

use other components of New Zealand's native flora for similar reasons is not known. Identical behaviour has been observed when captive parakeets were given Australian bottlebrush (*Callistemon* species) which, like kanuka and manuka, is highly aromatic. Other chemical components, such as tannins and terpenoids, may also provide some antibiotic and/or fungicidal protection, which may supplement the characteristics of the bird's own preen oil (Simmons 1966, Ehrlich *et al.* 1986).

Similar behaviour patterns have also been noted for Orange-fronted Parakeets (*C. malherbi*) and, surprisingly, for Antipodes Island Parakeets (*C. unicolor*) in captivity (E. & E. Heatherbell, pers. comm.). Although manuka was used by both of these species, beech and willow leaf galls containing willow grub larvae were also used. Obviously, further study is needed on both the incidence of this behaviour in parakeets and parrots and the identification of other potential insecticides and their potency on both ecto- and endoparasites.

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More distribution records of Buller's Shearwater in New Zealand waters

We were prompted by Jenkins's (1988) interesting account of Buller's Shearwater (*Puffinus bulleri*) in New Zealand seas to present some more information about its distribution.

From 12 to 14 September 1988, we travelled from Auckland (37°S 175°E) to the southern Kermadec Islands (30°S 179°W). Buller's Shearwaters were common, as singles or in small groups of up to c. 20 birds, from near Cuvier Island to the southern Kermadec Islands. All were flying in the direction of their breeding grounds at the Poor Knights Islands, off the north-east of the North Island. On our return journey between 25 and 27 September 1988, we noted only about 10, and all those in flight were

also heading towards the northern North Island. A comparison of our hourly 10-minute bird counts revealed that Buller's Shearwaters were about 15 times more numerous on the outward voyage than on the return trip. These observations support Harper's (1983) and Jenkins's (1988) findings that many birds return to New Zealand waters in early September. They also show that large numbers arrive from a direction well to the north-east of New Zealand. Jenkins (1988) speculated that the main migration path approaches New Zealand from the east.

Jenkins (1988) stated that "Although there are few records, probably some birds feed out towards the Chatham Islands . . . from November until they leave on migration". We know of some additional records from near the Chatham Islands (44°S 176°W) from November/December through to March (Murphy 1930, Dawson 1955, Bell & Sibson 1979, Tennyson 1986), which support his suggestion. It is also worth noting that Buller's Shearwaters may once have bred on the Chatham Islands (Bourne 1967).

On 16 March 1986, GAT saw 10 Buller's Shearwaters off Breaksea Island, Fiordland (46° S 166°E). Morrison (1985) recorded hundreds in the same area on 14 April 1984. Therefore some birds are present in the south of the Tasman Sea later than Jenkins (1988) suggested.

Jenkins (1988) saw thousands of Buller's Shearwaters off Little Barrier Island (off the north-east of the North Island) on 17 May 1979. We have two similar records. GAT observed thousands between Tiritiri Matangi Island and Hen Island on 20 May 1987, but on 25 May he saw none in the same area. On 16 May 1988, we recorded thousands off Little Barrier Island, but by the next day we saw none. These observations show that birds form large flocks near their breeding grounds during mid-May, shortly before beginning their northward migration.

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