

Biometrics and moult of the Thickbilled Weaver in Pietermaritzburg

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Introduction

In general, biometric and moult studies on African species are few (Laycock 1982, Craig 1983). Sample sizes given for morphometric measurements in *Roberts' birds of southern Africa* (Maclean 1993) are often very small, and often include museum specimens. Craig (1983) highlighted the need for African bird ringers to publish more from their extensive databases.

The Thickbilled Weaver *Amblyospiza albifrons* is distributed from the Eastern Cape northwestwards along the eastern tropical coastal belt. In southern Africa it extends into the eastern half of the Northern Province, Swaziland, eastern Zimbabwe, and the Okavango and Caprivi regions of Botswana (Craig 1997). It is a common suburban bird and has adapted to a wide range of man-made habitats. Expansions of its range have occurred into the Witwatersrand, and in Zimbabwe (Craig 1997). To date very few studies into the biology of this ubiquitous species have been made, with the notable exception of Laycock's excellent work in the late 1970s and early 1980s (Laycock 1979, 1981, 1982). This study attempts to address the paucity of information available for this species by utilising ringing data collected over a four year period.

Materials and methods

Thickbilled Weavers were mostly caught at the aviaries of the School of Botany and Zoology, University of Natal, Pietermaritzburg, between June 1997 and November 2001. Birds often get trapped in enclosures housing suspended cages containing lovebirds. Thickbilled Weavers chew holes into the shade-

cloth walls to get to the fallen sunflower and millet seed discarded by the lovebirds. Hand nets were used to catch these individuals. Thickbilled Weavers were also trapped outside enclosures using a simple walk-in trap baited with sunflower and millet seed. Additional data obtained from opportunistic mist-netting around Pietermaritzburg since 1994 is also included, although this amounted to few records.

Measurements of the wing, tail, culmen and mass were taken for each bird following de Beer *et al.* 2000. Primary moult scores and the presence or absence of a brood patch were also recorded.

Results

During this study 172 Thickbilled Weavers were caught and ringed. Of these, 48 were males, 98 were females and 26 unsexed. The numbers of sexed birds caught peaked in September to October (Fig. 1). Biometrics are listed in Table 1.

Moult and breeding

The percentage of individuals caught each month in active primary moult and with an active brood patch is shown in figure 2. This method shows the proportion of the population sampled in moult or breeding at any one time (Newton 1966, Symes *et al.* 2001). Birds were found with brood patches from August to January, with the exception of November, when few birds were caught. Active moult occurred in a narrow period between April and June.

Retraps and movements

Forty-six birds were retrapped 125 times during this study (recapture rate of 26.7%). Of

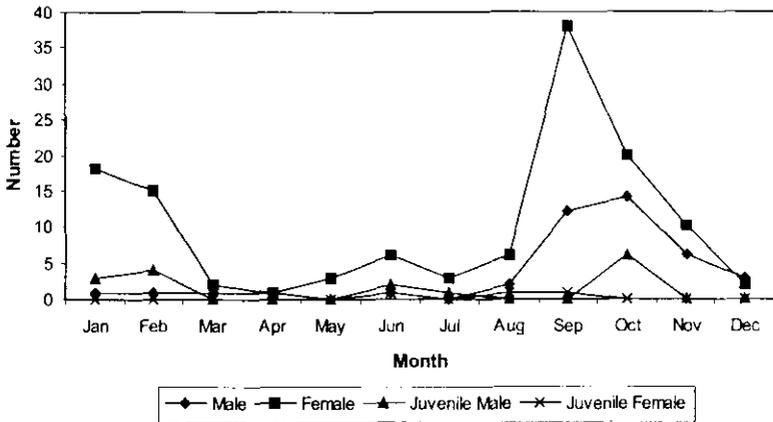


Fig. 1. Monthly capture rates for all sexed Thickbilled Weavers during this study (Pietermaritzburg, June 1997–November 2001).

these, 30 birds were recaptured twice, 11 birds were recaptured 3 or 4 times, and 2 birds were recaptured 6 or 7 times. Six of the retrapped birds were ringed by Dr David Johnson 5 kilometers away at Darvill Bird Sanctuary. The greatest elapsed time between ringing and recapture is 4 years 2 months.

Discussion

Most birds were caught during the breeding season as found by Laycock 1982. Atlas data shows reduced reporting rates in winter when birds flock and move into taller woody vegetation away from breeding grounds (Craig 1997). The sex ratio of sexed birds during this study was 1:2 (male: female). Laycock (1982) recorded varying sex ratios at different times, but in general found ratios of 1:1.

