

## THE 'MYSTERY PENGUIN': AN ADDITIONAL SNARES PENGUIN *EUDYPTES PACHYRHYNCHUS ROBUSTUS* FOR TASMANIA

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### ABSTRACT

A living crested penguin, ashore at Safety Cove Beach, Port Arthur, southeast Tasmania on 17 September 2000, was reported by several different members of the public during the four days to 20 September 2000, when it was captured by officers of the Tasmanian Parks and Wildlife Service (TPWS) and brought to wildlife carer Lesley Kurek's premises. The penguin was very weak and died on the same day, despite commencement of treatment. Twice it was mis-identified, in each case as a different species. It was examined by Simpson on 31 August 2007, and again on 6 September 2007, at the Tasmanian Museum and Art Gallery (TMAG), Rosny Campus, proving to be a Snares Penguin *Eudyptes pachyrhynchus robustus*. This penguin therefore classically illustrates the need for the review of Australian rare penguin records now in progress, and is the reason why it was singled out for commentary.

### INTRODUCTION

#### *Purpose of this paper*

In 1967 the author began a long-term, nation-wide review into the identity, occurrence and status of international penguins that have been reported (alive or dead) as naturally reaching the shores of southern continental Australia, and to catalogue as many such records as is possible. This paper is part of that review. 'Rare penguins' are defined here as all species recorded in Australia except the locally breeding Little Penguin *Eudyptula minor novaehollandiae*. Rare penguins recorded at Macquarie Island and Heard Island are not included, nor are penguins from any foreign source imported into Australia for museum or zoo use, or for any other reason.

One goal of the review is to locate and grade the varying phenotypic criteria needed for accurate identification, essentially those characters that are 'diagnostic' and those of secondary value. Particular attention is directed to field recognition of individual juvenile and immature individuals of the rather difficult crested penguin genus *Eudyptes*. No molecular work is involved at present, although selected individuals may be so examined at a later date.

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### Taxonomy

Taxonomy follows the current Australian checklist of Christidis & Boles (2008), in which the Erect-crested Penguin *E. sclateri* stands as a full species. Snares Penguin is retained as a subspecies of nominate Fiordland Penguin *E. p. pachyrhynchus*. The Royal Penguin *E. chrysolophus schlegeli* is retained by Christis & Boles (2008) as a subspecies of nominate Macaroni Penguin *E. c. chrysolophus*, but the penguin research community regards the Royal Penguin as a separate species and there is DNA evidence to support this (E. Woehler, pers. comm.). Eastern Rockhopper Penguin *E. chrysocome filholi* and Moseley's (Northern) Rockhopper Penguin *E. c. moseleyi* are retained as subspecies of nominate Southern Rockhopper Penguin *E. c. chrysocome*.

English names for species and subspecies are preferred for all general discussion but trinomials are used here to ensure absolute clarity.

### Circumstances

During its time spent on the Safety Cove Beach at Port Arthur, the penguin was not protected or guarded. At the time of its capture, the TPWS officers considered, not unreasonably, that it was a 'Fiordland Penguin'. The penguin was recorded by Kurek as being 'very flat and thin', 'flat' indicating listlessness, although it became quite aggressive when handled. Body mass on receipt was 1490 g. Although attempts were made to rehydrate it with Vytrate delivered by tube, it did not respond and died a couple of hours later on the same day, 20 September 2000. Four colour photographs were taken whilst it was alive. These slides, one reproduced here, were sent by Kurek to Simpson on 3 June 2007 and indicated a large-billed crested penguin with a pale gape but with its marginal pale mandibular skin not fully visible, being interrupted by black feathering along its length (Plate 1).



**Plate 1.** The Snares Penguin from Safety Cove Beach, Port Arthur, SE Tasmania, alive in Lesley Kurek's garden, 20 September 2000. Rehabilitation efforts failed, the penguin already being too far gone to survive. Note hint of pale skin along edge of lower mandible. Photo: Lesley Kurek.

