Corella, 1993, 17(1): 25-27

AGGRESSION BY HONEYEATERS AND ITS CONSEQUENCES FOR NESTING STRIATED THORNBILLS *Acanthiza lineata*

WILLIAM E. DAVIS Jr.[1] and HARRY F. RECHER[2]

[1]College of Basic Studies, Boston University, 871 Commomwealth Avenue, Boston, Massachusetts, 02215 USA
[2]Department of Ecosystem Management, University of New England, Armidale, NSW 2351

Received 14 August 1991

INTRODUCTION

Interspecific aggression has been documented for many species of honeyeaters (Meliphagidae) (Ford 1979; Ford and Paton 1982; McFarland 1985). Colonial species of honeyeaters exclude other birds, particularly smaller species, from the colony (Dow 1977; Smith and Robertson 1978; Loyn *et al.* 1983). Even where other birds are not excluded, interactions with honeyeaters may interfere with foraging and affect reproductive success. During studies of the foraging behaviour of nesting Striated Thornbills *Acanthiza lineata,* we often observed thornbills being chased or attacked by honeyeaters. In this paper we present our observations and discuss the possible consequences for Striated Thornbills of aggression by honeyeaters.

The study site was in open and fragmented eucalypt forest and woodland at the Newholme Field Laboratory of the University of New England, Armidale, on the Northern Tablelands of New South Wales. Observations were made during September and October 1990.

OBSERVATIONS

Three species of honeyeaters were common on the study site: Red Wattlebird *Anthochaera carunculata*, Yellow-faced Honeyeater *Meliphaga chrysops* and White-naped Honeyeater *Melithreptus lunatus*. All defended feeding or nesting territories and often attacked nesting thornbills.

Red Wattlebird: In four hours of observation on 26 and 27 October we recorded 28 attacks on a pair of nesting thornbills by a wattlebird. The wattlebird was defending a feeding territory in a group of flowering Apple Box *Eucalyptus bridgesiana* about 10 m from the thornbill's nest. We had noticed that the thornbills were attacked whenever they attempted to forage in the Apple Boxes. Most were single attacks involving a chase or displacement, but sometimes they were multiple attacks in quick succession, each of which was scored separately. In one 10 minute period the wattlebird made nine attacks on the thornbills, including one chase of seven metres. Another series of five attacks involved chases totalling 35 m through four different trees. Although the wattlebird came as close as a few centimetres, it did not strike the bird being chased. Most often the bird attacked retreated to a different part of the same tree and continued foraging. Attacks on other nesting thornbills by other wattlebirds on the study site occurred with similar frequency and intensity.

Yellow-faced Honeyeater: In 60 h of observation we recorded 20 attacks on thornbills by Yellow-faced Honeyeaters defending foraging territories. Most attacks were by a single honeyeater on a single thornbill, but in one case two honeyeaters attacked a single bird. Attacks involved chases, one of about 50 m and two up to 100 m. Once a honeyeater made three successive attacks on the same thornbill and once a thornbill was attacked twice in succession by the same honeyeater. In one attack the thornbill was struck by the honeyeater, but quickly recovered. On three occasions thornbills chased Yellow-faced Honeyeaters that approached the thornbill's nest.

White-naped Honeyeater: We recorded 77 attacks by White-naped Honeyeaters on a nesting group of three thornbills in 350 min. of observations between 13 and 15 October. Twenty-three of these occurred in an episode lasting 76s. Several attacks were made in the nest tree, some within 30 cm of the nest. Twice honeyeaters attempted

to take nesting material from the thornbill nest, but were driven away. On two occasions thornbills were grasped by the honeyeater and driven to the ground, but were uninjured. The honeyeaters were nesting along a creek 30 m from the thornbill nest and were particularly aggressive towards birds in or near their nest trees. This effectively excluded the thornbills from foraging in vegetation along the creek and forced them to forage in isolated trees in an open paddock up to 150 m from their nest. This was considerably further than nesting thornbills normally forage (Recher and Davis, unpubl. data).

