

The Grey-crowned Babbler *Pomatostomus temporalis* – a Cause for Concern in Southern Victoria

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Summary

A detailed field survey of the Grey-crowned Babbler *Pomatostomus temporalis*, combined with extensive interviews with local bird observers, indicates a population of some 35 to 40 individuals in nine colonies in the Mornington Peninsula region of Victoria. Nine colonies are known to have become extinct since 1960 and the majority of extant colonies have displayed population declines. Factors attributed to these declines include habitat alteration, introduced predators and inbreeding. No remaining populations occur in national parks or land reserved for wildlife protection. A system of remnant habitat incentive schemes for private landholders and habitat restoration on roadside verges of low-volume traffic roadways by local councils, and the re-introduction of the species into nature conservation areas, is suggested.

Introduction

The Grey-crowned Babbler *Pomatostomus temporalis* was once common and widely distributed in south-eastern Australia. It formerly occurred as far west as the southern Mt Lofty Ranges (Blakers et al. 1984) but today is rare and declining in South Australia (Condon 1969, Houston 1981). Once common and widely distributed across Victoria, the Grey-crowned Babbler has disappeared from some areas (such as the Portland region) and declined in others (Wheeler 1949, 1967; Emison et al. 1987). There also seems to have been declines in some populations in New South Wales (pers. obs.), the Australian Capital Territory (Frith 1969) and Queensland (e.g. Jandowae area — J. Carlyle pers. comm.; Bell area — Battaglene 1989).

The Grey-crowned Babbler inhabits dry forests and woodlands, roadside vegetation and wooded farmlands in Victoria (Wheeler 1967, Pizzey 1980, Emison et al. 1987). In these habitats this species lives in highly co-ordinated groups throughout the year and in parts of the babbler's range where it is common, lone birds or unattended pairs are rarely seen (Counsilman & King 1977). Movements of individuals and groups take place as a result of post-breeding dispersal or adverse changes to habitat within home ranges (King 1980, Boehm 1979). Carruthers (1965) recorded movements of up to 25 kilometres for banded birds. The home range of the species is between 1.7 and 52.7 hectares (Blakers et al. 1984). The normal group size is between three and eleven individuals (Carruthers 1965, Frith 1969, Blakers et al. 1984, Counsilman & King 1977). Within these groups individuals 'forage as a social unit, roost communally, have an exclusive home range, have a single nest at a time, share food, allopreen and co-operate in feeding the incubating female and possibly in protecting the nest' (King 1980). Living in such a social unit is likely to increase individual survivorship by reducing the chance of predation (Gadgil 1972), through conserving heat on cold nights by communal roosting (Counsilman 1977) and in locating patchily distributed food.

During 1987 to 1989, while involved in a detailed field investigation of the vertebrate fauna of the Greater Melbourne area, my concern was aroused for the plight of the Grey-crowned Babbler. It was once widespread on the western plains of Melbourne (Keartland 1889, 1900) but the last remaining population at Eynesbury, south of Melton,

The colonies of the Grey-crowned Babbler in the Mornington Peninsula region are widely distributed (Figure 1). The habitats utilised by these populations include golf courses, roadside verges with native vegetation, remnant woodland with an open understorey and the fringes of woodland with a dense shrub layer on farmland, parks and residential areas.

Table 1
Known extant colonies of the Grey-crowned Babbler in the Melbourne area.

<i>Colony</i>	<i>Site No.</i>	<i>Locality</i>	<i>No. Present</i>	<i>Last Seen</i>
Corner Browns/Jetty Rd, Rosebud Sth	1	38°23', 145°05'	2	1987 ^b
Balnarring Mechanics Institute Reserve	2	38°21', 145°06'	2	1987 ^b
Devilbend Reservoir area, Moorooduc Sth	3	38°13', 145°05'	3	1989
Jessie White Reserve area, Mt Eliza	4	38°11', 145°05'	3	1989
Humphries Rd, Mt Eliza	5	38°10', 145°06'	7 ^a	1988
Cannons Creek Rd, Cannons Creek	6	38°12', 145°18'	2	1989
Cranbourne Golf Course	7	38°04', 145°17'	5 ^a	1988
Woodlands Golf Course	8	37°59', 145°06'	3	1988
Southern Golf Course, Keysborough	9	37°59', 145°08'	4	1987

^anumbers fluctuate greatly.

