

## SHORT NOTE

# Macquarie Island shags (*Leucocarbo purpurascens*) at the Auckland Islands

– an addition to the New Zealand list

COLIN M. MISKELLY\*

Museum of New Zealand Te Papa Tongarewa,  
PO Box 467, Wellington 6140, New Zealand

JOANNE H. COOPER

Birds Curation Group, Department of Life Sciences,  
The Natural History Museum, Akeman Street,  
Tring, HP23 6AP, United Kingdom

Two specimens of Macquarie Island shag (*Leucocarbo purpurascens*) collected at the Auckland Islands in July 1901 were correctly identified at the time (Ogilvie-Grant 1905) and remain in the care of the Natural History Museum at Tring (NHM), England. This record has been overlooked by most subsequent authorities, including all four editions of the New Zealand checklist (Fleming 1953; Kinsky 1970; Turbott 1990; Gill *et al.* 2010) and Marchant & Higgins (1990). We examine the provenance and identity of the specimens, and recommend that Macquarie Island shag be added to the New Zealand list.

In 1897, the governor of New Zealand (the Earl of Ranfurly) received a request to obtain examples of New Zealand birds for the British Museum (Ogilvie-Grant 1905). Lord Ranfurly became personally involved in meeting the request, including during visits to the New Zealand subantarctic islands on the government steamer *Hinemoa* in Jan 1901, and to the same islands plus the Australian territory Macquarie Island further to the southwest on the SS *Tutanekai* during Dec 1901 to Jan

1902 (Ogilvie-Grant 1905; Miskelly & Taylor 2020 – Chapter 1 in this book). In addition to his own endeavours, Lord Ranfurly requested captains of British naval vessels in New Zealand waters to collect ‘any specimens obtainable’ (Ogilvie-Grant 1905).

Among the captains who complied with the governor’s request was Commander John Rolleston of HMS *Archer*, along with his lieutenants Kennett Dixon and Archibald Stewart (Ogilvie-Grant 1905; Taylor 2006; Williams 2012; Miskelly *et al.* 2020 – Chapter 2 in this book). The *Archer* was a third-class cruiser and was then based at the Royal Navy’s Australia Station (i.e. Port Phillip Bay, Melbourne; Byrn 1904). Commander Rolleston twice responded to a request by the New Zealand government to check and service castaway depots on the subantarctic islands, in Jul 1901 and Jan 1903 (Byrn 1904; Taylor 2006). Details of the voyages are contained in the ship’s log (Byrn 1904) and in contemporary newspaper accounts accessed via the Papers Past website (<https://paperspast.natlib.govt.nz>, viewed 5 May 2019).

On the first voyage, the *Archer* departed Lyttelton on 29 Jun 1901 and encountered rough conditions en route to the Auckland Islands, reaching Port Ross on 2 Jul. The sailors landed on Enderby Island on 5 Jul, and proceeded to Hanfield Inlet (halfway down the east coast of Auckland Island), where they remained till 9 Jul. The *Archer* reached Campbell Island on 10 Jul, remaining there till 12 Jul. It ran into a gale en route to Antipodes Island, which was reached on 15 Jul (all dates from Byrn 1904). The log then jumps to the *Archer's* arrival in Wellington on 18 Jul, but specimen collection dates have the vessel at the Bounty Islands on 16 Jul (Ogilvie-Grant 1905). The *Evening Post* (19 Jul 1901) mentioned that the *Archer* 'met with very rough weather during the whole voyage, and lost a boat off Antipodes Islands'.

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On the second voyage, the *Archer* departed Lyttelton on 6 Jan 1903, checked the provision depot on 'Swan Island' (presumably a transcription error for Snares Islands, from the hand-written log entry) on 8 Jan, and was in Port Ross, Auckland Islands, on 9 Jan. The ship reached Campbell Island on 11 Jan and departed on 12 Jan, arriving at Lyttelton on 17 Jan 'after visiting several other islets and depôts, among them Bounty Island, where we secured some splendid specimens of penguins' (Byrn 1904).

