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New Zealand White-Capped Mollymawks (*Diomedea cauta steadi*) breeding with Black-browed Mollymawks (*D. melanophrys melanophrys*) at Antipodes Islands, New Zealand

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ABSTRACT

Records of all mollymawk sightings on Bollons Island, Antipodes Islands, are reviewed. Data are provided to confirm the breeding record for Black-browed Mollymawk *Diomedea melanophrys melanophrys* and add a new breeding record for the NZ White-capped (Shy) Mollymawk *Diomedea cauta steadi*.

KEYWORDS: Mollymawk, breeding, Antipodes Is. *Diomedea* spp.

INTRODUCTION

Bollons Island (49° 39' S, 178° 49' E), lies about 2 km NNE of Anchorage Bay, Antipodes Island (Figure 1). Some 1.2 km long, it rises to a height of 200 m and, together with the smaller Archway Island, forms a crescent, being the rim of a large volcanic crater (ridgeline shown in Figure 1) now eroded by the sea and open on the weather side to the fierce westerly winds.

Black-browed Mollymawks *Diomedea melanophrys*, mixed with two Grey-headed Mollymawks *Diomedea chrysostoma*, were first reported as single birds and small groups on the SW side of Bollons Island by E.G. Turbott and R.A. Falla in November 1950 (*in* Warham & Bell 1979). No Grey-headed Mollymawks have been reported since. Warham & Bell (1979) also recorded seeing what were possible chicks on the SE side of the island in February 1969.

OBSERVATIONS

Viewing the mollymawks on Bollons Island from the sea is difficult due to the height of the colonies above the sea (about 120 m), being on ledges or the top of sheer cliffs, and because the constant swell makes a boat a very unsteady viewing platform. The angle of sight from below makes it impossible to see clearly to the back of the cliff ledges on which many of the birds nest. The dense tussock on the ledges also provides cover into which adults and chicks can lower their heads and become obscured to observers viewing from below. Close access from the land is extremely difficult and hazardous due to the steep slope and the tendency for the peaty soil and vegetation to slide off the rocky substrate if disturbed. Aerial photographs make it possible to assess numbers, but are unlikely to provide adequate identification of species.

In November - December 1978, a NZ Wildlife Service / Department of Lands & Survey expedition visited the Antipodes Islands. On 21 November, a party was able to land at a reef SW of the main concentration of mollymawks high on the cliffs. Using a 100x spotting telescope mounted on a tripod, CJRR noted that all birds visible were white headed, with a high steep forehead, and lacked the pale eye and heavy eyebrow reaching to the base of the bill which is typical of *D. melanophrys impavida*. Some 50 pairs were estimated to be present at this site (A in Figure 1). In a small boat, we then cruised close in at the base of the cliffs below the colony and tried to observe the underwing pattern of birds flying into the nest sites. The underwings were noted (and a sketch made) as being very white 'with no obvious trailing black edge and only a moderately wide and even black band on the leading edge'. This pattern was also present in Black-brows flying close to the boat while around the island. Other scattered groups of mollymawks were seen on the top of the cliff at the SSW side of the island (B in Figure 1) and 25 pairs were estimated to be present.

