

# Honeyeater Size Variation

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The author has previously (Robertson, *Aust. Bird Bander*, December, 1964) described his arrangements for free feeding and trapping honeyeaters at his home at Wellington Point. Casual observation impressed him with the marked size variation within species, especially in the case of the Brown Honeyeater, his most frequent visitor. He now presents the weights and lengths of a large series of this species, and of a smaller series of Mangrove Honeyeaters. These measurements confirm the size variation, and especially in the Brown Honeyeaters show a marked biphasic distribution. Figures from the Australian Museum suggest that this is a sexual character, the larger birds being males.

Sitting with binoculars, watching the birds sipping up sugar and water mixture from my feeder, it became very obvious that there is a considerable range of size in the Brown Honeyeater (*Gliciphila indistincta*).

Since this feeder was established in February, 1964, its popularity with the Honeyeaters has increased. The original pint size supply bottle has been replaced by a quart size bottle. In busy times an additional half gallon bottle is added, making the storage at each refill 120 fluid ounces; this requires nine ounces of sugar. At maximum feeding rate the birds consume each minute an amount of mixture equal in weight to that of one Brown Honeyeater. This intensity may persist for a few hours.

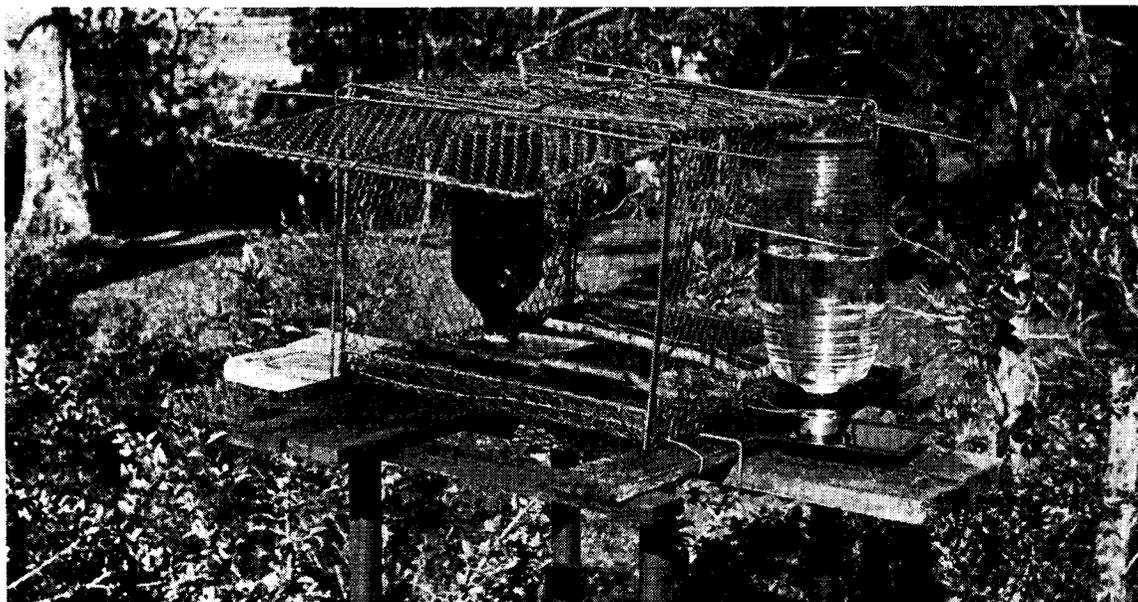
To feed, the birds stand in three rows on wooden perches, about 7 along each side of the tray and 5 across the end. During the drought there would be additional birds on the cage floor, walls and roof, to a total of perhaps 50. As the feeder is 35 feet from the observer's eye and 10 feet below it, this grouping of birds makes the size variation very clear. An attempt has been made by measuring, weighing and banding, to assess the extent of this variation.

Brown Honeyeaters are quick-moving, excitable birds so that those required for measuring and weighing are taken a few at a time and mainly in subsidiary funnel traps, 20 yards from the feeder. Some have been netted, incidentally to other activities. All birds recorded were first banded to avoid identity confusion. The banding seems to have no effect on the birds' behaviour; normally about half the birds at the feeder carry bands.

Weighing is done on portable scales bought at a stationer's for 67s. 6d. and designated "Letter Balance 8 ozs." The pan knife edges are 2½" each side of the central knife edge. A half gramme placed on the scales when empty immediately depresses its pan to the stop. Brass weights of 1 gramme, 2 of 2 g., 1 of 5 g., 1 of 10 g., 2 of 20 g., and 1 of 50 g. cost 26s. at a Scientific Instruments Shop.

The scales are stood on and tied to a 4" x 1" x 36" timber slat, one end of which projects beyond the table top. A wire rectangle 6" x 5" with a hook in the centre of the lower 5" end is hung across and below one scale pan with the side wires thus clear of the 4" timber. A cloth drawstring bag to contain the bird being weighed is hung from the wire hook below the pan. Two counter weights, one for the wire rectangle and the other for the cloth bag are placed on the second pan and so continually demonstrate their equalising effect. Then by placing a bird in the bag and appropriate brass weights in the other pan, the weight of the bird is read directly to the nearest gramme. When used in the field the 4" x 1" timber is placed across a 21" x 16" tray with 1½" high sides and folding legs. This tray is set up level by using the cylindrical brass 50 g. weight as a roller to demonstrate it is true in both directions. Keeping the weights pan over the tray avoids loss in the grass of weights dropped, or dislodged by a bird.