These itineraries do not allow time to visit Macquarie Island, and we are unaware of the *Archer* ever visiting that island. An article in the *New Zealand Times* on 3 Jul 1901 stated that the vessel's intended cruise was to the Auckland, Campbell, Bounty, and Antipodes Islands. 'During her cruise she will replenish the depots of provisions maintained on those islands for the relief of castaways' (*Evening Star*, 1 Jul 1901).

Ogilvie-Grant (1905) and Williams (2012) reported on 20 bird specimens of eight species collected by the officers of HMS *Archer* on the two voyages. Using current nomenclature, these were three Auckland Island mergansers (*Merganser australis*), eight Bounty Island shags (*Leucocarbo ranfurlyi*), two Macquarie Island shags (*L. purpurascens*), one New Zealand falcon (*Falco novaeseelandiae*), two Antipodes Island snipe (*Coenocorypha aucklandica meinertzhagenae*) (the collection date for one was given as 28 Feb 1899, possibly in error), one Antipodes Island parakeet (*Cyanoramphus unicolor*), two Reischek's

parakeets (*Cyanoramphus hochstetteri*), and one Antipodes Island pipit (*Anthus novaeseelandiae steindachneri*).

The bird collection dates in Ogilvie-Grant (1905) all match those in the ship's log (Byrn 1904). For the Jul 1901 voyage, collection dates and locations include Port Ross, Auckland Islands, on 4 Jul (New Zealand falcon), Carnley Harbour, Auckland Islands, on 9 Jul (Auckland Island merganser), Antipodes Island on 15 Jul (Antipodes Island snipe, Antipodes Island parakeet, and Reischek's parakeet), and Bounty Islands on 16 Jul (two Bounty Island shags). Six of these seven specimens were attributed to John Rolleston (the collector was not recorded for the single Reischek's parakeet).

The two Macquarie Island shag specimens were also collected by John Rolleston, at Port Ross on 4 Jul 1901 and at Carnley Harbour on 9 Jul 1905. Ogilvie-Grant (1905, p. 568) listed them under the name *Phalacrocorax traversi*, a junior synonym of *Leucocarbo purpurascens*:

63. PHALACROCORAX TRAVERSI Rothsch.

*Phalacrocorax traversi* Rothschild, Bull. B. O. C. viii. no. lviii. p. xxi (1898).

a-d. Adult, immature, et pullus. Macquarie Is. 14th January, 1902.

e. Immature. Port Ross, Auckland Is., 4th July 1901 (*Commander J. P. Rolleston*).

f. Adult. Carnley Harbour, Auckland Is., 9th July, 1901 (*J. P. R.*)

... *Commander J. P. Rolleston* records the soft parts of the adult bird killed at Carnley Harbour as follows : - 'Iris brown ; upper mandible black, lower red ; tarsi and feet light red.'

**FIGURE 1. A-C (OPPOSITE).** Adult shag specimens collected at the Auckland Islands and Macquarie Island in 1901 and 1902. Images © Natural History Museum, London.

Specimen arrangement for all three images:  
**Top** = *Leucocarbo purpurascens*, NHMUK 1903.7.17.61, 14 January 1902, Macquarie Island, presented by the Earl of Ranfurly;  
**Middle** = *L. purpurascens*, NHMUK 1903.7.17.80, 9 July 1901, Carnley Harbour, Auckland Islands, collected by J.P. Rolleston;  
**Bottom** = *L. colensoi*, NHMUK 1901.10.31.45, 3 January 1901, Enderby, Auckland Island, presented by the Earl of Ranfurly.



The only subsequent mention of the birds that we have found was in Mathews & Iredale (1913) under the name *Hypoleucus carunculatus traversi* (another junior synonym for *Leucocarbo purpurascens*), where the range is given as 'Macquarie Island, Auckland Islands (breeding)'.

