

MEASUREMENTS AND MOULT IN THE GREATER DOUBLECOLLARED SUNBIRD

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INTRODUCTION

The Greater Doublecollared Sunbird *Nectarinia afra* is a common resident of forest edges, montane scrub and *Protea* savanna (Maclean 1985). Tarboton *et al.* (1987) associated this species with *Aloe* spp. in the Transvaal, but in the Lydenburg study area the preferred habitat was mainly *Protea roupelliae* woodland and the surrounding forest edges and cliffs (De Swardt 1990).

Although Maclean (1985) presented detailed information on measurements of Greater Doublecollared Sunbirds, only the ranges of the tail, tarsus and culmen lengths are available. Craig (1983) discussed moult from a very small sample and suggested a complete moult during late summer.

STUDY AREA AND METHODS

The study area consists mainly of *Protea roupelliae* woodland on mountainous plateaus and slopes with wooded cliffs and riverine areas (De Swardt 1990).

Greater Doublecollared Sunbirds were mistnetted and biometric and moult data recorded during a study on the seasonal movements of Gurney's Sugarbird *Promerops gurneyi* in the Lydenburg area (De Swardt 1991).

The birds were ringed with 2,3 mm aluminium (AB) rings and standard measurements of the culmen, tarsus, wing, tail, and mass were recorded. A student's t-test was performed to test the differences between the sexes. Probability values (p) of less than 0,01 were considered as significant. Moult was scored according to the criteria of Ginn & Melville (1983).

RESULTS AND DISCUSSION

The measurements of 23 males and 10 females are presented in Table 1 (page 24). In addition to the 33 adult sunbirds captured were two juvenile females. The juvenile females differ from adult females by the presence of a yellow gape flange.

Wing and tail length

The mean wing length of males (69,1 mm; n=23; SD=2,26) was significantly longer than that of females (60,0 mm; n=10; SD=2,80) ($t=6,89$; $P<0,01$; $df31$). Wing length could be a valuable measurement in sexing sub-adult individuals.

Tail lengths of males (54,7 mm; n=23; SD=2,80) were generally longer than those of females (46,3 mm; n=10; SD=6,07) although some overlap was found in the ranges. A significant difference in the tail lengths of both sexes was recorded ($t=4,2$; $R<0,01$; $df31$). The tail lengths of females were found to be shorter than the 33-54 mm recorded by Maclean (1985).

Culmen length

The mean culmen length of the males (28 mm; n=23; SD=0,95) was significantly longer than that of the females (24,5 mm; n=10; SD=1,84) ($t=5,70$; $P<0,01$; $df31$). A very slight overlap was evident.

Body mass

Males were found to be heavier than females as also noted by Earlé (1981) and Maclean (1985). Mean body mass of males (13,4 g; n=23; SD=1,30) differed significantly from that of females (11,8 g; n=10; SD=1,51) ($t=2,91$; $P<0,05$; $df31$). The mean mass of both sexes was found to be heavier than noted by Maclean (1985), possibly as a result of the larger sample size in this study.

Males were found also to be heavier during November to January (Fig. 1) which coincided with their moulting season (see fig. 2). It seems as if more energy is required for moulting and the abundance of *Protea* nectar at this time presumably provided the necessary energy resource, resulting in an increase in body mass.

Moult

Greater Doublecollared Sunbirds were found in primary moult from November to March which is the period following breeding (Maclean 1985) (Fig. 2). The primaries were moulted descendantly from P1 to P10.

Secondary and tail moult was recorded during December and March. Although the sample was too small to detect a pattern, this moult seemed to coincide with primary moult.