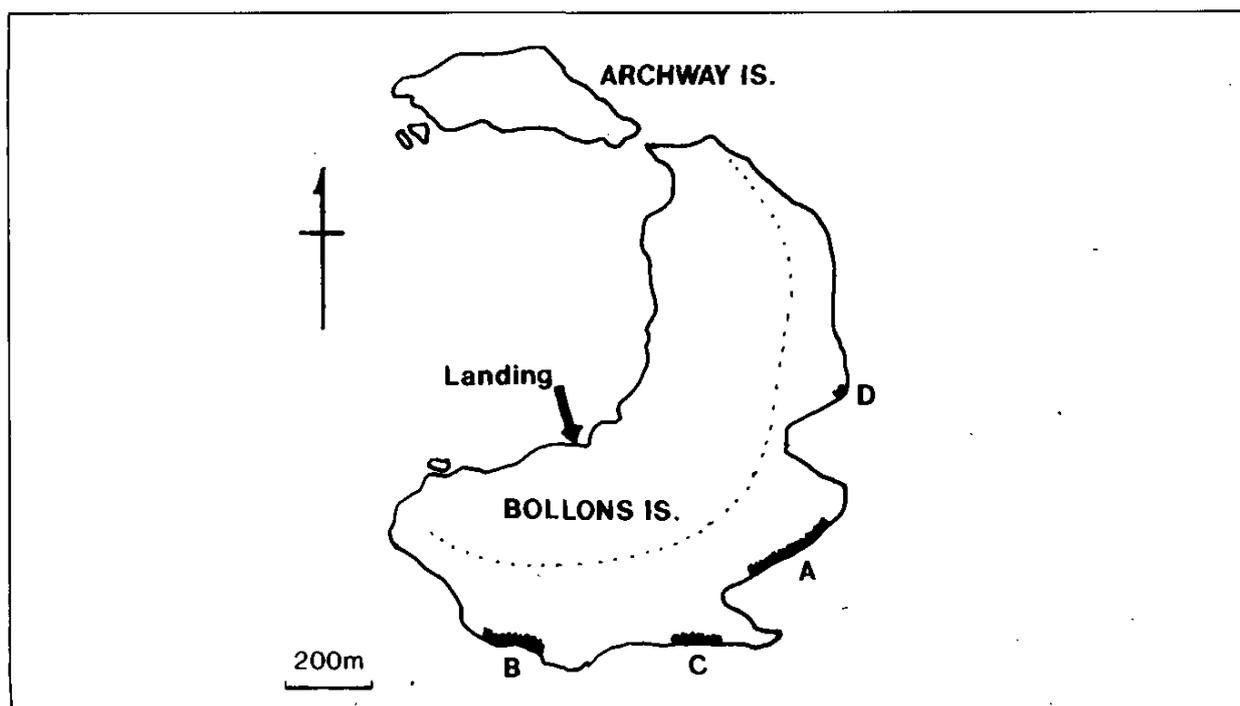


FIGURE 1 - Location of breeding mollymawks on Bollons Island, Antipodes Islands.

After landing on the NNW side of Bollons Island on 29 November 1978, CJRR and Andy Cox climbed over the island to a group of mollymawks nesting just at the bottom of an estimated 35° slope above the cliff edge on the SSW side of the island (B in Figure 1). There was an accessible group of 12 nests among tussock (equal mix of *Poa litorosa* and *P. foliosa*). The distance between nests was measured for 6 nests and averaged 100 cm (90 - 110). The width of the nest bowl at 3 nests averaged 31 cm (30 - 33). The approximate height of all nest pedestals was 15 cm. Nine nests contained an egg. Two eggs when collected with their incubating adults, had fully developed and feathered embryos. Measurements of four eggs were: average length 103.7 mm (99.9 - 107.6); average width 66.0 mm (63.4 - 67.0). The single male and female adults collected were, along with their eggs, deposited at the National Museum, Wellington. Fresh measurements were (male first): culmen 119.3, 118.4 mm; tarsus 85.4, 86.5 mm; middle toe to claw 124.7, 122 mm; wing 210, 203 mm; body mass 4050, 3550 g. All birds seen on the ground or sitting on nests at that site were adults; close observation confirmed them as *D. m. melanophrys*.

While travelling to Bollons Island on the same day, Brian Bell had observed two *D. m. impavida* (pale yellow eyes) flying close to the boat at sea level immediately below the colony where only *D. m. melanophrys* was later found.

Rowley Taylor (pers. comm.) later counted a total of 111 adult mollymawks at all sites on Bollons Island from aerial photographs taken during the 1978 expedition.

Some 86 mollymawks on nests were counted from a boat in December 1989 by Rowley Taylor with GC, and all were presumed to be Black-browed Mollymawks. In October 1990 (Miskelly et al. 1990), a total of 88 'Black-browed sites' were counted from a dinghy, with 30 occupied sites along the clifftop on the south coast and 58 on an extensive tussock ledge three quarters of the way up the cliff face on the SE coast. At 25% of the nest sites two birds were present, indicating that birds may have been courting. In January 1993, Rowley Taylor and Rodney Russ (pers. comm.) counted 93 occupied nests, all of which were presumed to be of Black-browed.

During the 'Totorore' Expedition to Antipodes Island in February and March 1994, GC visited Bollons Island three times by sea, and each time observed the nesting colony of mollymawks on the two principal ledges on the face of the very high cliff on the SE side of the island (A in Figure 1). On the second occasion, GC (accompanied by Jacinda Amey and Gus McAllister) landed on the island.

27 February 1994

At 11:00 h, in a calm sea with a moderate swell, several Shy Mollymawks *D. cauta* subsp. were seen, using 7x50 binoculars from 'Totorore', flying along the cliffs at the mollymawk colony (A in Figure 1). GC returned to the area below the cliff at 13:30h and stayed watching until 16:00h. During this time five Shy Mollymawks were seen at nests with chicks, another three on a ledge without any visible chicks, and two which continued to fly past the ledges but did not land. They were identified as Shy Mollymawks by their white head, bigger size than Black-brows, horn coloured bill, clearer white underwing and dark 'thumb mark' at leading edge of wing next to the body. Two of these birds were observed when flying close to the ship and identified as White-capped Shy Mollymawks *D. cauta steadi*.

There were also two Black-browed Mollymawks in flight, and during the afternoon two more were seen taking off from the lower ledge and flying away out of sight. On both ledges a total of 52 chicks were seen, plus four more in the tussock on the cliff edge to the west of the big cliff (C in Figure 1), and one more in a similar position to the east (D in Figure 1), which was briefly visited by a Shy Mollymawk, making a total of 57 chicks. It was not possible to determine how many chicks belonged to each of the two mollymawk species, as all that could be seen of them in the tussock was whitish balls of down with heads and necks sticking up.

