SHORT NOTES

Removal of eggs by a Shining Bronze-Cuckoo

In the light of comments by Harrison (1969, Emu 69: 178-181) and Marchant (1970, Emu 70:201) relating to the behaviour of Horsfield's Bronze-Cuckoo *Chrysococcyx basalis* when at the nest of small passerines, the following observation of a Shining Bronze-Cuckoo *C. lucidus* may be of interest. On 28 October 1977 we observed in the Warrumbungle National Park (31° 16'S, 148° 58'E) in central western New South Wales at about 08:00 a small bird fly away from a White Cypress-pine *Callitris columellaris*, holding something whitish in its bill. At the time AKM thought the bird was a White-throated Treecreeper *Climacteris leucophaea* because he saw the barred underparts but BC had a better view and thought that the bird was a bronze-cuckoo and that it appeared to be carrying an egg. We were not in a position at the time to investigate further. At 10:30 we observed a Yellow-rumped Thornbill *Acanthiza chrysorrhoa* fly to the top of the same Cypress-pine with a feather in its bill. On investigation we found that it had a nest about 7.5 metres from the ground at the top of the tree. The Thornbill was agitated and we then observed a Shining Bronze-Cuckoo move away from the nest a distance of one metre holding an egg in its bill.

The Cuckoo stayed in the same tree and within easy viewing distance (too close for binoculars) and proceeded to manipulate the egg in its bill, tipping its head back and draining out the contents, using its tongue to lick the egg clean. When it had finished the eggshell was discarded and fell to the ground. On examination it was found to be a typical Yellow-rumped Thornbill's egg, being pale pinkish-white with reddish-brown spots at one end. The egg had been punctured at one end, from where the contents had been completely drained, and was partly crumpled from being mandibulated in the Cuckoo's bill when the contents were being removed.

The Cuckoo then flew away; it was not disturbed by our presence at all. The tree was a thin sapling with the nest at the top and impossible to climb. We intended to come back the following day to examine the nest with some suitable equipment but could not return until 13 November 1977, when armed with a ladder and a truck. On examination the nest was empty. We ought to have chopped the tree down in the first place because it would have been important to see exactly what the nest contained on 28 October. The egg of the Shining Bronze-Cuckoo is a greenish-olive or bronze-brown colour so that the egg we saw the Cuckoo with on the first occasion was definitely not its own. The evidence suggests that we observed the Cuckoo to remove two Thornbill eggs in a period of two and a half hours; possibly therefore it was destroying the clutch, not trying to lay, as has also been observed in the European Cuckoo *Cuculus canorus*. There are however few observations of bronze-cuckoos actually consuming the egg of its usual hosts.

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8 May 1978.

Interspecific breeding attempts by Macronectes giganteus and M. halli

The Southern Giant-Petrel *Macronectes giganteus* and the Northern Giant-Petrel *M. halli* have been recognized as distinct species since 1966 (Bourne and Warham 1966, Ardea 54: 45–67). Although the two species are similar in appearance, adult *giganteus* have a paler head and neck and a green tip to the bill (unguis), whereas adult *halli* have distinct dark-pink or horn-coloured tips to the bills and darker plumage on head and neck (Johnstone 1974, Emu 74: 209–218). In both species the males are significantly larger than the females (Voisin 1976, Alauda 44: 411–429; Johnstone 1977, *in* Adaptations Within Antarctic Ecosystems: 647–668, Smithsonian Institute). The species differ in their breeding schedules and choice of nest sites (Voisin op. cit.).

At Marion Island (46° 54'S, 37° 45'E) *halli* laid from 10 August until 1 September and *giganteus* from 18 September to 2 October (1974 and 1976 seasons). *M. halli* nests singly or in small loose colonies in sheltered nest sites. *M. giganteus* nests in larger colonies, usually in open exposed sites and occasionally in sheltered sites. There are 1,337 pairs of *giganteus* and 153 pairs of *halli* breeding at Marion Island. Two apparently mixed pairs of giant-petrels have been found at Marion Island. In early September 1974 one pair was found incubating an egg, which later failed for unknown reasons. No details of the age and sex of the members of the pair were obtained.

