AGEING AND SEXING

AGEING ESTRILDINES BY THE ATTENUATION OF PRIMARY NINE

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Skead (1975) stated that juvenile Melba Finches *Pytelia melba* have a rounded tip to primary nine (P9), but in adults P9 is notched at the tip. He also said that it was not known at what age the juvenile P9 was replaced by an adult one and that it was not known at what age the Melba Finch first breeds, although a Blue Waxbill *Uraeginthus angolensis*, ringed as a juvenile, was retrapped six months later with the characteristic bent tail of a nesting bird.

At intervals over the years I have remembered to note the presence or absence of attenuation on P9 in several Estrildine species. Attenuation, when present, was recorded as 'very slight' (Fig. 1b overleaf), 'slight' (Fig. 1c), 'moderate' (something between Fig. 1c and 1d), 'very' (fig. 1d) and 'extreme' (Fig. 1e).

In the Melba Finch at Nchalo, Malawi ($16^{O}16S$, $34^{O}55E$), the juvenile P9 was usually rounded at the tip (Fig. 1a), but occasionally it was very slightly attenuated. Moult of the juvenile primaries was normally completed between November and February, depending on the month in which the bird hatched and when it was about eight to ten months old. Just before the moult was completed, when P9 was partly grown, the extent of its attenuation could be seen. Juvenile birds, whose P9 had not been attenuated, were then usually recorded as having slight attenuation, but in some it was moderate. Juveniles originally recorded as having very slight attenuation were more frequently found to have moderate attentuation after the first moult. Adults, known to be over twenty months old, had a greater degree of attentuation than did one year olds (Fig. 1d). The degree of attenuation did not appear to increase in later moults.

Goldenbacked Pytelia *Pytelia afra* juveniles generally had P9 slightly attenuated, while after the first moult, at about 8-10 months old, it was moderately so, or even very attentuated. Birds which were at least 20 months old and had completed their second moult had a very, or extremely, attenuated P9.

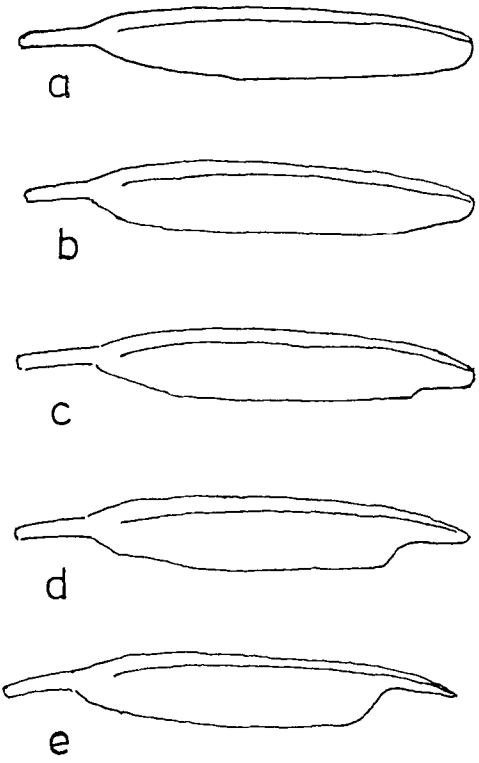

FIGURE 1

NINTH (OUTER) PRIMARY OF VARIOUS ESTRILDINE SPECIES SHOWING THE DIFFERENT DEGREES OF ATTENUATION OF THE TIP

a = no attenuation, b = very slight, c = slight, d = very attenuated and e = extreme. See text for explanations

A juvenile Bluebilled Firefinch *Lagonosticta rubricata* appeared to have very slight to slight attenuation of P9, although it is possible that some had none and were confused with Jameson's Firefinch *L. rhodopareia* (which has no attenuation), as one bird, recaught two years after being ringed, was found to have been wrongly identified as a juvenile. After the first moult, which was completed at about 7-8 months old, the attenuation had increased to moderate and birds of over 20 months old were usually recorded as having a very, or occasionally an extremely, attenuated P9.

In the Redbilled Firefinch *L. senegala*, juveniles had slight attentuation. After the first moult at about seven months old, P9 had become moderately, to very, attentuated and birds which had completed their second moult were always recorded as having P9 extremely attenuated, sometimes even more so than in Fig. 1e.

Blue Waxbill juveniles had no attenuation of P9, but after the first moult, completed at about 7-8 months old, it was usually recorded as slight and after the second, as moderate to very attenuated. There may be some increase in the degree of attenuation in later years, as three very old birds were recorded as having P9 extremely attenuated.

Common Waxbills *Estrilda astrild* were unfortunately not checked very regularly for attenuation and what little data were collected are contradictory. Ten juveniles had no attenuation of P9, nor did two adults known to be over two years old, but one, aged seven and a half, was recorded as having a moderately attenuated P9.

In the Bronze Mannikin *Spermestes cucullatus*, juveniles had no attenuation, or else it was only very slight. After the first moult, when they were about 9-10 months old, they were usually recorded as having slight to moderate attenuation. Insufficient evidence was collected to show whether or not there was an increase in the degree of attenuation at the second moult, but some birds of unknown age (probably more than 20 months old) were recorded as having a very attenuated P9.

With regard to the age at which these species first breed, the two *Pytelias* had a fairly restricted breeding season, mainly between January and July, but dependent on the timing of the rains in any year. In years when there was heavy rain in October or November, a few birds did breed then, but none was known to have hatched in that same year. Young birds appeared to breed after the completion of the first moult, at about 10-12 months old, since many, ringed as juveniles, were found to have a brood patch during the main breeding season in the year following that in which they hatched, but none had a brood patch prior to or during the rather long period in which the first

moult was in progress. The Blue and Common Waxbills and the Bronze Mannikins at Nchalo also had a restricted breeding season between January and July, but dependent on the occurrence of the rains. However, unlike the *Pytelias*, none was known to breed in other months of the year. The evidence collected suggests that young birds did not breed until the year following that in which they hatched, but that one hatched in June/July was capable of breeding soon after the beginning of the next year, provided that it had completed moult. In the *Lagonostictas*, the breeding season seemed to span much of the year and young birds appeared to breed soon after the completion of the first moult.

It is perhaps unfortunate that, at Nchalo, there were no other *Estrilda* or *Uraeginthus* species and that the seven Redbacked Mannikins *S. bicolor* which were caught there were not examined for attenuation of P9, but among the species 'pairs' that were caught at Nchalo, the *Pytelias* and *Lagonostictas* showed differing amounts of attenuation, since the adult Melba Finch had a far lesser degree of attenuation than did the Goldenbacked Pytelia and, while Jameson's Firefinch had none, the Bluebilled had a quite considerable degree of attenuation and the Redbilled had extreme attenuation of P9.

Since in all the species discussed above (except perhaps the Common Waxbill, where my data are minimal and peculiar), the juvenile, prior to its first moult, had either no attenuation or only a slight one, whereas attenuation was present or of considerably greater degree in adults. It is interesting to speculate that lack of attenuation may be an evolutionarily early character, while attenuation of P9 may indicate a species which evolved later. Is Jameson's Firefinch, which has no attenuation of P9, the ancestral form of *Lagonosticta*, from which the others are derived and is the Goldenbacked Pytelia a more recently evolved version of the Melba Finch?

Reference: -

Skead, D. M. 1975. Ecological studies of four Estrildines in the Central Transvaal. Ostrich Suppl. 11: 1-55.

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