DISCUSSION

Aggression involving honeyeaters and Striated Thornbills has been reported previously. McFarland (1986) reported attacks on foraging Striated Thornbills by Lewin's Honeyeater *Meliphaga lewinii,* New Holland Honeyeater *Phylidonyris novaehollandiae,* and Eastern Spinebill *Acanthorhynchus tenuirostris.* Woinarski (1984) noted singled attacks on Striated Thornbills by White-eared Honeyeaters *M. leucotis* and the three species of honeyeater discussed in this paper.

Our observations and those of other workers (Dow 1977; Loyn *et al.* 1983; Woinarski 1984) indicate that there is a graded series of effects from total or partial exclusion of thornbills from particular habitats to simple interference with foraging in a tree or group of trees. Habitat exclusion involves colonial (Bell Miner *Manorina melanophrys,* Noisy Miner *M. melanocephala*) and semi-colonial (Fuscous Honeyeater *Meliphaga fuscus,* White-naped Honeyeater) honeyeaters (Dow 1977; Loyn *et al.* 1983; pers. obs.). All of these honeyeaters are leaf-gleaners (Pyke 1980; Loyn *et al.* 1983; Recher *et al.* 1985; Ford *et al.* 1986) and probably rely on carbohydrates other than nectar (e.g. lerp, manna) as their principal energy source. Habitat exclusion tends to be protracted, occurring throughout the nesting season in the instance of White-naped Honeyeaters and continuously over a period of years with the miners and Fuscous Honeyeaters. Simple interference with foraging involves non-colonial honeyeaters (e.g. Red Wattlebird, Yellow-faced Honeyeater, White-eared Honeyeater, Eastern Spinebill) defending a foraging resource, usually a plant or tree in flower. Such interactions are seldom prolonged and may only occur for a few hours or days while nectar is available.

There appear to be three principal effects on thornbills of these interactions with honeyeaters. Firstly, thornbills and other small leaf-gleaners may be excluded from the most productive habitats (e.g. riparian forest along creeks, woodlands on nutrient rich soil). Secondly, they may be forced to forage longer distances from their nests. Such flights are costly in time and energy. Thirdly time is lost and energy is expended during aggressive encounters. Interference with foraging may reduce the amount of food that can be gathered and used to provide energy for nest construction, produce eggs or feed young. As the demands on a bird during the breeding season in terms of time and energy are high, the effect may be to extend the length of nesting and/or reduce the number of young that can be raised. An extended nesting cycle, longer foraging distances and aggressive encounters may also increase the risk of nest predation.

Although we lack the necessary data for confirmation, our observations suggest that interactions with honeyeaters may adversely affect the reproductive success of smaller species, such as Striated Thornbills. Honeyeater aggression may be particularly significant in fragmented habitats. Small patch size precludes foraging longer distances and where the interface between habitats occupied by honeyeaters and those used by thornbills increases relative to area, interactions will become more frequent. As a consequence of honeyeater aggression, patches or fragments of vegetation that might otherwise sustain breeding populations of thornbills may lose such species or have populations maintained by immigration from larger source areas. The interaction between patch size, honeyeater aggression and the breeding success of other small birds needs to be considered when developing plans for the conservation and management of birds in fragmented landscapes.

ACKNOWLEDGMENTS

Kate McGregor assisted with fieldwork and Hugh A. Ford provided helpful comments on the manuscript. The research was supported by a Newholme Field Laboratory Fellowship to the senior author.

REFERENCES

Dow, D. D. (1977). Indiscriminate interspecific aggression leading to almost sole occupancy by a single species of bird. *Emu* 77: 115–121.

Ford, H. A. (1979). Interspecific competition in Australian honeyeaters — depletion of common resources. *Aust. J. Ecol.* 4: 145–164.

Ford, H. A., Noske, S. and Bridges, L. (1986). Foraging of birds in eucalypt woodland in north-eastern New South Wales. *Emu* 86: 169–179.

Ford, H. A. and Paton, D. C. (1982). Partitioning of nectar sources in an Australian honeyeater community. *Aust. J. Ecol.* 7: 149–159.