Kurek was also somewhat puzzled by its appearance when alive, and questioned its possible identity, not certain that it really was a Fiordland Penguin. In a letter to the author she dubbed it a 'Mystery Penguin'.

The penguin was preserved and when located by museum technician Brian Looker, acting on a museum-authorised general request by the author in August 2007 for a search of the TMAG freezer for rare penguins (three were found), it had been re-identified and was now labelled 'Rockhopper Penguin'.

Apparently acting on this new identification, the record was originally published by Eades (2000) as 'A single adult Rockhopper (ssp. *moseleyi*) beachcast ... about 2 (*sic*) September', and therefore incorrectly dated.

### **MEASUREMENTS AND DESCRIPTION**

Reasonably detailed accounts of plumage, soft parts and some measurements of the Snares Penguin at different ages are provided by Stonehouse (1971), Warham (1974a) and O'Brien (1990a), and similarly for Fiordland Penguin, by Warham (1974b) and O'Brien (1990b).

The 'Mystery Penguin' was first examined by the author when still completely frozen on 31 August 2007, and then in a partly-thawed state on 6 September 2007, proving to be a Snares Penguin *Eudyptes pachyrhynchus robustus* (Plates 2, 3 and 4). A museum registration number had not then been issued; the penguin was coded as C02432. Some dehydration may have occurred, since the penguin in the semi-frozen state at TMAG weighed approx. 1406 g, an apparent loss of approx 84 g, if both masses taken were considered accurate at the time. There is no guarantee of this. Longest tail rectrice, measured dorsally, was 95.0 mm.

#### *Bill*

The bill of C02432 was in good condition and an even red-brown. Viewed from above, the culminicorn was bowed, narrowing to the proximal end and with a rounded termination. Its Bill Size Index (BSI) was 1131.66 (culmen 49.7 x culmen width 9.9 x bill depth 23.0 mm; the product then divided by 10 and rounded to two decimal places), Warham (1972).

#### *Bill comparison with Fiordland Penguin QVMAG 1953-2-3*

For direct bill comparison, a Fiordland Penguin was chosen, also believed (this paper) to be a post-moult, second year individual, collected at Falmouth, east Tasmania on 1 May 1953, and held in the Queen Victoria Museum and Art Gallery collections, Launceston, Tasmania, registered QVMAG 1953-2-3.

Its BSI was 946.92 (culmen 42.7 x culmen width 9.9 x bill depth 22.4 mm). The major measurement difference in the bill of the Snares Penguin was its greater

length, 7 mm longer than the Fiordland's. But viewed in profile, the Fiordland's shorter, more decurved bill is obvious (Plate 5).

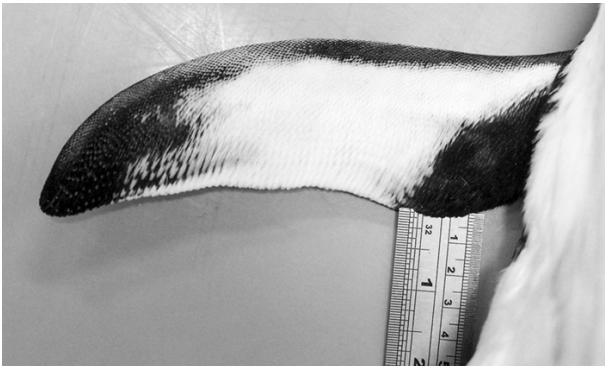


**Plate 2.** Right face of the partly-thawed Snares Penguin. Note the pale skin in the gape (rictus). Photo: K.N.G. Simpson.



**Plate 3.** Left face of the partly-thawed Snares Penguin. The pale skin in the gape, and most of that below and edging the lower mandible (ramus or ramicorn) is visible on this side. By about the end of 2000, considered its second year, it ought to have been fully and permanently visible in the gape and along the entire

extent of the lower mandible — the most prominent field identification feature of the Snares Penguin. Photo: K.N.G. Simpson.