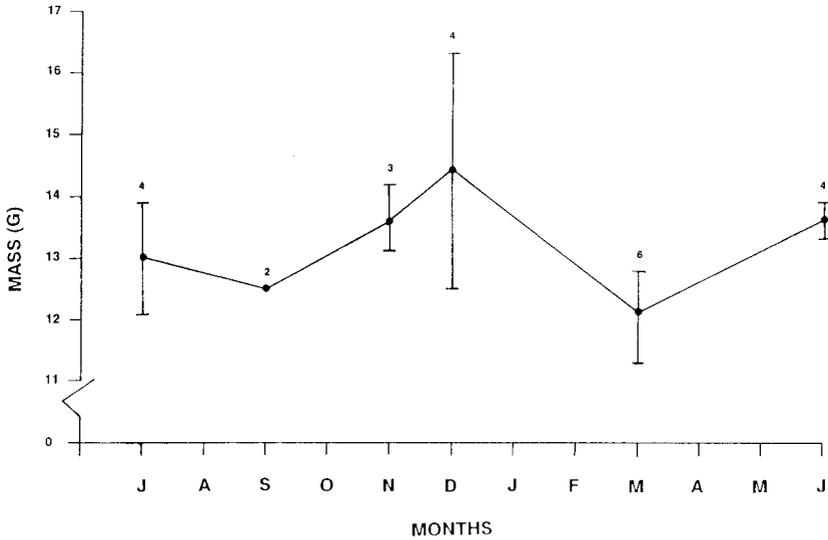


FIGURE 1

SEASONAL VARIATION IN BODY MASS OF MALE
GREATER DOUBLECOLLARED SUNBIRDS

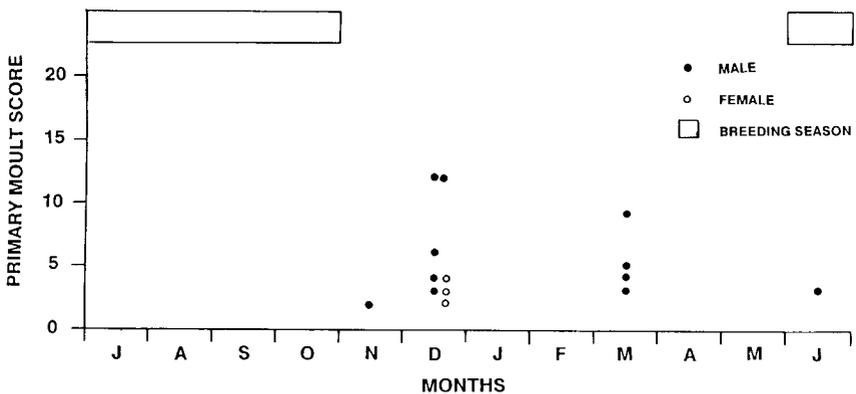


FIGURE 2

PRIMARY MOULT OF GREATER DOUBLECOLLARED SUNBIRDS

CONCLUSIONS

It seems as though the culmen and wing lengths of Greater Doublecollared Sunbirds may provide a key for ringers in the positive sexing of sunbirds which are not in male plumage.

No nests were recorded in the study area, but breeding activities were suspected as two juvenile sunbirds were captured. These individuals differ from females by the presence of a yellow gape flange and shorter culmen, wing and tail measurements. When juvenile sunbirds are caught it is advisable to compare their measurements with those of adult sunbirds. On subsequent ringing occasions sexing of recaptured birds can be done.

TABLE 1
MEASUREMENTS (MM) OF GREATER DOUBLECOLLARED SUNBIRDS
NECTARINIA AFRA

	MALES				FEMALES			
	MEAN	RANGE	SD	N	MEAN	RANGE	SD	N
WING	69,1	65-74	2,26	23	60,6	52-64	3,60	10
TAIL	54,7	51-61	2,80	23	46,3	33-54	6,07	10
TARSUS	18,0	16,6-19,5	0,90	23	16,6	15,9-18,1	0,98	10
CULMEN*	28,0	26,7-30,6	0,95	23	24,5	20,1-26,3	1,84	10
MASS (g)	13,4	11,5-18,0	1,30	23	11,8	10-14	1,51	10

*(feather line)

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