^bsite visited frequently since the year given but no sign of the bird's presence.

Table 2
Grey-crowned Babbler colonies known to have become extinct in the past three decades.

<i>Colony</i>	<i>Site No.</i>	<i>Locality</i>	<i>No. Present</i>	<i>Last Seen</i>
A. Last seen in 1980s				
Main Creek Road, Main Creek	10	38°24', 146°57'	2	1988
Frankston-Flinders Rd, Balnarring	11	38°22', 145°07'	2	1986
Hunts Rd, Hastings W.	12	38°19', 145°06'	7	1982
Churchill National Park area	13	37°57', 145°15'	2	1983
B. Last seen in 1970s^b				
Coolart Rd, Tyabb	14	38°14', 145°08'	6	1970 ^a
Keysborough Golf Club	15	38°00', 145°09'	SN	1970 ^a
C. Last seen in 1960s^b				
Mulgrave area	16	37°55', 145°11'	8	1960s
Rowville area	17	37°55', 145°13'	1	1964
Baxter area	18	38°11', 145°09'	3	1967

^aexact year not known

^bthis category is unlikely to be complete

SN=small number present.

The largest colonies present are in the Humphries Road area in Mt Eliza (seven birds) and on the Cranbourne Golf Course (five birds). However, numbers present in these areas fluctuate and frequently groups of only two or three individuals were observed in either site. The reasons for these observed fluctuations is not known.

It is possible that two populations regarded as extant are no longer present (Table 1). These populations are located on the corner of Browns and Jetty Roads and around the Balnarring Mechanics Institute Reserve. Neither of these localities revealed birds or any indication of nests in recent visits.

Most other extant populations appeared to have declined in recent years. For example, the Cannons Creek population diminished from 12 birds in 1979 to 2 in 1989. Birds were regularly observed on the south side of Devilbend Reservoir in the early 1980s, but today are rarely seen. Populations in Mt Eliza also appear to have become reduced (M. Carter pers. comm., P. Mitchell pers. comm.).

Additional unknown populations may occur in the region, as a pair or small party of babblers is easy to overlook when conducting broad-scale fauna surveys. However, this is considered unlikely from the amount of time spent in the region, and the number of knowledgeable local bird observers who frequent the area and were interviewed.

Isolated records of single or pairs of Grey-crowned Babblers have been made in the region, for example:

- i. Beaumaris (1 bird), 1985 (Morrison & Morrison 1985)
- ii. Mulgrave (2 birds), 1980 (Bateson 1981)
- iii. Rosebud (2 birds), 1981 (Muskier 1982)
- iv. Emerald (1 bird), 1985 (R. Loyn pers. comm.)
- v. Tooradin (1 bird), 1984 (B. Dunston pers. comm.)
- vi. Grayden Road Recreation Reserve (2 birds), 1985 (G. and W. Schulz pers. comm.)

No Grey-crowned Babblers or nests were observed at these sites despite repeated visits during the survey period. This and subsequent discussions with local bird observers suggests that the presence of babblers away from known populations is a result of post-breeding dispersal (refer to King 1980, Boehm 1979).

Little direct evidence was gathered on possible causes for the decline of the Grey-crowned Babbler in the region. At two sites (Humphries Road and Jessie White Reserve, area, Mt Eliza) domestic cats were observed stalking foraging babblers. A road-killed individual was found on Humphries Road, Mt Eliza. Road-killed babblers have also been collected from Cannons Creek Road (D. Evans pers. comm.) and the Frankston-Flinders Road, Balnarring colonies (author, pers. obs. before 1988). Reports from local residents suggested that several individuals of the now extinct Frankston-Flinders Road, Balnarring colony were shot by vandals.

