

BirdLife Australia Rarities Committee

Unusual Record Report Form

This form is intended to aid observers in the preparation of a submission to document a major rare bird in Australia. Its use is NOT mandatory. Please attach and/or include all relevant information including any digital images. Please Email the completed form/submission to the BARC Chair, Tony Palliser tonyp@bigpond.net.au

BARC considers submissions that include a minimum of the submitter's name(s), the bird species claimed and the location and date(s) of the record. However, more information and evidence will usually be required for BARC to accept a record. So, please submit as much detailed information about the bird as possible.

If you choose not to use this form please make sure all relevant information requested in this form is included in your submission. However, it is our preference that you fully complete sections "A" and "B", or follow their headings, so that BARC has some continuity between all submissions.

Section A: Submitter details	
Your name(s) Joint submissions are fine	Graham Barwell (GB) Samuel Blanc (SB) / Heritage Expeditions
Your email, phone or address	
Section B: Record details	
Common and scientific names Include subspecies if relevant	Macaroni Penguin <i>Eudyptes chrysolophus</i>
Site location (with GPS if possible)	Sandy Bay, Macquarie Island 54° 33' 52" S; 158° 55' 12" E
Date(s) and time(s) of record (First and last date of occurrence if known)	5 January 2014, 11:44-11:50 hrs NZ Daylight Savings Time
How many individuals were there?	one
What was the distance to the bird(s)?	about 3 m
Habitat description	sandy beach at the north end of Sandy Bay, only a few metres from the water's edge. The beach was populated with Royal Penguins, presumably from the nearby breeding colonies, King Penguins, Brown Skuas, Northern Giant Petrels and Southern Elephant Seals
Sighting conditions (e.g. weather, visibility, light conditions)	overcast, light-moderate SE wind, c. 6°, light conditions good
How confident are you in the identification (as a %) and why?	100% though we acknowledge we don't have bill measurements or DNA analysis
Did you find and/or identify the bird initially? Who else recorded the bird and do they agree with the identification?	SB first found the bird while leading an ecotour group ashore; GB subsequently joined him to look at the unusual penguin identified as a Macaroni. We both agreed on the identification at the time.
What experience have you had with this species?	SB has seen Macaroni Penguins on several occasions on South Georgia in the last few years GB has no previous experience with this penguin
Has this species been seen at this location before? When?	There is only one accepted record of this species from the island that we are aware of, an adult male collected in December 1957 by Robert Falla & deposited in the Dominion Museum, Wellington (now

	Museum of NZ/Te Papa Tongarewa), as DM 8963 (Kinsky 1969: 226).
Have photographs of the bird or discussion of it occurred on the internet? (Please provide the site name, a summary, electronic link, etc.)	Not that we are aware of.
Do you permit BARC to display your images etc. electronically (credited with your name)	Yes

You may choose to delete or ignore this page, but please include as much of the requested information in your submission as possible, especially Sections C and E.

Section C: Supporting evidence

Please include evidence that supports the identification, such as photographs, video, call recordings, etc. Digital images can be pasted into this document below, at the end, or provided separately. Digital video and sound recordings can be sent separately to this form. Label photos etc or insert captions to make note of relevant features they show.



Fig. 1 Presumed Macaroni Penguin on gently sloping beach, showing crest plumes meeting at forehead and somewhat smaller size than nearby Royal Penguins, considering the presumed Macaroni is standing on higher ground than the Royal to the right. Note too the thicker, more clearly defined black marking on the underside of the flipper compared to the Royals. Photo by Samuel Blanc / Heritage Expeditions



Fig. 2 Presumed Macaroni Penguin with two Royal Penguins. Photo by Graham Barwell.



Fig. 3 Presumed Macaroni Penguin. The bill appears to be slightly shorter than the Royal Penguin on the right in the photo above. The edge of the small white patch on the rump can just be seen. Photo by Graham Barwell.



Fig. 4 Head of presumed Macaroni Penguin. Note the black cheeks and throat, carmine eye, short bill (slightly exaggerated by the position of the head) with a high-ridged upper mandible giving the distal end a somewhat bulbous appearance. Note the transverse series of grooves and ridges at the bill base. Photo by Samuel Blanc / Heritage Expeditions



Fig. 5 Head of presumed Macaroni Penguin. The greyish tinge on the cheek is an effect of the light reflecting off the plumage. Photo by Samuel Blanc / Heritage Expeditions