Loyn, R. H., Runnalls, R. G., Forward, G. Y. and Tyers, J. (1983). Territorial Bell Miners and other birds affecting populations of insect prey. *Science* 221: 1411–1413.

McFarland, D. C. (1985). Diurnal and seasonal changes in aggression in a honeyeater community. *Corella* 9: 22–25.

McFarland, D. C. (1986). The organization of a honeyeater community in an unpredictable environment. *Aust. J. Ecol.* 11: 107–120.

Pyke, G. H. (1980). The foraging behaviour of Australian honeyeaters: a review and some comparisons with hummingbirds. *Aust. J. Ecol.* 5: 343–369.

Recher, H. F., Holmes, R. T., Schulz, M., Shields, J. and Kavanagh, R. (1985). Foraging patterns of birds in eucalypt forests and woodlands on the tablelands of south-eastern Australia. *Aust. J. Ecol.* 10: 399–419.

Smith, A. J. and Robertson, B. I. (1978). Social organization of Bell Miners. *Emu* 78: 169–178.

Woinarski, J. C. Z. (1984). Small birds, lerp-feeding and the problem of honeyeaters. *Emu* 84: 137–141.

PARENT-OFFSPRING ATTACHMENT IN THE HOODED MANNIKIN *Lonchura spectabilis* OF NEW GUINEA

The following observation was made in Tsuwenkai village, Western Highlands Province, Papua New Guinea. The village is located at about 5°25′S, 144°38′E at an altitude of about 1 500 metres in the mid-montane rainforest zone of the north wall of the Jimi Valley, western Bismarck Range.

The Hooded Mannikin *Lonchura spectabilis* is locally common, and is encountered in small flocks in the anthropogenic grasslands within the mosaic of secondary forest, cultivations and habitation sites between altitudes of about 1 450 and 1 700 metres.

On 4 February, 1974, a villager brought me the domed nest of a Hooded Mannikin containing three well-feathered chicks. The nest had been taken from a tract of grassland some 600 m by direct line from my house, on the far side of a steep-sided spur parallel to the one on which my house was located. There were no continuous corridors of grassland between the nest site and my house. Diamond (1972) considers the Hooded Mannikin to be confined to such corridors.

I placed the nest on the ground against a small shrub by my house. During the afternoon my local field assistants reported that two adult Hooded Mannikins called and flew around in an apparently agitated manner near my house-yard. The chicks responded by peeping, whereupon the adult birds approached the nest and one entered and apparently fed the chicks.

I then placed the nest about 1.5 metres above the ground in a fork in a shrub on the edge of a tract of grassland some 20 metres from my house. Within ten minutes an adult had entered the nest apparently to feed the chicks. They were fed at least twice more before nightfall, and one bird apparently entered the nest and brooded the chicks shortly before darkness fell.

Chicks were fed in succeeding days and appeared healthy when I examined the nest on 8 February. The next day a small boy removed the nest, but I returned it to the shrub, intact but misshapen. The chicks were unharmed and apparently left the nest shortly thereafter. They were not seen in the vicinity again.

Assuming that the adults attending the nest were parents of the nestlings they showed a strong parent-offspring attachment which overcame relocation of the nest. They either followed the woman who had removed their nest through vegetation normally avoided by the species, or scouted widely across heavily dissected terrain until able to locate the chicks by calls. Thereupon, they continued to care for the chicks despite repeated gross interference with the nest, suggesting that investment in their established clutch was high.

ACKNOWLEDGMENTS

I thank Dr R. Major and an anonymous referee for helpful comments on a draft of this paper.

REFERENCE

Diamond, J. M. (1972). 'Avifauna of the eastern highlands of New Guinea'. Publ. Nuttal Orn. Club no. 12 (Nuttal Orn. Club: Cambridge, Mass.)

CHRISTOPHER HEALEY

Anthropology, Northern Territory University, P.O. Box 40146, Casuarina, NT 0811.

Received 26 April, 1991