Most of Rolleston's original field labels have been removed and their data transferred to museum labels. However, one label still attached to a Bounty Island shag specimen bears detailed pencilled data, including locality, date, and soft-part descriptions, and bears the name of Commander J. Rolleston. The impression given is that Rolleston was a careful and systematic collector, making a possible confusion of labels and/or data during the voyage an unlikely prospect.

The two '*Phalacrocorax traversi*' specimens referred to by Ogilvie-Grant (1905) as having been collected at the Auckland Islands remain in the NHM collection. They are stored with other Macquarie Island shag specimens, and are indistinguishable from them. The Carnley Harbour bird is an adult (Fig. 1), and the Port Ross bird is immature (Fig. 2).

422 Plumage and measurements of the two specimens were compared with examples of seven *Leucocarbo* shag taxa from southern New Zealand, Macquarie Island, and Heard Island held at Museum of New Zealand Te Papa Tongarewa, the NHM, Canterbury Museum, and Auckland Museum (all measurements and scoring by authors). Note that the Heard Island shag (*L. nivalis*) is geographically the next nearest population of the '*atriceps*' group of shags to which the Macquarie Island shag belongs. Each specimen was scored on five plumage traits assessing the amount of white on the cheeks, neck, and back. The percentage of white on the neck was measured with a dressmaking tape-measure at the mid-point of the neck, and was the arc of any white plumage present expressed as a percentage of the neck circumference. Remaining plumage scores assessed the presence or absence of white on the cheek above the line of the gape and above the lower base of the lower mandible, on the dorsal surface of the closed wing (alar patch), and on the back (this 'dorsal patch' is often concealed by the closed wings on museum specimens).

Culmen (bill length) and tail length were measured with vernier calipers, and wing length

was measured with a flexible tape-measure as the shortest curve between the carpal flexure and the tip of the longest primary (with no attempt to straighten or flatten the wing on these predominantly old, fragile specimens). Caruncle length and width measured the maximum dimensions of any caruncle patch present above the bill. All measurements were in millimetres.

The two 1901 'Rolleston' specimens are quite unlike any New Zealand endemic shag species. They are large birds, with broad white sides to the throat, white cheeks, and patches of carunculation over the bill (Table 1). The carunculations are clearly developed in the adult (although not as pronounced as in *Leucocarbo purpurascens* specimens collected when breeding). In the immature the carunculations are incipient, appearing as flattish brown pimpling. Both specimens have a distinct pale or white alar patch, although these are somewhat disarrayed.

In contrast, *Leucocarbo colensoi* is a much smaller species and notably lacks any carunculations above the base of the bill. Campbell Island shag (*L. campbelli*) is essentially identical in size and plumage markings to the darkest *L. colensoi* specimens (*L. colensoi* is a variable species). *Leucocarbo ranfurlyi* is similar in size to the 1901 Auckland Islands specimens, but again notably lacks any carunculations above the bill and is darker on the face and neck. Pied morph Stewart Island shags (both *stewarti* and *chalconotus* populations) have carunculations above the bill, but have dark faces and much darker necks.

Adult Heard Island shags (*Leucocarbo nivalis*) are similar in size and plumage markings to the 1901 'Rolleston' specimens (and Macquarie

**FIGURE 2. A-C (OPPOSITE).** Immature shag specimens collected at the Auckland Islands and Macquarie Island in 1901 to 1904.