**Plate 4.** Right underflipper pattern (OUFP condition) of the Snares Penguin from Safety Cove Beach, Port Arthur, SE Tasmania, 17 to 20.9.2000. Photo: K.N.G. Simpson.



**Plate 5.** Left face of Fiordland Penguin, probable second year female, to indicate shorter bill length and different bill profile curvature than of the Snares Penguin (above). Collected 1 May 1953 at Falmouth, east coast Tasmania, QVMAG 1953-2-3. Photo: K.N.G. Simpson.

### *Superciliary Stripe/Crest*

C02432's SS/C total length measured (right side) 91.1 mm; (left side) 91.5 mm. Length of longest crest plumes were 49.1 mm (right) and 48.0 mm (left). This fits proportionately with plume measurements given by Stonehouse (1971) for adult Snares Penguins: '...longer [than Fiordland], the rearmost usually exceeding 5 cm [50 mm] in adults ...'.

The SS/C is 'silky' in texture and a soft yellow-cream in colour. The narrow anterior tip of the SS/C is well back from the black extension of the lores between proximal base of culminicorn and latericorn, a feature of the Snares Penguin once beyond its juvenile (first) year but sometimes well into its second year. The SS/C on each side indicates this (Plates 2 and 3), despite some feather displacement during storage. See as excellent comparative examples, photographs of adult Snares Penguins in Lindsey (1986).

### *SS/C comparison with Fiordland Penguin QVMAG 1953-2-3*

Its SS/C total length measured (right side) 95.0 mm; (left side) 94.0 mm. But length of longest crest plumes was 41.0 mm (right) and 42.9 mm (left). This lesser length fits proportionately with plume measurements given by Stonehouse (1971) for adult Fiordland Penguins: 'longest crest feathers ... seldom exceed 3.5-4.5 cm [35-45 mm].'

### *Flipper measurements*

C02432: (Right flipper only) Total ventral length (axilla to flipper tip) 166; dorsal length (head of humerus to tip) 187; proximal width 52; distal width 39 mm.

### *Distal underflipper pattern*

C02432: The underflipper pattern of this Snares Penguin, being freshly dead, then frozen, and despite some possible freezer dehydration having occurred, was

regarded as still being in the ‘observable’ or normal field condition i.e. with its internal flipper fluids still present, and adding visibly to the darkness of the overlying basic feather melanin of the underflipper pattern. These therefore combine to provide a strongly blackish distal third to the underflipper, the ‘Observable Underflipper Pattern’ or OUFPP (Plate 4). ‘Wetness’ of the thawing flipper may have enhanced this appearance. Slight asymmetry of the OUFPP was noted, in that the right underflipper is very slightly darker than the left, which has a few extra white flecks, but that could equally be the result of differential drying rates of each flipper as the penguin lay on the laboratory bench for a number of hours.

In the more fully dehydrated state, either in the wild whilst mummifying in a sandy environment, or after museum skin preparation and drying, the influence of the internal fluids is diminished, leaving the basic underwing pattern of the penguin’s feathers only. This is termed as being in the eventual or ‘residual’ condition; hence the term ‘Residual Underflipper Pattern’ or RUFPP (Simpson 2007 and also in prep.).

Sorting of the many RUFPPs recorded from museum penguin skins in Australia and New Zealand indicates that this individual penguin (although in OUFPP condition) is certainly well toward the upper end of Snares Penguin RUFPPs, based on a comparative scale directly comparing Snares Penguins with Fiordland Penguins in this regard (Simpson in prep.). After museum preparation, it is therefore expected it will lose some of the apparent total blackness of the distal third of the underflipper pattern; a point to be checked at a later date.

## **IDENTIFICATION**

The ‘Mystery Penguin’ is a Snares Penguin because at the age it had reached, the pale rictal and mandibular skin is already diagnostic for its subspecies (e.g. see Warham (1974a); O’Brien (1990a); Enticote & Tipling (1997); Robertson & Heather (1999)).