Biometrics for Thickbilled Weavers have not been published in any great detail. Maclean (1993) gives data on 11 males and 9 females, and mostly only gives ranges. Laycock (1982) gives ranges of length for all wing feathers, and states that male feather lengths exceed female feather lengths by 12–15%. Laycock (1982) also states that full grown males weigh more than 48 g and females less than 45 g. Although Laycock also describes various methods of ageing

birds using gape color, bill color, and plumage pattern and coloration, we feel it is useful to include biometrics as an additional ageing tool.

Moult

Moult in Thickbilled Weavers has been recorded in all months from December to June (Laycock 1982). In our study, birds were only found to be in moult during April, May and June. Laycock's data included numerous

Table 1. Biometric measurements for Thickbilled Weavers, Pietermaritzburg, June 1997–November 2001.

	N	Mean	SE	Min.	Max.
Males:					
Mass (g)	48	51.3	0.6	34.6	57.1
Wing (mm)	48	96.6	0.4	92	104
Tail (mm)	47	71.4	0.4	67	80
Culmen (mm)	48	22.5	0.1	20.5	24.0
Females:					
Mass (g)	98	40.6	0.4	34.1	53.0
Wing (mm)	98	87.9	0.3	79	95
Tail (mm)	98	64.1	0.3	51	71
Culmen (mm)	98	19.6	0.1	17.0	22.5

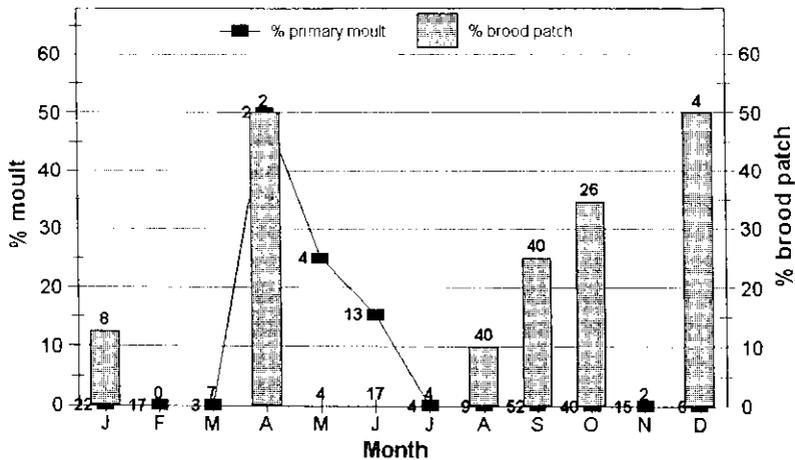


Fig. 2. Occurrence of breeding and moult in the Thickbilled Weaver (Pietermaritzburg, June 1997–November 2001) as expressed by the percentage of birds caught each month with moulting remiges and displaying a brood patch respectively. Sample sizes are shown on the left of the black box for primary moult, and above the bar for brood patch.

museum specimens, as well as data from various different sites. It may be that birds from a single area are more synchronous in their timing of moult than the population as a whole. Synchronous moult in birds from a single area may occur more often than is realised, with most published accounts of moult grouping data of individual species from various localities (Niles 1972, Austin 1978, Hanmer 1978, Laycock 1982, Craig 1983, Underhill & Underhill 1997). This appears strange as both geographical and annual variation in timing of moult within a species is known to occur (Newton 1966, Niles 1972, Austin 1978, Espie *et al.* 1996). Some southern African birds show extended moult periods. In the Rock Pigeon *Columbia guinea*, moult has been found throughout the year (Underhill & Underhill 1997). Bronze Mannikins *Spermestes cucullatus* in Sierre Leone were also found in moult all year round (Thompson & Tye 1995).

Moult in this study took place during only three months. Individual birds of some other local species (e.g. Cape Bulbul *Pycnonotus capensis*, European Wheatear *Oenanthe oe-*

nanthe, Stonechat *Saxicola torquata*, Natal Robin *Cossypha natalensis* and Starred Robin *Pogonocichla stellata*) also take about three months to complete wing moult (Craig 1983).

Breeding

Active brood patches were found from August to January (except in November due to low sample size) and on a single bird in April. Laycock (1979) reports the earliest record of breeding in his study as 22 September 1976. Atlas data show breeding from October to March throughout the range of the species in southern Africa (Craig 1997). Lepage (1999) shows breeding from September to February. During our study, moult and breeding did not overlap (with the exception of the single bird in April, which showed no moult).

Site fidelity and movements

A recapture rate of 26.7% suggests high site fidelity, with many birds returning to the same site on a regular basis. Local movements between feeding sites and/or breeding sites also occurs. Darvill Bird sanctuary, from

where six birds ringed by Dr D. Johnson were retrapped, is a known breeding site for the species. It is possible that birds breeding there were flying the distance of 5 km to our feeding and trapping site.

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Adult male Thickbilled Weaver head and wing.