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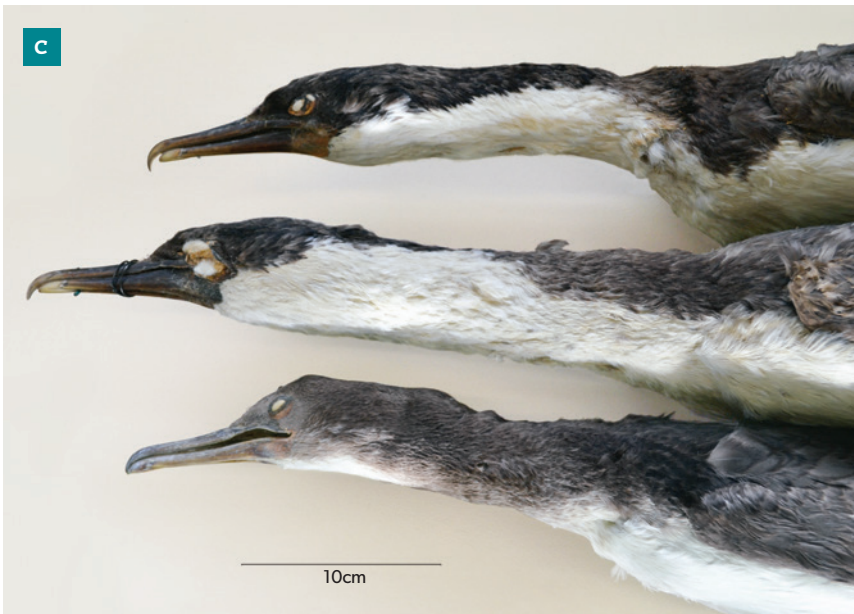
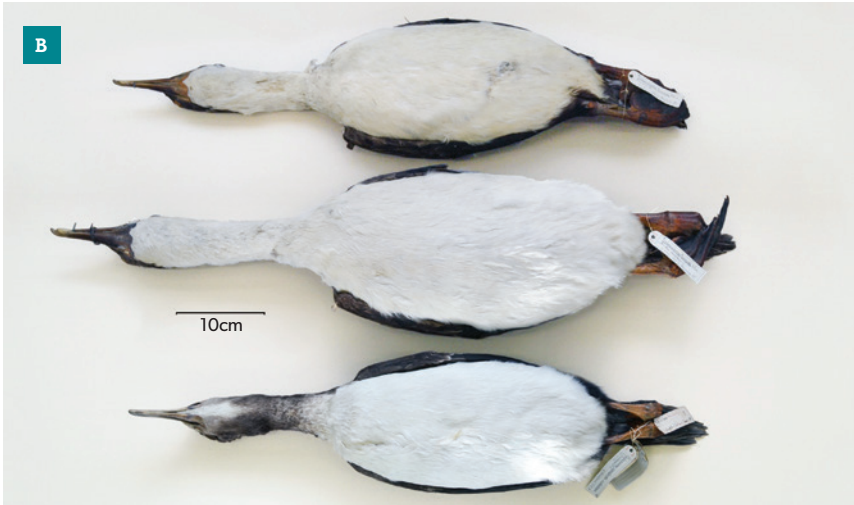
Specimen arrangement for all three images:

**Top** = *Leucocarbo purpurascens*, NHMUK 1903.7.17.62, 14 January 1902, Macquarie Island, presented by the Earl of Ranfurly;

**Middle** = *L. purpurascens*, NHMUK 1903.7.17.79, 4 July 1901, Port Ross, Auckland Islands, collected by J.P. Rolleston;