Bill length and overall shape, including curvature of the culminicorn profile, is consistent with those for other second or third year Snares Penguins recovered or reliably reported in Australia (n = an as yet undetermined number, probably exceeding 10), differing from the normally shorter, slightly more decurved bills of Fiordland Penguins of the same age (Simpson in prep.). Viewed laterally (Plate 3), the whole bill of C02432 forms a long ‘ellipse’, varying from second year Fiordland Penguins which have a slightly shorter, more ‘oval’ form as illustrated by QVMAG 1953-2-3 (Plate 5).

The SS/C is relatively narrow anteriorly, with short black feathers of the lores making a clear separation from its tip and the proximal base of the bill. Chin, throat, face, lores and crown are glossy black, and no trace of any white cheek

striations are visible, *c.f.* Fiordland Penguins in and beyond their second year, which usually show several white striations, sometimes quite prominent, although not in the example chosen (Plate 5).

As discussed, the OUPF reinforces its identity as a Snares Penguin.

At present, fine identification details for *juvenile* (1<sup>st</sup> year) Snares and Fiordland Penguins are still not finalised for *wintering* individuals in Australia. The problem is being addressed. The gender of the 'Mystery Penguin' is considered by the author as 'potentially female', and its age, based on facial characteristics and SS/C length, as 'second year'. Recent re-evaluation of the first identified Snares Penguin in Tasmania from Seven Mile Beach on 27 August 1951 (TMAG B2637; Simpson & McEvey 1972) suggests the latter is also a second year penguin. Its pale mandibular and rictal skin is still not completely visible, even though the skin is in superb condition. The new determination that TMAG B2637 is more likely to be a second year penguin is *contra* to the original opinion of Simpson & McEvey (1972) of it probably being an adult.

## DISCUSSION

It is acknowledged that all rare penguins naturally reaching Australia, whether regarded as species or subspecies, can certainly be identified from each other as subadults or adults, and some as juveniles. However, this review, working with the living or dead penguins which have reached the beaches, is beginning to indicate that fully adult penguins are extremely rare in Australian coastal seas.

Adults of some penguin species or subspecies may well be in the oceanic areas beyond the southern continental shelf during the non-breeding foraging period, but have not yet been recorded ashore. Instead, continent-wide, the records are mainly of juvenile, second, and third year penguins, with only a few recorded as moulting to fourth year in rehabilitation or in zoos. Warham (1974a) stated that maturity is deferred in Snares Penguins. The youngest recorded breeding attempt was by a 'six-year old. Two other six-year olds and one seven-year old were found with chicks or eggs and were probably breeding'.

From the records published or received over the years, it appears that most Australian observers with good seabird knowledge can readily identify Macaroni/Royal Penguins at all ages, and the other *Eudyptes* penguins from about their late second to third-year plumage onward. Some other distinctive genera and species, for which individuals have been recorded in continental Australia, are obvious even as juveniles. They are King Penguin *Aptenodytes patagonicus* with records numbering approx. 37; Adelie Penguin *Pygoscelis adeliae* 4 or 5; Gentoo Penguin *P. papua* 11; Chinstrap Penguin *P. antarcticus* 3; and Magellanic Penguin *Spheniscus magellanicus* 1 (based in part on Marchant & Higgins (1990); Woehler (1992), but with some additional King Penguin numbers).

### *Winter records*

This review considers all rare penguins reported between early May and about mid-October in southern Australian seas to be ‘wintering’. Despite any health problems, such penguins normally exhibit excellent, definitive plumage for their species, subspecies and age class. Wintering penguins therefore tend to be easier to identify than summering penguins (see below).

### *Summer records*

All rare penguins reported between about mid-October and the end of April are considered to be ‘summering’. Such penguins normally come ashore (October to December approx.) to prepare for moult and may appear in a wide and changing range of plumage conditions. Often the dorsum tends to be, or to become, brownish, and the superciliary stripe/crest (SS/C) paler and in ragged condition, while the edges of the bill and gape (rictus) and also the underflipper patterns may be partly obscured by feathers being pushed out, as pre- and early moult conditions become increasingly apparent. Identification problems may arise during the moulting period as penguins look less like their text book illustrations. From completion of the annual moult, penguins become readily identifiable once more.

