DESCENDANT ECCENTRIC PARTIAL POST-JUVENILE PRIMARY MOULT IN THE BLACKCHEEKED WAXBILL *ESTRILDA ERYTHRONOTOS*

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All Estrildidae with the moult pattern documented in southern Africa undergo a slow complete post-juvenile moult during the dry season (Craig 1983). From my own field data, I can confirm this pattern for Melba Finch *Pytilia melba*, Redbilled Firefinch *Lagonosticta senegala* and Violeteared Waxbill *Uraeginthus gratinatus*, while Blue Waxbill *U. angolensis* and Jameson's Firefinch *L. rhodopareia* also follow this moult pattern and can be added to the species listed by Craig (1993).

The Blackcheeked Waxbill is a typical, though generally fairly uncommon species of the southern African thornbelt, with the distribution centred in the Kalahari basin. It follows the seasonality of most granivorous species in the area (Herremans *et al.* 1994), with breeding concentrated in the second part of the rainy season (December-April in Botswana: N.J. Skinner *in litt.* for Botswana Nest Record Card Scheme) and moult occurring in the dry season.

A few Blackcheeked Waxbills were caught sporadically during a measured effort ringing scheme in southeastern Botswana from 1991 to 1994. Ageing of first year birds was possible on skull ossification (February-July) and on the colour contrast between series of renewed and old (juvenile) upperwing coverts, for example, a few outer greater wing coverts, primary coverts or alula feathers (see article by Herremans on pp.19-22).

In 12 adults, four were found moulting primaries, all between March and June. One adult had already just finished moult on 8 June. However, no adults were caught from July to November and some may also moult in this period. All adults followed the normal pattern of descendant primary moult.

A total of 23 juveniles were caught, of which 10 were moulting primaries between May and October. All juveniles had a descendant eccentric moult pattern (Table 1), skipping the inner primaries and only moulting the outer series. Moult of secondaries and tertials was variable in juveniles, but other than the tertials and sometimes S1 or S6, other secondaries do not seem to be replaced in the post-juvenile moult. Because this moult pattern appeared as early as May or June, it is not to be misinterpreted as a resumption of primary moult that had been arrested for a long period during the dry season (as frequently happens in the Melba Finch, for example).

Although the evidence is still thin, it appears that adult Blackcheeked Waxbills undergo, for Estrildidae, a relatively fast complete moult in the normal passerine sequence in the first part of the dry season. Juveniles typically undergo a partial post-juvenile moult either early or late in the dry season, including replacement of the outer series of primaries in a descendant eccentric sequence, but not including most secondaries.

A descendant eccentric primary moult pattern in which the inner feathers are skipped is uncommon in passerines, although it has been recorded in the Common Crossbill *Loxia curvirostra* in Europe (Herremans 1982, 1988; Jenni & Winkler 1994), and has been documented in a small number of first year Masked Weavers *Ploceus velatus* in Botswana (Herremans 1994). It occurs occasionally in several other European, American and

Australian species, amongst which only Redbacked Shrike *Lanius collurio* also occurs in southern Africa (see review in Jenni & Winkler 1994).

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Table 1. Descendant eccentric pattern of post-juvenile primary moult in Blackcheeked Waxbill.

		Secondaries									Primaries								
		9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9
17 May	AD9327	O	N	N	7	O	O	O	O	O	O	O	N	N	8	4	O	O	O
17 May	AD9328	O	O	4	4	O	O	O	O	N	O	O	N	N	N	7	O	O	O
08 Jun	AD10761	O	O	O	O	O	O	O	O	O	O	O	O	8	1	O	O	O	O
17 May	AD9302	N	5	5	O	O	O	O	O	7	O	O	O	N	9	5	O	O	O
15 Sep	AD11791	O	O	O	O	O	O	O	O	O	O	O	O	N	N	2	O	O	O
08 Jun	AD10822	?	?	?	O	O	O	O	O	O	O	O	O	N	N	7	1	O	O
15 Sep	AD11635	?	?	?	O	O	O	O	O	O	O	O	O	N	N	9	2	O	O
08 Jun	AD10819	?	?	?	O	O	O	O	O	O	O	O	O	N	N	N	5	O	O
20 Oct	AD11960	N	N	N	N	O	O	O	O	O	O	O	O	N	N	N	N	7	O
13 Jun	AD9581	N	N	O	O	O	O	O	O	O	O	O	O	O	N	8	O	O	O

O = unmoulted, 1 = dropped, 2 = pin, 3-9 = x/10 of full grown length; N = renewed.