

SHORT NOTE

North Island robin (*Petroica australis longipes*) food caches are stolen by stitchbirds (*Notiomystis cincta*) and bellbirds (*Anthornis melanura*)

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Alexander *et al.* (2005) investigated the food hoarding behaviour of the North Island robin (*Petroica australis longipes*). They fed mealworm larvae (*Tenebrio molitor*) to pairs of robins and observed their subsequent caching behaviour. They found that socially dominant males cached a greater proportion of food than their female counterparts. Alexander *et al.* (2005) proposed that the reluctance of females to cache food may be a strategy to avoid theft of cached food by males. However, they did not discuss the theft of cached food by other species. Earlier, Powlesland (1980) speculated that other birds such as brown creepers (*Mohoua novaseelandiae*), bellbirds (*Anthornis melanura*), blackbirds (*Turdus merula*), and song thrushes (*Turdus philomelos*) might also steal from robin caches. Here, we provide the first evidence that stitchbird (*Notiomystis cincta*) and bellbirds rob caches made by North Island robins.

The study was undertaken in the Karori Wildlife Sanctuary (KWS), a 2.5 km² area of native forest just outside Wellington city (41° 18' S, 174° 44' E), from which mammalian predators have been excluded. Robins and hihi had been extirpated from the Wellington peninsula by the late 19th Century, but were re-introduced to KWS in May 2001 and Feb 2005, respectively. Bellbirds were also re-introduced, in Aug 2001, although they were believed to be re-colonising the area naturally (Miskelly *et al.* 2005). We made observations while conducting field experiments (Burns & Steer 2006; Burns & van Horik in press; van Horik & Burns in press) similar to those described in Alexander *et al.* (2005).

On 22 Apr 2005 at 0930 h, JS observed a male stitchbird removed food from a cache made by a robin of unknown sex. JVH witnessed another male stitchbird do the same on 4 Jul 2005 at 1145 h. At 1325 h on 13 Jul, 2005, JVH observed a bellbird of undetermined sex rob a male robin's food cache.

On 3 Aug 2005, at 1310 h and 1315 h, JVH saw 2 independent instances in which a female stitchbird removed food from the cache of a female robin. At the time of each theft, a robin was storing an experimentally-offered mealworm larva, which involved the robin picking a mealworm from the ground and flying up to c. 3 m above ground in the understorey. There, it landed on a branch and placed the food item in a hole in a branch. On all 5 occasions, it was aggressively displaced by the other species while doing so. The intruder removed and ate the stored item and then left. Conversely, the robin continued to forage and store food in other caches.

It is difficult to know the extent and impact of cache theft by other species as there appear to be no published studies of robin cache retrieval. Powlesland (1980) found that 58% of items stored by robins disappeared on the day of storage, but did not determine the cause of their disappearance. Many of the behaviours exhibited by robins when storing food expose the caches to risk of theft. Robins feed mostly on large, conspicuous invertebrates such as earthworms and slugs (Powlesland 1981), and the stored items are often poorly concealed and visible from above (Powlesland 1980). Robins repeatedly store food in the same sites (Soper 1976; Alexander *et al.* 2005) and commonly cache prey < 10m from where they captured it (Powlesland 1980).

Brockmann & Barnard (1979) pointed out that kleptoparasitism usually results from an opportunistic feeder happening to locate a food cache. However, the few observations of stitchbirds and bellbirds accompanying robins when they were hoarding food suggest that theft from caches by other species may be common. Both these species seemed to be aware that the robins were caching food, and were able to take advantage of the behaviour at an appropriate time.

Theft of cached food, as demonstrated here, indicates that the presence of other species may have been overlooked as a factor in where and when robins choose to store food. Robins are frequently aggressive towards both conspecifics and other species that enter their territory, and especially those that approach their food caches (Powlesland 1980). We have observed robins being aggressive towards chaffinches (*Fringilla coelebs*), tui (*Prosthemadera novaezelandiae*), silvereyes (*Zosterops lateralis*), blackbirds (*Turdus merula*), fantails (*Rhipidura fuliginosa*), and stitchbirds. Conceivably, other species also steal food from robin caches.

The robin is the only New Zealand passerine known to hoard food. In addition, its hoarding

behaviour is markedly different from that exhibited by the birds in Northern temperate regions (Burns & Steer 2006). Food caching appears to have evolved independently in robins, as no other species of *Petroica* in Australia and the Pacific is known to store food (Fleming 1950; Higgins & Peter 2002). As with other endemic New Zealand birds, robins have benefited from efforts to preserve and recreate native habitats. Such endeavours are often aimed at conserving species themselves. However, an under-appreciated, but important, aspect of these efforts is the preservation of species interactions. These interactions may provide clues to the extent of former behavioural associations and, in this instance, to the utility of food storage in robins.

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LITERATURE CITED

- Alexander, L.; Duthie, C.; Fyfe, J.; Haws, Z.; Hunt, S.; Montoya, I.; Ochoa, C.; Siva, A.; Stringer, L.; van Horik, J.; Burns, K.C. 2005. An experimental evaluation of food hoarding by North Island robins (*Petroica australis longipes*). *Notornis* 52: 138-142.
- Brockmann, H.J.; Barnard, C.J. 1979. Kleptoparasitism in birds. *Animal behaviour* 27: 487-514.
- Burns, K.C.; Steer, J. 2006. Dominance rank influences food hoarding in New Zealand robins (*Petroica australis*). *Ibis* 148: 266-272.
- Burns, K.K.; van Horik, J. In press. Sexual differences in food re-caching by New Zealand robins. *Journal of avian biology*.
- Fleming, C.A. 1950. New Zealand flycatchers of the genus *Petroica* Swainson: Part 1. *Transactions of the Royal Society of New Zealand* 78(1): 14-47.
- Higgins, P.J.; Peter, J.M. (ed.). 2002. *Handbook of Australian, New Zealand and Antarctic birds*. Vol. 6. *Pardalotes to shrike-thrushes*. Melbourne, Oxford University Press.
- Miskelly, C.; Empson, R.; Wright, K. 2005. Forest birds recolonising Wellington. *Notornis* 52(1): 21-26.
- Powlesland, R.G. 1980. Food-storing behaviour of the South Island robin. *Mauri Ora* 8: 11-20.
- Powlesland, R.G. 1981. The foraging behaviour of the South Island robin. *Notornis* 28: 89-102.
- Soper, M.F. 1976. *New Zealand birds*. Christchurch, Whitcoulls.
- van Horik, I.; Burns, K.C. In press. Cache spacing patterns and reciprocal cache theft in New Zealand robins. *Animal behaviour*.

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