In Australia the main moulting period appears to extend from about early to late December until the end of March and early April. A comparative table is being constructed by the author, based on records of individual moulting rare penguins in Australia, to test more precisely their moulting onset and duration periods, matched, where possible, with their age classes.

### *Rehabilitation of penguins*

Rare penguins ashore in winter in Australia generally tend to be injured, or starving and underweight, and consequently are in poor condition. Those ashore in summer are normally there to moult, but again, are unlikely to survive if already seriously under-weight from starvation, as is often the case, or severely injured.

As moult sets in, penguins reduce their activity, usually standing about in one place for the required two to three weeks, as the old feathers push out and new ones replace them. Moulting penguins do not require food during this period. In Australia, unless they are guarded, penguins can easily become casualties during the moult. In care, they should not be disturbed, should be offered food but not force fed during the moult, and provided with accessible clean water.

Double mis-identification of this ‘Mystery Penguin’ probably results firstly from its more than superficial appearance to a nominate Fiordland Penguin, as suggested by the TPWS officers who saw it alive. Secondly, when received at the Museum, the ornithologist who saw it (an acknowledged seabird expert but not a Museum staff member) gained the impression that it was an entirely different species, and it

was re-designated a 'Rockhopper Penguin', although the subspecific decision of *moseleyi* had not been noted on the label in the freezer bag. Whilst the dark underflipper pattern would have directed opinion toward *E. c. moseleyi*, as was later reported by Eades (2000), the observer may have been confused by the pale gape and bill edge, a facial feature of *E. c. filholi*.

Snares, Fiordland and Moseley's Rockhopper Penguins all have a considerable amount of blackness of the distal underflipper pattern in life, the OUFPP condition, but the Eastern Rockhopper Penguin has less. In Marchant & Higgins (1990), see Plate 10 for Snares and Fiordland Penguins; Plate 11 for Moseley's and Eastern Rockhopper Penguins. The slender SS/C and rather vague bill and facial markings, coupled with an Australia-wide observer inexperience of juvenile and immature *Eudyptes* penguins, probably contributed to the two different identifications. This young Snares Penguin therefore classically illustrates the need for the overall review of Australian rare penguin records, and is the reason why it was singled out for commentary.

The time of its occurrence is close to the borderline between wintering and summering. It is anticipated it would have later moulted from second to third year plumage had it survived but there were no signs of pre-moult in the feathering and it is therefore considered 'still wintering'. The penguin has not yet been prepared as a study skin; determination of gender by dissection has not yet been obtained. It is important that it is, as far too many museum skins in the Australian collections have not had gender determined, even when received in sufficiently good condition.

## **ACKNOWLEDGEMENTS**

I thank Lesley Kurek for her assistance over two years. She was a registered wildlife carer for TPWS, but more recently responsibility for such activities was handed to the Tasmanian Department of Primary Industry and Water, Wildlife Management Branch. Over a number of years Kurek has cared for numerous seabirds found on the Tasman Peninsula, including Little Penguins and several rare penguins: Royal, Rockhopper, Fiordland, and this Snares Penguin. Richard Kurek provides perpetual support for her overall wildlife rehabilitation efforts and catches fish daily whenever penguins are in care. I also sincerely thank Kathryn Medlock at TMAG for permission to examine and photograph this penguin specimen and many others in the collections, and also Belinda Bauer and Brian Looker for their general help. Judy Rainbird at Queen Victoria Museum and Art Gallery permitted access to specimens, with assistance from Craig Reid and Tammy Gordon. Zoë Wilson scanned the photographs and greatly assisted with preparation of the paper for submission. Eric Woehler and Cindy Hull read the manuscript and I thank them for their constructive comments.

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