

## Buller's mollymawk (*Thalassarche bulleri*) on Rosemary Rock, Three Kings Islands, New Zealand

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Buller's mollymawk (*Thalassarche bulleri*) comprises 2 distinct subspecies, southern Buller's mollymawk (*T. b. bulleri*) which breeds on The Snares and at the Solander Islands (estimated population in 2014–2016, 14,300 pairs: Sagar 2014; Thompson *et al.* 2017); and northern Buller's mollymawk (*T. b. platei*), which breeds on Motuhara/Forty-Fours and The Sisters in the Chatham Islands (estimated 19,400 pairs in 2016: Baker *et al.* 2017; Bell *et al.* 2017). A few Buller's mollymawks also breed on Rosemary Rock in the Three Kings Islands, 1,420 km northwest of the Chatham Islands. These birds are currently assigned to *T. b. platei*. When this population was discovered on 1 December 1983, 6 birds (5 on nests with eggs) were recorded nesting southeast of the summit (Wright 1984). Just over a year later, in mid-January 1985, 18 birds and 15 nests were noted (McCallum *et al.* 1985). There has been no systematic survey since then, although various observers have noted the continued presence of this population.

Karen Baird (*pers. comm.*) photographed several adults and 3 small downy chicks in February 1987 and saw others. In early March 1990, Powlesland (1990) recorded 3 large downy chicks on pedestal nests near the summit and 4 adults flying overhead, but this count was made from a ship and was considered incomplete. Parrish (2006) reported seeing 12 large chicks sitting on nests on 20 March 2002, as well as 6 empty nests that seemed recently used (chicks fledged?) and 1 adult flying around. In March 2014, from a passing ship, Ian Southey (*pers. comm.*) and Igor Debski (*pers. comm.*) photographed 6 adults, 11 large downy chicks and possibly 3 others (images not sufficiently well resolved to be certain).

Rosemary Rock (34.18185° S, 172.05650° E) is a 50m high steep-sided 0.9 ha islet in the Princes chain of the Three Kings Islands group. It is comprised of altered columnar basalt (spilite) with some narrow, intercalated bands of tuff, typical of the Three Kings Volcanics unit (Challis 1987; Hayward & Moore 1987). On 23 November 2017, flying in a Gippsland G8 Aerovan operated by FlyStark Airlines Ltd, we

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**Fig. 1.** Positions of nesting Northern Buller's albatross (arrowed) on Rosemary Rock, 23 November 2017 (photograph by Richard Robinson): A, the location where Wright (1985) first discovered the species nesting; B–D, single sites occupied by pairs of birds.

conducted an aerial photographic survey of the colonies of Australasian gannet (*Morus serrator*), red-billed gull (*Larus novaehollandiae*) and white-fronted tern (*Sterna striata*) on the Three Kings Islands. The flight also provided an opportunity to look for Buller's mollymawk on Rosemary Rock. We flew past the islet 4 times between 1307 h and 1316 h at altitudes from 156–250 m a.s.l. (average 204 m) and horizontal distances from the island of 130–340 m (average 230 m). Mean airspeed during these flypasts was 150 kph (81 kts). RR took high-resolution images of the whole islet from several angles with a Canon EOS 5DS R camera and a EF24-70mm f/2.8L II USM lens. These were augmented by a series of close-up images (200 mm focal length) of all faces taken by NF with a Canon EOS-1D Mark IV camera and a EF70-200mm f/4L USM lens. All images were taken through the aircraft's acrylic windows.

At the time of the fly-pasts, we saw no mollymawks upon the islet or in the air and wondered then if the colony still existed. When we examined the photographs later, however, we

saw nesting Buller's mollymawks ranged across the southern slopes of the islet (Fig. 1), including the site shown in Wright (1985) (Fig. 2). Scrutiny of the whole islet showed 38 individual adult birds occupying 35 sites (i.e. 3 sites had pairs of birds present, 1 pair of which did not seem to be nesting). There also seemed to be 1 vacant nest site, an assessment based on its position on a ledge and what appeared to be the remnants of a nest. All 35 occupied sites were on the relatively bare, steep south-southwest slopes (average slope angle around 48°), often in diagonal fissures and recesses. None occurred on the generally more rounded, vegetated north-northwest slopes of the islet (average slope angle around 26°), nor have any yet been reported on other islands in the Three Kings group. The sites occupied by the mollymawks all face the prevailing south-westerly winds of the region (Chappell 2013), which should aid the birds when taking off from their nests. The aspect also provides more shade for nesting adults and chicks.

This confirms that Buller's mollymawk still nests on Rosemary Rock. The earliest apparently



**Fig. 2.** Close-up view of nesting Northern Buller's albatross (circled) at site A on Rosemary Rock, 23 November 2017 (photograph by Neil Fitzgerald), the same site where the species was first recorded nesting on the islet by Wright (1985).

complete count, made by McCallum *et al.* (1985) on both the ground and from a boat, recorded 13 occupied nests and 2 unoccupied ones that had been used either earlier in the season or the previous year. Of the 13 occupied nests, 8 had either an egg or a young chick. Adults were present at the other 5 sites, but 3 of the nests were empty and the 2 seen from the boat could not be checked. A later count of 11–14 chicks and 6 adults, 4 of which were sitting close to chicks, made by PGHF from photographs taken in March 2014 by Igor Debski and Ian Southey, is not strictly comparable with either the 1985 count or the present one because the photographs were taken late in the season, by which time some eggs or chicks could have been lost. This would underestimate the actual number of nesting pairs. With 34 active nests recorded in the present census, the population appears to have increased by around 2.6% per annum since 1984–85. This is comparable to the 2.8–2.9% p.a. increase estimated for the southern subspecies, *T. b. bulleri*, during 1948–2007, when the population was expanding (Francis & Sagar 2012). But the apparent increase

reported here is speculative because of uncertainty around the completeness of the 1985 survey. It was also made almost 2 months later in the season, by when there could have been more than the 2 nest failures accounted for here.

The taxonomic status of the population on Rosemary Rock needs closer examination. The birds are considered part of the northern subspecies (*T. b. platei*) because of their geographic location and the time of breeding. Egg laying on Rosemary Rock presumably occurs in late October–early November, judging from reports and photographs of incubating adults and downy chicks in December–March (Wright 1984; McCallum *et al.* 1985; Powlesland 1990). This is when *T. b. platei* starts breeding in the Chatham Islands (Sagar 2013). The southern, nominate form (*T. b. bulleri*) breeds later in the season (egg laying January–February, chicks from March onwards: Sagar & Warham 1998). Wold (2017), using DNA sequencing of part of mitochondrial control region II, has shown significant differentiation between *T. b. bulleri* on the Snares and Solander Islands and *T. b. platei* on

the Chatham Islands. Similar genetic analysis of the Three Kings Islands birds could resolve the affinities of this small population and reveal if there is any divergence occurring.

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