Section D: Description of the bird(s)	
Please provide a description of the bird(s) including all identification features recorded. Provide all possible details that might corroborate the identification.	
Plumage	Head and throat evenly dark black, sharply demarcated from the pure white lower neck, chest and belly. Thin gold and black crest plumes extending from the middle of the forehead back across the crown and drooping over rear face. Nape and back black with a bluish tinge. Short stiff black tail with a small white patch on the rump. Flippers black on the upper side, white on the underside with a well-defined thick black line along the leading edge, widening towards the black tip.
Bare parts	Blackish-orange robust bill brightest on the upper mandible. The bill appeared to be slightly shorter than those of the adjacent Royal Penguins with a slightly more bulbous tip. There was a transverse series of grooves and ridges at the bill base. A pale pink triangular patch of bare skin extended from the gape to just below the eye. The iris was carmine or garnet-red, contrasting with the reddish-brown iris in the adjacent Royal Penguins. The legs were pink with dark brown claws.
Moult details	The bird did not appear to be moulting
Structure and 'jizz'	A medium-sized penguin appearing slightly smaller than the surrounding Royal Penguins
Calls	The bird did not call
Behaviours	The bird was walking slowly along the beach among the Royal Penguins. It did not associate specifically with any of the other penguins present. It was not known if the bird was engaged in any breeding-related activity, like returning to feed a chick in the nearby Royal Penguins colony. It did not exhibit any particular concern at the people present on the beach.
Age, sex and/or taxonomy	An adult bird, judging from the grooves & ridges at the base of the bill, the well-developed crest plumes & the small white patch on the rump (see Marchant & Higgins 1990: 222-23 & Williams 1995: 211). For comments on sex and taxonomy, see section E.

Section E: Confusion species
Please indicate other species that the bird(s) might be confused with and how they can be eliminated
The crest plumes meeting at the forehead eliminate all species of crested penguin except Royal Penguin. Separation of Macaroni and Royal Penguins is particularly difficult unless the birds are on their breeding grounds. <u>Separation of Macaronis and Royals</u> The usual characters given in the literature for separation of Macaronis from Royals are their dark faces and throats, smaller overall size, their generally smaller bill measurements (length & depth), and longer tarsus-toe length (Woehler 1995; Borboroglu & Boersma 2013: 199-200; Martinez et al. 2020a). The shallow V junction between black throat & white breast mentioned by Menkhorst et al. (2019: 36) is not noted as a key character elsewhere. It can be seen in fig. 3 above, but may be an effect of the way the bird is holding its head, since it's not evident in the other photos of the same bird. Some of the usual characters cannot be used alone, since there is some variation within species and overlap between them. SUB1149Shaughnessy (1975: 148) found Royals on Macquarie Island varied in face colour from pure white to uniformly black, though the photo of a dark bird in plate 10 shows pale cheeks. Shaughnessy noted that most dark-faced Royals are not as dark as Macaronis (1975: 151), but that females have dark faces more commonly than males. Woehler's results from bill measurements of a sample of Heard Island Macaronis and Macquarie Island Royals showed that there was some overlap between male Macaronis and female Royals, both with single bill features and with a combination of measurements (bill shape index). The problem this poses for

identifying birds away from their breeding grounds has been noted by other workers (e.g., Dehnhard et al. 2012: 95).

DNA testing has not so far proved particularly useful in separating the Macaronis from Royals. Some of the tests used by Frugone et al. (2018) couldn't distinguish between the two species and the researchers found the testing of white-faced Royal-type birds on Marion Island, while not fully conclusive, suggested they may be a phenotype of Macaronis. In another study Frugone et al. (2019) found low levels of genetic differentiation between populations of Macaroni and Royal Penguins with suggestions of contemporary gene flow perhaps being almost exclusively between individuals from the Kerguelen Islands and Macquarie Island. Cole et al. (2019: 785) found just 0.2% genetic divergence between Royals and Macaronis, suggesting that, despite clear phenotypic differences (e.g., face colour, bill size), they are in the earliest stages of diversification.

With most strategies for separating the species having limitations, some workers have stated that a bird's breeding in a particular location may be the most reliable indicator of its identity (e.g., Shaughnessy 1975: 152; Christidis and Boles 2008: 98). But this doesn't help with the identification of a bird which may be a potential vagrant.

Vagrants

Macaroni Penguin: There have been two studies of the movements of Macaronis in the Indo-Pacific region using geolocation. French researchers successfully retrieved and downloaded information from loggers on 12 adults from the Kerguelen Islands in 2006, 7 in 2007 and from 11 adults from the Crozet Islands in 2007 (Bost et al. 2009; Thiebot et al. 2011). While the Crozet birds mostly foraged SW of their breeding islands, the Kerguelen birds wintered in seas between the Subantarctic Front and the Polar Front, east of their breeding islands, and travelling as far as 120° east, i.e., to the south of Western Australia. In the BirdLife International *Seabird Tracking Database*, the tracks of the 2006 birds are the only Macaroni tracks which come anywhere near Australia (excluding Heard Island).

Vagrant Macaronis have turned up ashore on islands in the Australia-New Zealand region. Menkhorst et al. (2019: 36) stated that this species was a vagrant to Macquarie Island, but sight records have proved difficult to establish (e.g., BARC Case #854). The only accepted record, as least until 2014 when Case #854 was determined, is of an adult male collected on the island in 1957 (see Section B above).

