

SHORT NOTES

Antiparasitic behaviour in New Zealand parakeets

(*Cyanoramphus* species)

A range of body maintenance activities has been described for *Cyanoramphus novaezelandiae novaezelandiae* by Dawe (1979) for both captive and wild birds. Of particular interest, however, are recent observations of behaviour that may have an antiparasitic function.

A number of parasites are known to be associated with members of the genus *Cyanoramphus*. Of the ectoparasites, the most commonly recorded are the chewing lice (*Forficuloeccus pilgrimi* Guimarães, 1985 : Mallophaga) (Nixon 1982, Pilgrim & Palma 1982, pers. obs.), along with smaller numbers of mites (Nixon 1982, pers. obs) and hippoboscids (or louse) flies (pers. obs.).

Little is known of the distribution and host specificity of endoparasites in wild populations of New Zealand parakeets. However, the presence of cestodes and ascarid (nematode) worms in captive parakeets and in parakeets on the Chatham Islands makes it highly likely that they are also present in wild populations on mainland New Zealand (Nixon 1982).

My observations of captive Red-crowned Parakeets (*C. n. novaezelandiae*) and Yellow-crowned Parakeets (*C. auriceps auriceps*) revealed distinctive behaviour patterns when leafy branches of kanuka (*Kunzia ericoides*) and manuka (*Leptospermum scoparium*) were placed in their aviaries. The parakeets removed several leaves from the branches and thoroughly chewed them. Each parakeet would then fluff itself up, spread its tail feathers, take preen oil from the gland on the rump, and draw individual feathers from the base to the tip through its mandibles, presumably spreading the "mixture" over them. They paid particular attention to the primaries and tail feathers, although in intense preening sessions contour feathers on the breast and rump also received much attention. This preening usually lasted for 5-10 minutes, along with numerous changes of chewed leaves and preen oil. On one of the few occasions that I saw this kind of behaviour in the wild (9/6/89), I saw six parakeets (4 Red-crowns and 2 Yellow-crowns) on Hen Island preening in this fashion for more than 20 minutes.

How this behaviour benefits the feathers of a parakeet is not known, although the biochemical evidence is highly suggestive. Chemical analysis of manuka foliage has revealed the presence of leptospermone, "an insecticide like valone" (Brooker *et al.* 1981). The effect of this chemical on ectoparasites may therefore be similar to that observed for formic acid (from ants) on live mallophaga, killing most in a few minutes (Simmons 1966). Observations have been made of Red-crowned Parakeets and Yellow-crowned Parakeets chewing and apparently swallowing the bark and leaves of manuka and kanuka.

"Triterpene acids have been isolated from the bark" and leptospermone, if ingested, "has anthelmintic properties" (Brooker *et al.* 1981). It is therefore plausible to suggest that endoparasites may also be controlled by the ingestion of specific parts of manuka and kanuka.

Although circumstantial, the evidence suggests some external and/or internal antiparasitic action for kanuka and manuka. Whether birds could

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