At two sites (Devilbend Reservoir area and Woodlands Golf Course) babblers were regularly harassed by mobs of the aggressive Noisy Miner *Manorina melanocephala*. Such activity caused the babblers to retreat to nearby shrubbery. Similarly, the remaining pair of babblers at the Cannons Creek site was continually harassed and chased by Noisy Miners when feeding (D. Evans pers. comm.).

Discussion

The Grey-crowned Babbler population on the Mornington Peninsula is the last known remaining population in Victoria, south of the Great Dividing Range (Emison et al. 1987). It is separated from populations in the Nagambie-Bendigo areas, north of the Great Dividing Range, by tracts of unsuitable habitat such as the urban sprawl of Melbourne and the dense montane forest of the Divide. Consequently, the distances involved and the lack of suitable habitat in a broad band across the intervening area render it unlikely that there is mixing of individuals between the Mornington Peninsula population and those to the north.

The results presented in this paper strongly suggest that the Grey-crowned Babbler is declining in the Mornington Peninsula region and has been for some time (Wheeler 1949, Mitchell 1985). An example of such a decline is that since 1980 six colonies of Grey-crowned Babblers have had only two members as their most recent group size (Tables 1 and 2). This is less than the normal colony size of three to eleven individuals (e.g. Carruthers 1965, Frith 1968, Blakers et al. 1984). Three of these populations (Main Creek Road; Frankston-Flinders Road, Balnarring; and Churchill

National Park) are now extinct and two are suspected to be extinct (Balnarring Mechanics Institute Reserve and the corner of Browns and Jetty Roads sites). The remaining colony of two individuals at Cannons Creek has had no successful breeding attempts in the last two to three years (D. Evans pers. comm.).

A reduced group size is likely to suffer social breakdown as well as a reduction in survival and breeding success. For example, all members of a colony build and share a communal nest, co-operatively feed the incubating female, allopreen and assist in predator-avoidance behaviour (Gadgil 1972, King 1980). A group of two birds may find it difficult to survive and breed successfully without the presence of additional individuals to aid in the performance of these tasks.

MacArthur (1972) proposed four major causes for the decline or extinction of species: habitat alteration, predation (including disease), competition and random population fluctuations. Habitat alteration appears to be the major cause for the decline in the region's Grey-crowned Babbler population. The populations present in the Mulgrave area (e.g. Site 17) have disappeared after the widespread habitat clearance for industrial and residential development. Other populations are also likely to have suffered from the subdivision of broad-acre land into intensively modified farmlets and the subsequent vegetation clearance (Frith 1969). In northern Victoria babbler numbers have declined through the clearing of Bulokes *Allocasuarina luehmannii* and Murray Pines *Callitris* sp. for cereal crops (Emison et al. 1987).

On farmlets, broad-acre farms and roadside verges on the Mornington Peninsula there is a tendency to retain canopy trees, but to clear the native shrubbery. This regime is maintained by grazing or slashing. The latter is increasingly employed by local councils as a fire prevention method. Frequently this results in damage to the soil structure and replacement of native flora by aggressive introduced species. These tend to grow prolifically thereby changing the vegetation structure. Grey-crowned Babblers spend a proportion of the time feeding on the ground (Frith 1969), but also use shrubs for foraging, predator avoidance and nesting purposes (Frith 1969, Readers Digest 1976, Houston 1981). The structural simplification of an area by removing the shrub layer and altering the ground layer vegetation so that it becomes dense in cover may have a profound effect on the babbler's survival. Few populations in the area have not been influenced by some form of habitat alteration. The effects of spraying blackberries and other noxious weeds with chemicals such as Glyphosate (Roundup), 2,4-D and Hexazinone (Velpar) in remnant bushland areas and roadside verges on babbler survival remain unknown.