12 March 1994

While ashore on Bollons Island, Jacinda Amey and Gus McAllister (pers. comm.) climbed to a point on the SE side where they were able to see across and down the cliff to the two main mollymawk ledges at a distance of some 70 m. While they saw many chicks, and six adult Shy Mollymawks, one of which appeared to be attending a chick, they could not see the full length of the ledges. The adults had a pale greyish head (not as dark as Grey-headed Mollymawks) and the chicks ranged in size from small downy to fully feathered with only a collar of grey down. Though the downy chicks were predominantly grey, the two smallest seemed to have pale whitish down. Later on the same day the colony was again observed from 'Totorore', and from information collected from above and below they concluded having seen a total of 76 chicks. Amey recalls that only *D. m. impavida* seemed to have been seen at sea round the boat on this day.

22 March 1994

A total of 8 Shy Mollymawk adults were seen on the ledges, taking off, flying around and landing again, with up to 5 in the air at a time. It was often possible to see the diagnostic long extent of the white in the under-wing tip. Two or more Black-browed were seen, but there were several well feathered chicks and it was not easy to see clearly which were adults and which were chicks. Another chick count was not attempted.

24 March 1994

Several Shy Mollymawks were flying around the inner Windward Island (49° 41'S, 178° 44'E), which is 0.5 km off the NW coast of Antipodes Island. One mollymawk was seen to take off from a ledge on the island, which may indicate possible nesting or prospecting there.

DISCUSSION

There is always a danger in assuming that birds which may be seen at sea closely about an island or ashore are in fact breeding there. To date, experienced observers have recorded four different varieties of mollymawk ashore or close by Bollons Island.

Our observations clearly confirm that *D. m. melanophrys* has been and probably still is breeding there. The size of the embryos in 1978 suggest that hatching would have commenced very early in December in that year. Marchant & Higgins

(1990) note that laying and hatching times in the Australasian region for both *D. m. melanophrys* and *D. m. impavida* are similar, with hatching commencing early in December and chicks of both fledging from mid-April to early May. Though *D. m. impavida* have been regularly seen around the island, there are as yet no records which confirm their presence ashore, either breeding or prospecting. However, as both the total known *D. m. impavida* population and a few *D. m. melanophrys* are present and attempting inter-breeding at Campbell Island (Robertson 1980), there remains a possibility that *D. m. impavida* could be present among the nesting areas which are inaccessible on Bollons Island.

Knowledge of the *Diomedea cauta* group of mollymawks has been generally sparse due to the difficulty of access to the colonies, with a number of short studies undertaken over the past 20 years during the early part of the breeding season. Robertson & van Tets (1982) summarise the breeding times for *D. c. cauta* (in Bass Strait, Australia), *D. c. salvini* and *D. c. eremita*, which indicate laying during August - September and hatching mainly in November.

The known breeding populations of *D. c. steadi* (Turbott 1990) have until recently (Robertson & Sawyer 1994) been found only in the Auckland Islands group. In 1972 (Robertson 1975), hatching had just commenced at Disappointment Island on 2 February and in 1993 (CJRR unpubl.) hatching there commenced on 19 January. Down at hatching is a creamy grey, but later darkens to light grey. During a visit to the Auckland Islands from 8-15 May 1981, Robertson & Jenkins (1986) recorded that *D. c. steadi* chicks had advanced to the stage where wing feathers were showing through the down. Powlesland (1985) records the likely fledging time as August.

D. c. steadi sub-adult and adolescent plumage shows a greyer head and nape, below the white cap, than the breeding adults, which have a pale grey wash confined almost completely to the cheeks alone (CJRR unpubl.). Even from a distance of less than 10 m the breeding adult birds can appear to have completely white heads. Thus it is possible that the birds with greyer heads reported above by Amey could be younger birds which were spending time prospecting within the breeding colony. They would also be likely to spend more time at the colony than parents feeding chicks. Robertson & Jenkins (1981) recorded only a few non-breeding birds among the partly feathered chicks on the Auckland Islands in May. There is little evidence other than the observation of greyish heads to support the possible presence of *D. c. salvini*, which also has a visibly darker bill. Accordingly, it is most probable that the White-capped Mollymawks breeding at Bollons Island are the NZ White-capped (Shy) Mollymawk *D. c. steadi*.

As the most recent observations were after the chick guard stage of both species of mollymawk probably present, there is no way to assess how many pairs of each had nested, and it will be necessary to make further observations both earlier and, especially, later in the breeding season to make a comparison. We are also unable to suggest how long White-capped Mollymawks have been nesting on Bollons Island, as it is quite possible that they may have been present in 1978, for the area where they were seen in 1994 was not visited ashore in 1978. Present appearances of distribution suggest that the breeding Black-browed Mollymawk population may have declined or shifted, as the most recent visit saw no sign of birds in the area visited ashore in 1978 (B in Figure 1).

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