**Bottom** = *L. colensoi*, NHMUK 1905.12.30.415, collected by E.A. Wilson, H.M.S. *Discovery*, March 1904.





A. Adult											
Taxon	n	Culmen	Wing	Tail	Caruncle L	Caruncle W	White above gape	White above bill base	% white on neck	Alar patch	Dorsal patch
<i>Rolleston</i> 1901	1	58.2	312	missing	25.9	10.6	No	Yes	59	small	nil
<i>purpurascens</i>	5	53.6–62.8	303–320	115–124	22.6–28.6	6.4–14.9	No	Yes	70–79	small–medium	nil
<i>nivalis</i>	2	48.9–55.7	280–315	121–128	18.7–19.2	6.1–8.0	Yes	Yes	82	medium–large	medium–large
<i>colensoi</i>	32	43.6–55.1	247–290	104–133	nil	nil	No	No	0–28	nil–large	nil–large
<i>campbelli</i>	28	44.1–53.2	250–288	102–131	nil	nil	No	No	0	nil–small	nil
<i>ranfurlyi</i>	20	53.0–59.6	256–303	104–138	nil	nil	No	No	14–53	very small–medium	nil
<i>stewarti</i>	16	46.2–56.7	273–313	102–129	nil–17.1	nil–5.4	No	No	15–33	very small–medium	nil–medium
<i>chalconotus</i>	6	60.4–66.2	298–323	117–134	11.3–25.6	2.7–5.7	No	No	19–40	very small–large	nil–large
B. Juvenile/immature											
Taxon	n	Culmen	Wing	Tail	Caruncle L	Caruncle W	White above gape	White above bill base	% white on neck	Alar patch	Dorsal patch
<i>Rolleston</i> 1901	1	58.8	315	116	12.7	7.0	No	Yes	73	small	nil
<i>purpurascens</i>	4	53.6–54.6	292–305	113–127	nil–15.9	nil–5.4	No	Yes	53–66	nil–small	nil
<i>nivalis</i>	1	54.1	318	109	12.8	4.9	Yes	Yes	77	nil	nil
<i>colensoi</i>	13	47.5–53.8	238–280	107–124	nil	nil	No	No	0–17	nil–medium	nil
<i>campbelli</i>	15	46.6–54.5	246–291	115–136	nil	nil	No	No	0	nil	nil
<i>ranfurlyi</i>	6	53.1–61.7	265–302	104–149	nil	nil	No	No	8–32	nil–medium	nil
<i>stewarti</i>	3	51.4–52.6	275–301	109–127	nil	nil	No	No	6–20	nil	nil
<i>chalconotus</i>	1	62.1	295	123	nil	nil	No	No	23	nil	nil

Island *L. purpurascens*), but they have more extensive white in all plumage areas assessed. *Leucocarbo nivalis* was the only taxon with white on the cheeks reaching above the line of the gape (Table 1).

While there is no mention of these birds being collected in the *Archer's* log, the rarity of the other bird species collected by Rolleston, Dixon, and Stewart suggests that the two Macquarie Island shags were shot because they were distinctively different (and rarer) than the numerous Auckland Island shags likely to have been encountered in Port Ross and Carnley Harbour in July 1901.

We are unaware of other records of vagrancy by Macquarie Island shags. However, the 'atriceps' group of shags have a circumpolar distribution (Marchant & Higgins 1990) and so are clearly capable of crossing thousands of kilometres of open ocean. Macquarie Island is 5,200 km from the next nearest 'atriceps' population on Heard

Island, which is itself 1,700 km from the Crozet Islands, while the Indian Ocean populations (Crozet and Prince Edward Islands) are 4,300 km east of the South Sandwich Islands (the nearest population in the South Atlantic). The distance from Macquarie Island to the Auckland Islands is only 620 km.

The identity of these specimens and their provenance (Auckland Islands) was accepted by the Birds New Zealand Records Appraisal Committee (Miskelly *et al.* 2019). We recommend that Macquarie Island shag (*Leucocarbo purpurascens*) be recognised as a vagrant species in New Zealand.

## Acknowledgements

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**TABLE 1 (OPPOSITE).** Measurements and plumage characters of the two Macquarie Island shag specimens collected at the Auckland Islands in 1901 ('Rolleston 1901'), compared with Macquarie Island shag (*Leucocarbo purpurascens*), Heard Island shag (*L. nivalis*), Auckland Island shag (*L. colensoi*), Campbell Island shag (*L. campbelli*), Bounty Island shag (*L. ranfurlyi*), and Stewart Island shag (*L. chalconotus*) southern (*stewarti*) and northern (*chalconotus*) populations (pied morph birds only). Due to small sample sizes, ranges of measurements are presented only. Caruncle L and Caruncle W refer to the maximum length and width of any patch of caruncles above the bill.

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