

## SHORT NOTES

### Breeding of Antarctic Terns (*Sterna vittata bethunei*)

Antarctic Terns are known to have an extended breeding season in the New Zealand subantarctic (Oliver 1955, Bailey & Sorensen 1962, Warham & Bell 1979). Falla *et al.* (1979) recorded eggs from November to January. Recently Sagar (1985) noted that breeding varied from island to island. He recorded that laying at the Snares occurred in late October and November and that on Campbell Island there were eggs from late November to late January.

In 1969, Warham & Bell (1979) found two single Antarctic Tern eggs, one downy chick and one fully feathered chick at Reef Point, Antipodes Island, on 31 January and four one-egg clutches on 10 March.

At the Bounty Islands, Robertson & van Tets (1982) recorded two nests with single eggs on 18 November 1978, and in April 1927, Oliver (1955) saw Antarctic Terns carrying small fishes to cliff ledges, where evidently there were young birds.

Eggs in March at Antipodes Island and feeding young in April at the Bounty Islands seem unusually late compared with the records from other New Zealand subantarctic islands, but this probably reflects that published field observations are few rather than any real differences between islands. Two recent expeditions to the subantarctic support this view.

During the 1985 subantarctic cruise of HMNZS *Monowai*, RMFSS and RHT observed an Antarctic Tern colony on the eastern side of Reef Point, Antipodes Island. Nesting terns were seen on their first visit to the area on 1 March. The next day, 34 adults were counted in the vicinity and nests were found, ten of which contained one egg each. On 4 March, two more nests were found with single eggs at sites empty on 1 March, showing that laying was still underway. A last check on 8 March showed terns still incubating single-egg clutches and no chicks. RMFSS and RHT saw no fledged young near Reef Point, but several were seen flying with adults around other Antarctic Tern colonies 2-4 km away on 3 March.

GAT was stationed on Campbell Island from April 1984 to April 1985. During this stay he noted aspects of Antarctic Tern ecology. He found eggs in Antarctic Tern nests from 13 October to 21 February, recorded first chicks on 19 February and saw very recently fledged chicks on nest sites on 31 March and 2 April.

Perhaps Antarctic Terns can raise two broods a year, as suggested by Stead (Oliver 1955), or late nesting may represent a second laying by failed breeders. On Campbell Island, Norway rats may cause nest failure, as well as Southern Great Skuas (*Catharacta skua lonnbergi*). GAT found one egg damaged by rats at a tern colony on 31 March, although fledgling chicks were raised on the main island in spite of this predation.

Not only is the nesting season prolonged but also courtship activity apparently extends throughout the year. At Campbell Island, GAT saw two adult terns almost in breeding plumage chasing on 1 July, one with a small fish in its bill. On 29 July, some birds in full breeding plumage were alighting

on coastal ledges, displaying and calling as if they were selecting nest sites. By 2 September, pair displays included active swooping at approaching intruders. One pair was seen on 6 September doing "fish flights", alighting and displaying together on coastal ledges and attacking nearby Southern Black-backed Gulls (*Larus dominicanus*). Terns in both breeding and non-breeding plumage were present in all months. Perhaps the onset of post-nuptial moult varies in terns according to the local nesting season.

Sagar (1985) also noted that, although the normal clutch of Antarctic Terns is one, it is sometimes two. All 12 clutches seen by RMFSS and RHT and the six clutches reported by Warham & Bell (1979) from Antipodes Island were of single eggs. Two-egg clutches seem to be commoner at Campbell Island. GAT found seven one-egg clutches and one two-egg clutch. Bailey & Sorensen (1962) reported that "while often the nests contained one egg, the complete set is two" (p.275). Sorensen collected seven sets of one egg and one of two eggs. Other Campbell Island nests recorded during the 1940s expeditions and in the late 1950s had six one-egg and four two-egg clutches. Bailey & Sorensen (1962) noted that the 1941 party recorded two eggs per nest freshly laid on 28 November. At the Auckland Islands both one-egg and two-egg clutches have been found from the end of November to mid-February (Oliver 1955, RHT pers. obs), but more information on Antarctic Tern breeding there is needed to compare with the other subantarctic islands.

Finally, Falla *et al.* (1979) recorded that Antarctic Terns nest near the sea and on cliffs up to 120 m a.s.l. RHT, on 22 January 1969, found a breeding colony of Antarctic Terns at 500 m a.s.l. near the summit of Mt Fizeau, Campbell Island.

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