In August 1976, at a site within 200 metres of the previous sites, a mixed pair was again found. The birds were photographed, banded and measured. The larger bird (male) had features of *giganteus* and its culmen and tarsus measured 107 and 108 millimetres respectively. The plumage of its head and

neck was darker than those of most breeding *giganteus*, indicating that it was possibly a young bird (Johnstone 1974, op. cit.). The smaller bird (female) had features of *halli* and its culmen and tarsus measured 86 and 87 millimetres respectively. An egg was laid on 20 August 1976, which measured 100 x 68 millimetres with a fresh mass of 245 grams. It was incubated for seventy-three days, at least ten days longer than the normal period of either species. It was then abandoned, being addled and foul smelling. The male incubated for seven bouts totalling thirty-one days and the female for eight bouts totalling forty-two days. Both the time of laying and the nest site were typical of *halli*. Several nests of *halli* were within 100 metres of this nest but the nearest colony of *giganteus* was one kilometre distant. Neither of the banded birds was found nesting in the 1977–78 season.

The two species breed sympatrically on at least four groups of islands (Watson 1975, Birds of the Antarctic and sub-Antarctic. Washington, Am. geophys. Union); yet no previous account of interspecific breeding has been published. Voisin (pers. comm.) found that the displays of the two species were similar but that individuals ignored or were aggressive toward displaying birds of the opposite species.

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20 April 1978.

Mr Burger's note brought to light another record of interbreeding among giant-petrels and it seems convenient to publish both notes together. Ed.

Interbreeding by Macronectes halli and M. giganteus at Macquarie Island

At Macquarie Island (54° 35'S, 158° 55'E) the Northern Giant-Petrel *Macronectes halli* lays from about 11 August to 6 September and the Southern Giant-Petrel *M. giganteus* from 27 September to 19 October (Johnstone in prep.). The incubation period of both is about sixty days. *M. halli* nests singly or in loose aggregations in sheltered sites as previously reported by Carrick and Ingham (1970, *in* Antarctic Ecology, 1: 505–525. M. W. Holdgate [Ed.]). Most *M. giganteus* nest in larger colonies in exposed sites. The breeding populations of the two species on the Island are approximately 1,000 pairs of *M. halli* and 4,000 pairs of *M. giganteus* (Johnstone 1977, *in* Adaptations Within Antarctic Ecosystems: 647–668. G. A. Llano [Ed.]).

On 29 August 1970 I found a female *M. halli* incubating an egg in a nest at Boiler Rocks at the northern side of Bauer Bay on the western coast of Macquarie Island; on 5 September a banded male *M. giganteus* (CSIRO No. 130–61686) was on the egg. On 17 September the male was again on the nest, which on 22 September was deserted and empty. It was in a sheltered site typical of those chosen by *M. halli*. In October it became surrounded by a colony of M. *giganteus* containing twenty-six nests. Many *M. giganteus* were displaying near the nest throughout the period of its occupation.

The male *M. giganteus* was originally banded incubating an egg in the same area on 10 October 1967 in a program of banding incubating *M. halli;* the bander (P. J. Ormay, pers. comm.) recorded it as 'colonial bird, mate of unbanded *halli* female'. The pair had an egg, which disappeared between 26 October and 2 November. In 1968 the male *M. giganteus* was again recorded incubating in the same area on 13 September (S. R. Harris, pers. comm.) with the note 'very greenish bill; in fact, if I saw this bird elsewhere I may have said it to be a *M. giganteus*' (the unguis on each mandible of *M. halli* is normally pinkish-brown and on *M. giganteus*, pale green; for this and other field characters that distinguish the species see Johnstone 1974, Emu 74: 209–218). The fate of its egg was not known in 1968 nor was its mate recorded. It was not seen in 1969. In 1970 it was photographed and there was no mistaking its specific identity: it had green ungues, head- and neck-feathers paler than the palest *M. halli* and pale-grey leading edges of the wings.

This *M. giganteus* was apparently mated with an *M. halli* female in 1967 and 1970. It was incubating an egg in 1967 after many *M. giganteus* had laid but before all *M. halli* had hatched and in 1968 two weeks and in 1970 one month before other *M. giganteus* started to lay. The evidence is strong that interbreeding between the two species occurred on at least these three occasions but there is no evidence that any egg resulting from these attempts at hybridization hatched.

