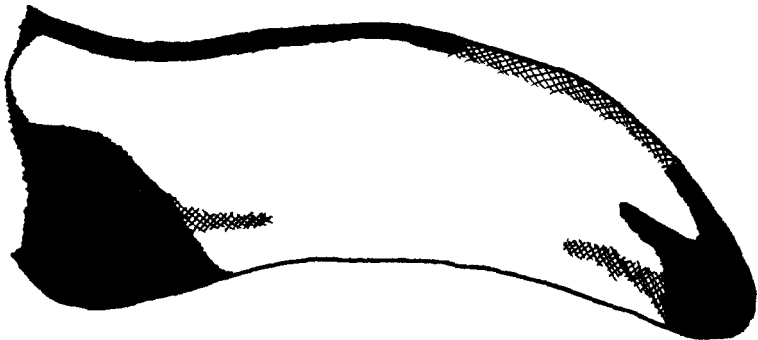


FIGURE 2 — The underflipper pattern of birds A and B

As the two birds were in adult plumage, the thin strip of black skin around the base of the bill of both birds indicated that they were not of the local race *E. c. filholi*. (Yearling *filholi* may show little bare skin at the base of the bill.) Bird A also differed from typical *filholi* in the shape of the superciliary stripe in front of the eye. Bird A had similar measurements to adult male *filholi* from Antipodes, Crozets, Kerguelen, Macquarie, Marion and Campbell Is (Murphy 1936, Falla 1937, Rand 1954, Bailey & Sorensen 1962, Warham 1972, Williams 1980). The plume length of bird A (60.2 mm) was longer than the 55.8 mm given by Murphy (1936) for four males from Antipodes I. but slightly shorter than the 62-70.5 mm for eight adults of both sexes at Campbell I. (Moors & Merton 1984) and the 65-83 mm given by Rand (1954) for seven males from Marion I. Bird B had similar bill and flipper lengths to adult female *filholi* (Murphy 1936, Falla 1937, Rand 1954, Bailey & Sorensen 1962, Warham 1972, Williams 1980). The crest plumes of bird B (51 mm) were similar to Murphy's (1936) measurement of 49.5 mm for three females from Antipodes I. but shorter than Rand's (1954) measurements of 73 and 79 mm for two females from Marion I. and Moors & Mertons' (1984) measurements from Campbell I.

Although the dark skin at the base of the bill of these two birds was suggestive of *E. c. moseleyi*, the form of their crests and their pale underflipper markings indicated that they were not of that subspecies. Adult and subadult *moseleyi* have long, pendulous head plumes, reaching over 70 mm in length and averaging about 90 mm (Hagen 1952, Elliott 1957, Duroselle & Tollu 1977, Moors & Merton 1984). The underflipper of *moseleyi* has much larger areas of black, especially distally, than we observed on birds A and B. (Compare our Fig. 2 with Fig. 20 in Serventy *et al.* 1971 and Fig. 1 in Moors & Merton 1984.) Most adult male and female *moseleyi* are larger billed and have longer flippers than birds A and B respectively. (See Hagen 1952, Swales 1965, Segonzac 1972, Duroselle & Tollu 1977, Williams 1980.)

The black skin around the bill margins, the crest form and the underflipper patterns of birds A and B agreed perfectly with photographs and descriptions of *E. c. chrysocome* from the Falkland Is (e.g. Carins 1974, Pettingill 1975, Woods 1975, Strange 1982, Buxton & Price 1983). The shape of the superciliary stripe varies considerably in birds from the Falkland Islands, but *E. c. chrysocome* often has broader and more triangular superciliary stripes than *E. c. filholi*. (See photographs in Carins 1974, Pettingill 1975, Buxton & Price 1983.) Bird A had a broad superciliary stripe (Fig. 1a) and had similar measurements to adult male *E. c. chrysocome* from the Falkland Islands and Cape Horn (Table 1). Bird B had a narrow superciliary stripe but similar measurements to adult female *E. c. chrysocome* (Table 1). However, the narrow bill and comparatively short crests of bird B suggest that it was a subadult, but too few measurements of *E. c. chrysocome* are available to determine this.

The two *E. c. chrysocome* that we found at the Snares Is differed from *E. c. filholi* in when they were present and where they occurred. Both birds were present in November or earlier in 1986, whereas we have no records of *E. c. filholi* from the islands before 6 December. Most Rockhopper Penguins recorded from the Snares Is were seen in the later half of January and in February. Of a minimum of 47 *filholi* that we have recorded in the Snares Is, only one was seen at a nest site (one day only) among a colony of Snares Crested Penguins.

whereas bird A was seen in the same colony on 13 days. The remaining 47 Rockhopper Penguins (including bird B) were seen around the coastal fringe, among roosting or moulting Snares Crested Penguins.

The finding of two *E. c. chrysocome* at the Snares Islands, c. 7500 km from known breeding areas, indicates how widely Rockhopper Penguins can range at sea. Long-distance vagrancy has already been recorded for Moseley's Rockhopper Penguin (Moors & Merton 1984), Fiordland Crested Penguin (*E. pachyrhynchus*; Serventy *et al.* 1971), Erect-crested Penguin (*E. sclateri*; Napier 1968, Strange 1982) and Macaroni Penguin (*E. chrysolophus*; Kinsky 1969).

There is still a need for standardised measurements and plumage descriptions of Rockhopper Penguins of known sex and status to be collected from all breeding localities before variability within and between subspecies can be understood (see Warham 1980). However, there is ample evidence of three morphologically distinct forms of *E. chrysocome*, all with discrete breeding ranges. Adults of these three forms are readily distinguishable on land but must have widely overlapping ranges at sea; all three are now known to occur in the Australasian region.

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SHORT NOTE

Gould's Petrel from Dunedin City

On 19 December 1988 an unusual seabird was recovered from under a truck in south Dunedin and handed to Portobello Marine Laboratory staff. The bird was weak but in apparently good condition. However, it died on the night of 19-20 December. In the days before the bird was found, the weather was anticyclonic over the lower South Island, with light or moderate southeast or east winds in Dunedin. The specimen was identified as a Gould's Petrel (*Pterodroma leucoptera*), as confirmed by J. T. Darby of the Otago Museum. It has the Otago Museum catalogue no. OM Av 936.

Description: Crown, nape and hindneck sooty black. Grey mottle on forehead, fading out below and behind the black bill to white throat and breast. Black around eye. White belly. Tail pale grey (upper) and white with pale grey tip (lower). Incomplete M from very dark grey (upper) wing to back, and pale grey forward part of inner wing and mantle. Underwing white with narrow, dark grey leading edge turning diagonally inwards at the carpal joint. Primaries and secondaries pale grey, darkening distally to very dark grey. Legs pale grey-blue. Inboard webs very dark grey toward claw; outboard webs very dark grey except for a small section of pale grey-blue towards the ankle.

Measurements (mm)

Body: Length	310	Foot: Tarsus	29.1
Wingspan	710	Mid-toe and claw	37.5
Wing	230	Bill: Length	26.4
Tail	95	Depth	10.7
		Width	12.0

Weight: 125 g