

- ROBERTSON, H.A.; HAY, J.R.; SAUL, E.K. 1993. Age and sex determination of Kakerori *Pomarea dimidiata*. *Notornis* 40: 179-187.
- ROBERTSON, H.A.; HAY, J.R.; SAUL, E.K.; McCORMACK, G.V. 1994. Recovery of the Kakerori: an endangered forest bird of the Cook Islands. *Conservation Biology* 8: 1078-1086.
- ROBERTSON, H.; SAUL, E.; TIRAA, A. 1998. Rat control in Rarotonga - some lessons for Mainland Islands in New Zealand. *Ecological Management* 6: 1-12.
- SANDERS, K. 1993. The ecology of the Kakerori (Rarotonga Flycatcher) *Pomarea dimidiata*, with special reference to fledged young. Unpubl. MSc thesis, Massey University.
- SANDERS, K.; MINOT, E.O.; FORDHAM, R.A. 1995. Juvenile dispersion and use of habitat by the endangered Kakerori *Pomarea dimidiata* (Monarchinae) on Rarotonga, Cook Islands. *Pacific Conservation Biology* 2: 167-176.
- SIETRE, R.; SIETRE, J. 1992. Causes of land-bird extinctions in French Polynesia. *Oryx* 26: 215-222.
- STEARNS, S.C. 1992. *The Evolution of Life Histories*. Oxford: Oxford University Press.
- THOMPSON, C.S. 1986. *The climate and weather of the Southern Cook Islands*. Misc. Publ. No. 188 (2). Wellington: New Zealand Meteorological Service.

Manuscript received 14 July 1998, revised and accepted 21 October 1998



SHORT NOTE

An Australian Magpie's *Gymnorhina tibicen* response to fake snakes in New Zealand

In the 1860s and 1870s, over 1000 White-backed Magpies *Gymnorhina tibicen* were introduced from Australia to New Zealand (Heather & Robertson 1996). In October 1995, we found an abandoned magpie chick, reckoned to be four weeks old, on a country roadside near Fielding, and kept him as a house pet for 27 months. Living at close quarters to the bird, we came to recognise his noisy alarm calls when strangers, Harriers *Circus approximans*, or unusual cats or dogs approached our property.

The bird often saw garden hoses, lengths of rope, ribbons, ribbed plastic tubing and other similar objects but never reacted to them. However, in January 1997, a visiting child pulled a metre-long, red, yellow and black-striped jelly candy snake from a bag in front of the bird. The magpie quickly flew 2-3 metres away, puffed out his feathers, spread and lowered his wings and tail, arched his neck, lowered his head and, never taking his eyes off the candy snake, gave quick, loud, alarm squawks, of a kind we had never heard before. The bird moved around, making sure that we or other objects were between him and the imitation snake and kept up the performance until the candy was put out of sight. Over the next hour or two we could prompt this alarm behaviour repeatedly by displaying the brightly-striped jelly snake to the bird.

In March 1997, when the bird was about 18 months old, a realistic-looking, 1.3 metre grey and white fabric, and two coloured plastic toy snakes up to 1 m

long were shown to the magpie. On each occasion, he took fright, assumed an aggressive stance, uttered the same loud, urgent-sounding, alarm cries, and sheltered from the supposed snakes behind us or the furniture. Further, images of moving snakes (and alligators) on TV elicited the same calls and gestures. When faced with other frightening novelties, such as fireworks, wind-up toys, hand-puppets, large hats on our heads or masks on our faces, the magpie was momentarily struck dumb and drew away but did not call or gesture as he did with the fake snakes. His distinctive responses appeared to have been elicited by the sight of the (snake' rather than the presentation of a novel object.

With repeated presentations, the bird became habituated to the toy snakes, and tried to nip them, always approaching the tip of the tail and avoiding the head.

In the absence of snakes in New Zealand, and the short time that this bird spent with his parents, we cannot imagine how they could have taught their chick such a distinctive and ritualised pattern of behaviour. We suppose the alarm behaviour to the fake snakes to be an innate response imported from the magpies' homeland 120-130 years ago.

The mean life expectancy of wild Australian Magpies in New Zealand is about six years (Heather & Robertson 1996), so about 20-21 generations have passed since magpies established here or last saw a real snake. Despite the long passage of time, this alarm behaviour has persisted, at least in this individual bird.

The question arises - how many generations must pass in New Zealand before the Australian Magpie loses its alarm reaction to snakes - if ever?

LITERATURE CITED

HEATHER, B.D.; ROBERTSON, H.A. 1996. Field Guide to the Birds of New Zealand. Viking. Auckland pp. 432

KEYWORDS: Australian Magpie, innate behaviour, instinct, snake.

R.E. BROCKIE & L. SORENSEN, 37 Versailles Street, Karori, Wellington

Manuscript received: 3 February 1998, revised & accepted 6 August 1998