In the New Zealand subantarctic islands, away from the colonies of breeding Royals on Macquarie Island, the identity of vagrant birds has been somewhat more readily established. There are two records from Campbell Island (Kinsky 1969: 226 & plate 33; Miskelly et al. 2013: 298). Photos of the second bird, which was accepted by the Birds NZ (formerly Ornithological Society of NZ) Records Appraisal Committee (BNZRAC), are available in *New Zealand Birds Online* (Seabrook-Davison 2013). There are no records from the Auckland Islands (Miskelly et al. 2020), but further north on the Snares Islands, there are four records from 1969, 1970, 1974 and 2015. The identification of the first two birds was disputed—were they Macaronis or a dark-faced Royals?—but the 1974 bird was collected and the 2015 bird was accepted by the BNZRAC (Miskelly et al. 2001: 14; Miskelly et al. 2017: 58).

Royal Penguin: There are no tracks for this species in BirdLife's *Seabird Tracking Database*. Pale-faced birds have been reported from Indian Ocean islands (Heard, Kerguelen, Crozet, Marion), but their status is unclear, since it is not known if they are Royal Penguins, an uncommon phenotype of Macaronis or hybrids (Frugone et al. 2018: 3). Genetic testing of such birds on Marion Island was not fully conclusive with the researchers concluding that the data suggested they were a phenotype of Macaroni Penguin, but that there may be a divergence process underway.

Birds which have appeared in penguin colonies in the South Atlantic have been likewise difficult to ID successfully. A combination of ID factors—overall size, bill measurements & absence of pale-faced birds from South Georgian Macaroni colonies—led to a pale-faced bird on Bird Island being accepted as a Royal, and a second bird, unmeasured but larger than the Macaronis, was accepted as a Royal on the basis of the pale face and overall size (Prince & Croxall 1996: 84). Despite the lack of measurements, a pale-faced bird found among Southern Rockhopper Penguins on the Falkland Islands in 2011 was considered a Royal, rather than a Macaroni colour morph or hybrid, on the basis of the pale face, overall size, observed (but not measured) bill length and shape (Dehnhard et al. 2012). The situation of the second bird on Bird Island and the 2011 bird on the Falklands is analogous to our record of a presumed Macaroni on Macquarie Island: like the bird on Macquarie, both the former birds showed the characteristic facial colour and overall size of the species they were identified as, despite being a very long way from the nearest breeding colony for that species.

Our conclusion

Considered together, the overall smaller size of the bird we saw, together with the evenly black face and the apparently slightly shorter bill all point to the bird being identified as Macaroni Penguin. Because the bill is not markedly shorter than the nearby Royals, that suggests the bird was possibly a male Macaroni, since female Macaronis have shorter bills than all Royals (Woehler 1995: 322, table 1; Borboroglu & Boersma 2013: 199-200, tables 12.1a-b). Such a suggestion can only be most tentative in the absence of bill measurements.

Taxonomy

The taxonomic status of Macaroni and Royal Penguins has been viewed differently over the last thirty years. The prevailing view had been that Royals were a subspecies or colour morph of Macaronis (e.g., Harrison 1983). Marchant and Higgins (1990) treated the two as separate species, and, while they were not followed by Christidis and Boles (2008), the separation of the two species has been adopted by the BirdLife Australia *Working List* (2019), the New Zealand *Checklist* (Checklist Committee 2010) and in studies of the penguin family (Williams 1995; Borboroglu & Boersma 2013) or of seabirds in general (Howell & Zufelt 2019). All the current world checklists agree on this taxonomic approach (Clements et al. 2019; HBW and BirdLife International 2019; Rasmussen & Donsker 2020).

Genetic work undertaken most recently has again questioned the basis for separation (Frugone et al. 2018; Frugone et al. 2019; Cole et al. 2019). Nevertheless, the Cornell online *Birds of the World* has provisionally maintained the split on the basis of some measurements along with differences in face colour (Martínez et al. 2020b).

For the bird in our submission, whether it's considered a full species, or the nominate of a species consisting of two subspecies, is not critical to the identification, since we argue that the two populations can be separated, given the right combination of identification characters. We are not aware of any genetic work on the Macquarie population which is designed to elucidate the status of dark-faced birds, like the work Frugone et al. (2018) did on pale-faced birds from Marion Island. Until it is determined whether very dark-faced Macaroni-like birds on Macquarie are colour morphs of Royals or hybrids, then we think it reasonable to consider them vagrant Macaronis, as has been done with recent NZ records of such birds and with pale-faced birds in the South Atlantic being considered vagrant Royals.

Section F: References and aids

Did you use books, journal articles or on-line sites or pages to help you prepare this submission? Which ones?

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	<p>of Macaroni Penguins.” <i>Marine Ecology Progress Series</i>, 421: 279-90.</p> <p>Williams, Tony D. (1995). <i>The Penguins: Spheniscidae</i>. Oxford: Oxford University Press.</p> <p>Woehler, E.J. (1995). “Bill Morphology of Royal and Macaroni Penguins, and Geographic Variation within Eudyptid Penguins.” In Peter Dann, Ian Norman and Pauline Reilly, eds., <i>The Penguins: Ecology and Management</i> (Chipping Norton, NSW: Surrey Beatty): 319-30.</p>
<p>Would you like to acknowledge the assistance of others in the identification process or preparation of this submission?</p>	<p>Mike Carter for his support and encouragement in the preparation of this submission</p>