Corella, 1986, 10(2): 55-57

A CENSUS OF THE COMMON MYNAH *Acridotheres tristis* ALONG AN AXIS OF DISPERSAL

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Received 17 May, 1985

INTRODUCTION

The Common Mynah *Acridotheres tristis* is an established introduced species to many urban areas of eastern and southern Australia. It is recorded as expanding or contracting in different parts of its range. Hone (1978) present historical data of the spread of Common Mynahs in N.S.W. It is shown that although first introduced to Sydney in about the 1870's it did not begin to rapidly increase in distribution until the 1930's and 1940's. Hone predicted a further increase in the range of the species in N.S.W. and suggests that suitable habitat occurs in coastal resorts, the Hunter Valley and Tableland towns as Goulburn and Bathurst. The species is an exotic that in some areas is expanding its range and is therefore of particular interest to census accurately.

Censusing of birds from moving vehicles has not been commonly used in Australian studies but for some species and habitats it has particular value (e.g. Le Gay Brereton, 1977, Genelly, 1978). This is most applicable to Common Mynahs which inhabit urban areas and spread along roadsides (Blakers *et al.* 1984, Hone 1978). In the present study a measure of spread of the Common Mynah along a transect from Liverpool to Goulburn N.S.W. is given. A census technique using a moving vehicle is described which may be a useful technique to index certain conspicuous species.

METHODS

Common Mynahs were recorded from a moving car along a 180 km census route. The census route was between Liverpool and Goulburn, in either direction, (Figure 1) and was the same route on each occasion. The route was along the Hume Highway except that it included the opened sections of the Southwestern Expressway (from The Crossroads to near Campelltown and from Yerrinbool to near Mittagong). The census period ended before the section of the Southwestern Expressway joining these two sections was opened. Not all of the route was necessarily censused on every occasion.

Birds seen from the car by the driver were recorded by a passenger or on a cassette recorder. The author was the driver on all occasions. Passengers did not assist in observing birds. Recorded were the distances along the transect route, the numbers in each group and the activity of the birds (feeding on ground, perched on trees, poles or buildings or flying). Census data

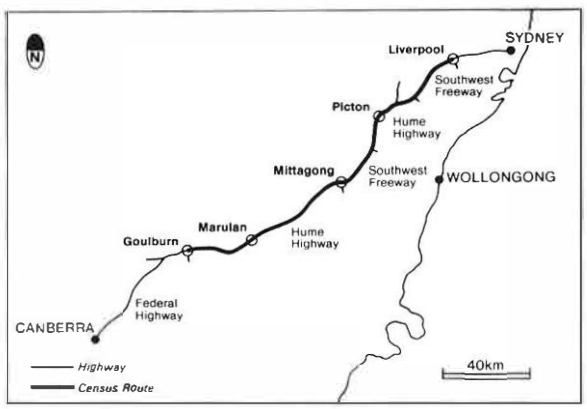

Figure 1. *Map of census route.*

were grouped for each 5 km section of the route. Each section was surveyed between 9 and 15 times.

It is likely that all birds on the roadway or within about 5 metres of it were recorded. No maximum distance for observation was set since a regular pattern of observational distance was determined by the requirements of driving the car and the speed of travel. It was assumed for the purpose of obtaining an index of mynah populations in this study that this would give consistent results. However, weather related seasonal or daily patterns of feeding or flocking may have influenced this assumption. Therefore no recording was done within ½ hour of dusk or dawn or during inclement weather. An attempt was made to collect data in all seasons.

A total of 20 censuses were conducted from March 1979 to November 1980 and these covered all seasons (Table 1). Over 25 hours of observations were made over 2 120 km of censusing. An average speed of travel of 83 km/h was recorded.

TABLE 1

Dates of censuses of Common Mynahs showing number of birds observed, distance travelled during census and duration of census.

Trip Date	No. Birds Observed	Dist. Travel (km)	Duration of Trip (min.)
30. 3.79	42	65	53
2. 4.79	49	175	127
20. 4.79	35	75	55
23. 4.79	24	110	65
14. 5.79	102	175	125
11. 6.79	12	175	120
16. 6.79	93	165	120
11. 9.79	0	80	70
29.12.79	31	175	118
26. 1.80	12	30	25
27. 1.80	7	30	25
26. 2.80	36	175	115
5. 3.80	35	70	60
23. 3.80	15	60	45
11. 4.80	0	35	22
13. 4.80	81	95	65
27. 4.80	64	175	127
14. 7.80	36	135	100
22.11.80	0	60	40
23.11.80	0	60	40
No. Trips	**Total No. Birds**	**Total Dist. Travelled**	**Total Time**
20	674	2 120	1 517 min.