Though measurements were recorded in single millimetres it was clear that the length of the live bird is somewhat indefinite. They must be gently stretched to straighten before being measured. As they are somewhat elastic and often resist straight-



• *The Honeyeater trap and feeder.*

*Photo. by courtesy of The Queensland Museum.*

ening it is difficult to be consistent. In addition, from time to time, there are changes due to growth, moult of tail feathers or seasonal variations. For these reasons the recorded weights are considered more exact than the lengths.

When tabulating the recorded lengths and weights of Brown Honeyeaters, the lengths were grouped in 5 millimetre ranges. It is considered that this is probably as close as the purpose warrants. It provided also 8 sub-divisions of length, approximately comparable to the 8 weight sub-divisions. These are shown in Table 1.

TABLE 1

*Lengths and weights of Brown Honeyeaters.*

Length in mm.	LENGTHS		WEIGHTS		
	Birds	%	Weight in gms.	Birds	%
To 130	21	6	9	1	0
131-135	42	12	10	45	14
136-140	77	22	11	60	18
141-145	33	10	12	41	13
146-150	55	16	13	51	16
151-155	84	24	14	82	25
156-160	31	9	15	40	12
161-	4	1	16	5	2
	347*	100		325*	100

\* Some birds were measured but were not weighed.

Plotting the percentages shows two definite humps in the lengths, the first in the group 136-140 mm. and the second at 151-155 mm. Similarly plotting the weights shows humps at both 11 and 14 grammes. In both cases there is a definite overlap between humps. These two general size groups may represent females and males. My observations of birds in the hand have failed so far to disclose any visual exterior differences which could be related with certainty to age or sex. True, the amount of yellow both at the gape and behind the eye varies from nil to much, but why this is so is not clear. Birds which appeared to behave as youngsters or showed juvenile feathers, often with odd hairs, seemed to have a tendency to a brighter general golden wash and less yellow behind the eye. At one stage the greater extent of yellow at the gape appeared possibly significant of juveniles until a retrap 13 months after banding upset this by showing a great amount of yellow here.

After seeing my set-up and discussing with me preliminary tabulations and possible size/sex relationship, H. J. de S. Disney, Curator of Birds of The Australian Museum, Sydney, kindly supplied me with weights and lengths of sexed Brown Honeyeaters. These have been summarised in Table 2 below. As Disney states in his covering letter, this "seems to indicate that there is a definite difference in the sizes, the males being larger than the females, however it will be seen that it appears there may be some overlap."

TABLE 2

Lengths and weights of Brown Honeyeaters collected for the Australian Museum.

Length in mm.	LENGTHS		WEIGHTS	
	Males	Females	Weight in gms.	MalesFemales
To 120	0	1	6	0 1
121-125	0	2	7	0 2
126-130	1	2	8	0 2
131-135	2	1	9	1 1
136-140	1	0	10	4 0
141-145	2	0	11	2 0
	6*	6		7 6

(\* Only 6 males measured).

This possibly explains the humps in the plotting of the percentages of my tabulated results. It raises also a query as to why my birds are so much longer and heavier than those of Table 2. It will be noted that the upper sizes of Table 1 are above the range of Table 2, and likewise the lower sizes of Table 2 are below the range of Table 1.

In this regard some figures from E. Lindgren (Department of Zoology, University of Western Australia) of 5 West Australian Brown Honeyeaters are of interest. Their length ranges from 130 to 143 mm. and their weight from 10.2 to 12.3 grammes. These fall within my Wellington Point size range.

Whether the size difference between Disney's birds and mine is referable in part to variations of live and dead birds, or whether it is one of habitat, geographic distribution, or some other reason is not clear. My lists do not include any comparison between live and dead lengths and weights, or any sexing, because all the birds have been allowed to fly away.

In the Redlands Shire over the last three years, my observations have emphasised the close relationship between the Brown Honeyeater and the mangrove trees. Adjacent to mangroves the Brown Honeyeater is quite clearly the most numerous bird, with the Mangrove Honeyeater (*Meliphaga fasciogularis*) next so. A mile from the mangroves, the Brown Honeyeater ranks just as other bush birds do, and the Mangrove Honeyeater is not seen at all.

Sometimes birds retrapped have been measured and weighed. This has provided, for 30 birds, sets of figures additional to those booked initially, and thus shown in Table 1. These re-measures vary from one repeat to four repeats over time periods of from one to twenty-two months. A summary of these check results is set out in Table 3.

TABLE 3

Lengths and weights of retrapped Brown Honeyeaters.

LENGTHS within 5 mm. of original	24 birds
" 7	2 "
" 8	1 "
" 9	2 "
" 11	1 "
	30 birds

WEIGHTS within 1 gramme of original	24 birds
" 2	5 "
" 3	1 "
	30 birds

The repeat measuring and weighing of retrapped birds has been done rather as a check on my equipment and routines, than as a demonstration of time to time variations of individuals. No doubt seasonal variations will show in these check figures but to be significant would probably require greater numbers with more precise timing, equipment and methods. As checks they are considered as having proved my figures satisfactory for their purpose.

Mangrove Honeyeaters are next most abundant to Brown Honeyeaters at my feeder. There is visually an appreciable size variation in the Mangrove Honeyeater too. This is confirmed by field data summarised in Table 4 below. Other species are being listed as opportunity offers.

TABLE 4

Lengths and weights of Mangrove Honeyeaters.

Length in mm.	LENGTHS		WEIGHTS	
	Birds	Weight in gms.	Birds	
186-190	8	24	5	
191-195	18	25	17	
196-200	16	26	10	
201-205	17	27	8	
206-210	9	28	5	
211-215	14	29	5	
216-220	1	30	10	
221-	2	31	7	
		32	5	
		33	5	
		34	3	
		35	1	
	85		81	

My thanks to those fellow inquirers who have supplied me with the information quoted.

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