The effect of habitat alteration is compounded by the susceptibility, particularly of young birds, to introduced predators such as the fox and feral cat (Frith 1969, Andrew et al. 1982). Foxes are present in all sites frequented by the Grey-crowned Babbler in the region. Evidence from this study suggests that at some sites located close to residential development and farm or farmlet houses the domestic cat poses a serious problem. The young birds are slow and spend much of their time on the ground. The lack of cover and reduced group size further lessens the chance of detection and avoidance of predators.

At some sites the Noisy Miner is aggressive towards the Grey-crowned Babbler. This form of constant harassment towards a remaining pair of babblers such as witnessed at Cannons Creek may ultimately affect the survival of an already stressed population.

Other factors are also likely to have a bearing on the decline of the Grey-crowned Babbler. The typically slow and low flight of the species from one side of the road to the other makes the babbler susceptible to being killed on roads. This susceptibility

is compounded by the fact that all of the sites occur on either side of at least one public road. Several sites are situated close to roads with a high traffic volume (e.g. Humphries Road site). An incidence of vandalism by shooting was reported at one site. The babbler nests are obvious and generally accessible to human disturbance and egg collecting.

Franklin (1980) proposed that for vertebrate animals a minimum effective population size of fifty individuals is required to maintain an average inbreeding coefficient of 1% or less. This is the largest value consistent with the short-term survival or fitness of a population. The size of the isolated Grey-crowned Babbler population on the Mornington Peninsula is estimated to be between 35 and 40 individuals, hence the inbreeding coefficient is likely to be higher than 1%. On this basis, a reduction in population size could be expected through increased reproductive failure (Frankel & Soule 1981). The babbler's ability to disperse is supported by the appearance of individuals and pairs in areas where resident colonies are not known. This suggests that the Mornington Peninsula colonies are not genetically isolated from each other.

No extant populations occur within national parks or other faunal reserves in the region. Some sites include local council reserves such as the Balnarring Mechanics Institute Reserve and Jessie White Reserve sites. All populations occur, in part at least, on private land. The populations in the Mt Eliza area are peculiar in that they predominantly frequent and breed in residential areas having large block sizes. Several populations are centred on golf courses (e.g. Cranbourne and Woodlands Golf Courses).

The majority of babbler groups in the region range over a wide array of private land holdings with little or no intervening public land containing suitable habitat. Golf courses are likely to become the last stronghold for the species in the region, through the maintenance of suitable habitat. At Churchill National Park predator-proof fencing of the colony was suggested to ensure survival of young from cats and foxes (Fletcher & Woinarski 1981). Similar measures are suggested wherever possible for the remaining populations.

In an effort to halt further deleterious habitat alterations in localities frequented by the Grey-crowned Babbler, it is suggested that landholders including golf course owners be approached with an incentive scheme to encourage the retention and re-establishment of remnant habitat. The possibility of encouraging the retention of all suitable habitat on private land with a similar incentive scheme should be investigated. This will create 'stepping stones' (Diamond & May 1976) of suitable habitat which may assist the species to disperse and local populations to interbreed. Similarly, local councils should be approached to provide a network of suitable habitat along roadside verges of low-volume traffic roadways to assist in the movement and dispersal of individuals. The possibility of re-introducing the Grey-crowned Babbler into nature conservation areas such as Braeside Metropolitan Park, adjacent to the Southern Golf Course, is currently being investigated (Brereton & Schulz, in prep.).

Sadly, the Grey-crowned Babbler appears doomed to extinction in the long term in the Mornington Peninsula region and hence southern Victoria. Similar declines may be occurring in other areas of Australia, including localities where the bird is thought to be common. This paper was written to highlight the plight of the Grey-crowned Babbler in part of its range and the need to monitor population levels in other regions of Australia.

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