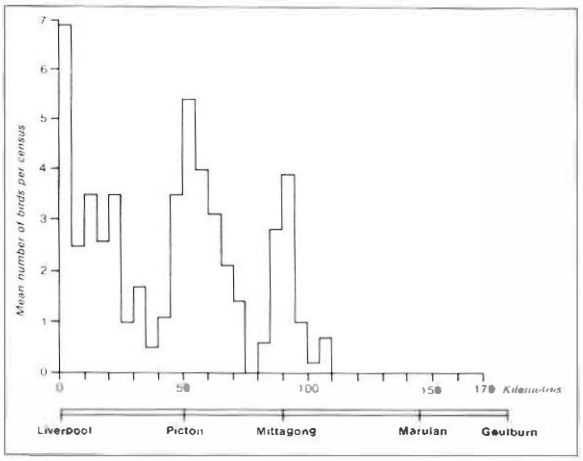

Figure 2. *Mean number of birds per census for each 5 km unit.*

RESULTS

A total of 675 individual birds were observed in 262 observations of the species. An average of 3.9 birds was noted in each observation. Some 45% of the birds were in singles or pairs and 55% in groups of three or more. Observations on the activities of all birds were in the proportions: 4 feeding on the ground: 2 perched above ground level: 1 flying. The mean number of birds observed per 5 km (Figure 2) shows an irregular spread of mynahs from Liverpool to Mittagong and an absence of birds from there to Goulburn. (It should be noted that mynahs had been irregularly reported from Marulan; however none were recorded during censusing.) The data were tested for evenness of spread around the mean from Liverpool to near Mittagong, ($\chi^2 = 32.95$, $P < 0.001$, $df = 6$) and were clearly not evenly distributed.

DISCUSSION

The census method described has provided an index of the occurrence of Common Mynahs from an area of abundance to an area where the species is apparently absent (or only occurs as a vagrant). In the area where mynahs were recorded the data are grouped into three distinct peaks corresponding to areas of semi-rural development and urbanisation. This confirms the observations of Hone (1978) and Blakers *et al.* (1984). The section of the census route which had low numbers of mynahs recorded corresponded to open farmland or forested habitats.

The heights of the peaks in mean mynah numbers decreased with an increase in the censusing distance from Sydney. This is probably due to the wider spread of urban and semi-rural habitats that favour the mynah on the outskirts of Sydney. Further from Sydney the lower observed peaks reflect the paucity of suitable habitat that the ribbon development and smaller towns have to offer. An alternative interpretation of this decrease in the heights of the peaks is that mynah numbers are still increasing in these areas and have not reached the maximum number capable of colonising the semi-rural and urban areas of Picton and Mittagong. This could be resolved by further censuses to monito rchanges that occur once mynahs have been established longer in these areas. If this is the case the open farmland barrier to the further spread of mynahs towards Goulburn may not be as effective once maximum numbers of mynahs are present in towns such as Mittagong.

Whilst the census method proved valuable, several factors need to be taken into consideration when comparing the data presented here with other studies. Variation in conspicuousness of mynahs and hence their probability of being censused could be caused by a range of behavioural changes. These could relate to season, weather, time of day, habitat type and age of the birds. The skill of the observer will also effect the census result as will the speed of travel. In this study the observer remained the same resulting in a uniform index and a consistent average census speed was maintained.

The possible useful measure of the compatibility of data between this and subsequent censuses is the ratio of birds observed feeding, perching or roosting. Many of the variables mentioned will effect this ratio e.g. behaviour changes caused by breeding or the speed of travel altering observer's recording of stationary birds.

A more comprehensive census would index the vegetation pattern along the census route in an attempt to measure how this effected the census result. This was attempted in this census however the data collected were not sufficient for detailed analysis.

This technique may prove useful in censusing many other bird species. Species studied need to be conspicuous from a moving vehicle and in habitats normally crossed by the transect route. The technique would only be useful for particularly common species unless large amounts of time and/or distances travelled were involved. Species that under some conditions may suit the technique's requirements could include parrots, Common Starlings *Sturnus vulgaris*, Australian Magpie-lark *Grallina cyanoleuca*, Australian Magpie *Gymnorhina tibicen*, Dollarbird *Eurystomus orientalis*, pigeons, nocturnal and diurnal birds of prey, kingfishers, swallows and martins.

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