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A possible method of protecting grape crops by using an acoustical device to interfere with communication calls of Silvereyes

For many years Silvereyes *Zosterops lateralis* have been a nuisance in the vineyards of southern Australia. During observations on their behaviour in

Western Australia we recognized that the birds call continuously while they are feeding in the vines. This call has a frequency range falling between four and five kHz. It occurred to us that the birds might be disturbed if they were unable to hear other Silvereyes in the feeding area and that the broadcasting of a sound that totally enveloped that frequency range might be a cheap and convenient method of disturbing the birds sufficiently to prompt them to avoid the vines.

In 1973 we developed an electronic device that emitted a filtered white noise covering the frequencies 3.5 kHz to 5.5 kHz. We tested this in commercial vineyards in the Swan Valley with encouraging results. We then modified it to produce a sweeping tone, covering the same frequency range, driven by the 50-Hz mains oscillation. This device was tested in a row of Early Madeleine grapes that had always been seriously damaged by Silvereyes in Mateljan's vineyard, West Swan.

The vines on which damage was monitored composed six three-metre panels regularly spaced at nine-metre intervals along a row of Early Madeleine vines; the row had been planted at the edge of an orange orchard and was more than 200 metres from other vines. Figure 1 shows a diagrammatic plan of the area and the arrows indicate the direction from which the Silvereyes generally approached the vines. Nine non-directional speakers from which the noise was emitted were spaced at three-metre intervals in a twenty-seven metre length of the row shown by the hatching on Figure 1. The bargraphs in the Figure show the cumulative counts of damaged grapes made every two days from the six panels monitored. Many damaged grapes were found in the two unprotected panels, P_1 and P_2, few in the three within the protected area, P_3, P_4 and P_5 and few in the unprotected panel, P_6, cut off from the usual approach route of the birds by the protected zone.

Two more trials were made and each time substantial protection of the crop was achieved. However, other tests in the field demonstrated that much still needs to be learnt about the most appropriate methods of installing the device to achieve maximum protection; installations will need to differ from vineyard to vineyard in relation to local conditions.

We consider that this machine probably works in the way outlined at the beginning of this note and that the principle, i.e. jamming the communication frequencies of a bird, would apply only when the birds feed in a flock and maintain contact-calling during feeding.

A fuller account of the development of this apparatus and the tests that have been made with it will be published elsewhere.

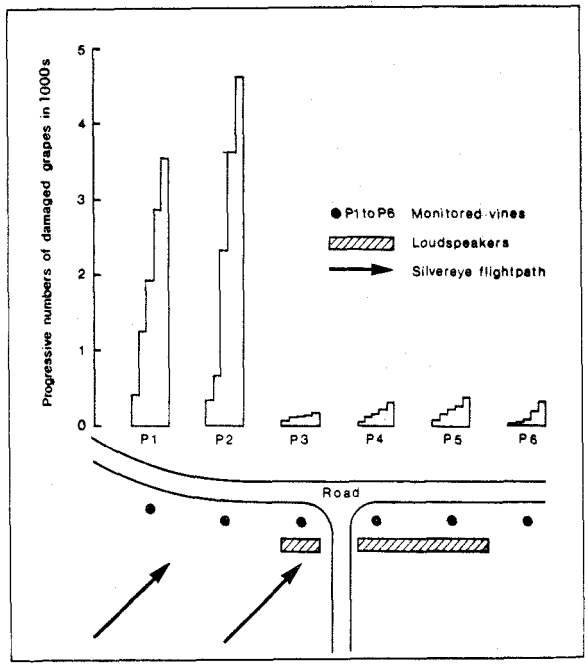

Figure 1. Results of the trial of the acoustic device in Mateljan's vineyard, West Swan, WA, in December 1975. The lower portion of the diagram shows the sites of the monitored panels in the row of Early Madeleine vines (solid circles). Each circle represents one 3-m panel. The arrows indicate the usual limits and direction of the entry flight path of the Silvereyes. The bargraphs in the upper part of the Figure present the cumulative totals of damaged grapes removed from the respective panels every two days. Note that P_6 is almost undamaged, even though not closely adjacent to a loud-speaker; the customary progress of the Silvereyes along the row was prevented by the use of the acoustic device.

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