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THE STATUS OF THE PYGMY KINGFISHER *CEYX PICTA* IN NORTHEASTERN NIGERIA

by P.J. Jones

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For a long period the migratory status of the northern race of the Pygmy Kingfisher *Ceyx picta picta* was uncertain (Elgood *et al.* 1973), but it is now clear, from data assembled by Wilkinson (1982), that in West Africa it is present throughout the year only south of about 9°N and is a rains migrant into more northern latitudes. This paper presents data on migration, moult and breeding status from the Molai Reserve near Maiduguri, NE Nigeria (11°50'N, 13°09'E), where the Pygmy Kingfisher is present only during the rains (Hall 1977).

Between September 1973 and September 1975 the late Peter Ward and I carried out standardised bird counts every week at Molai and once a month at 1°-latitude intervals north and south of Maiduguri. Over approximately the same period I mistnetted Pygmy Kingfishers on a casual basis within the Molai Reserve, always at the same net site, and routinely recorded weight, bill colour (as a guide to age), primary moult and any indication of breeding status (e.g. incubation patch). The birds were not ringed but were marked with permanent dye on the throat in order to identify retraps.

We recorded Pygmy Kingfishers at Molai only between mid-May and the second week of November and this was corroborated by Hall (1977) working there during the same period. What was probably part of the northward migration in May was witnessed by P. Ward at Song (9°49'N, 12°37'E), when at 0600 h on 9 May 1974 a group of 8 fully-grown kingfishers "shot past like bullets" and landed a little way ahead of him, followed by three groups of 2-3 birds soon after. None had been present in the area the day before, nor throughout the preceding dry season. Some stayed to breed at Song, since I observed an adult feeding a juvenile there on 22 July.

The breeding season of the Pygmy Kingfisher in West Africa is long, usually beginning in the south in March (with a record as early as January in Yaounde, Cameroun, *pers. obs.*), but not until much later in the north of its range, from June or July until October (Fry in press). Although we did not find any nests at Molai there was other evidence of breeding. Copulation was seen on 27 June and the earliest newly fledged juvenile was seen being fed by its parent on 9 September. Other juveniles with completely black beaks, which were probably under two months old (Hanmer 1980), were seen frequently at Molai in September, October and up to the middle of November, after which all Pygmy Kingfishers had disappeared from the Maiduguri area.

Two immature birds netted in mid-October weighed 15.0 g and 15.9 g. These were markedly heavier than the overall mean weight for fully-grown birds (mean of 65 adults and immatures 12.4 g + 0.9 g S.D.; all dusk weights) and were carrying extensive visible deposits of subcutaneous fat, presumably in preparation for their imminent return migration southwards.

Out of 44 fully-grown birds captured at Molai 34 (77%) were immatures with adult plumage but bills which were either dusky red or red with a blackish tip and base. If the colour changes in the bill of this northern race proceed in the same way as in the southern African subspecies, these birds were probably mostly about one year old, though some may have been approaching two (Hanmer 1980 and *in litt.*). These yearlings moulted (i.e. their second complete moult) during the time they spent at this latitude but only one apparently older adult, with a completely red bill, was recorded doing so.

The primaries of Pygmy Kingfishers moult descendently in two groups, P1-6 and P7-10 (Hanmer 1980). The mean sequence for 27 Molai birds was 7 1 2 3 8 4 5 9 6 10 but with much individual variation (*cf.* Hanmer *loc. cit.*). For most immatures moult began in June or July and was completed in October (Fig. 1). This is consistent with the duration of about 120 days for primary moult found by Hanmer, and matches the moulting season of immature Pygmy Kingfishers on the Equator in Uganda (Okia 1976). The exceptions were a few that started moult very late and would not have completed it before migrating south in October or November. Another bird evidently began moult very early but had arrested it by mid-June with new P1 and P7.

It is very unlikely that any of the birds in active moult between July and October at Molai would also have been breeding there. All these birds were caught at the same clump of bushes, often 4 or 5 birds together, but I am confident that few, if any, were caught more than once. These yearlings were therefore not territorial and probably ranged widely. Although it is conceivable that some might have nested already further south before migrating north, I think it more likely that immatures do not breed in their first year. A similar influx of immatures evidently occurs in Uganda during the middle of the year, when most individuals caught by Okia (1976) had dark beaks and immature gonads, and many were in moult.

The status of the few immatures at Molai that did not moult with the majority is more uncertain. The bird that arrested at the start of the rains there in June may have done so in order to breed. However, I doubt that those that did not begin until September or October had delayed it in order to make a breeding attempt. I think it more likely that they were much younger birds and that the wide variation in moult dates reflects variation in the timing of hatching and post-juvenile moult the season before. The natal area of these birds is unknown but it is tempting to speculate that the earlier moulting immatures were born during the early part of the breeding season in the southern part of the range, while the late-moulting birds had hatched later in the north, perhaps locally.

Almost all (8 out of 9) of the mature adults with completely red bills were caught in June and early July, when kingfishers were probably still migrating into the area and before breeding territories were established. None of these was yet in moult (Fig. 1) but if they had come to breed, as is likely, they would not have moulted until breeding was finished in September or October and possibly not until they had returned south.

The rainy season at 12°N, from May to October, therefore provides migrant Pygmy Kingfishers with sufficiently good conditions for adults to

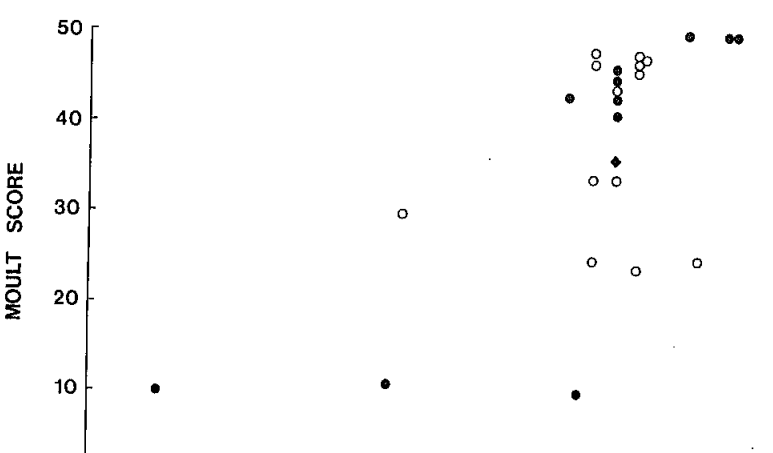

Figure 1 Primary moult of the Pygmy Kingfisher in NE Nigeria. The growth of each primary was scored from 0 (old) to 5 (new), totalling 50 at completion of moult. Adults (◆); immatures (●); not aged (o).

breed and yearlings to moult before returning south. We may speculate whether the Pygmy Kingfishers breeding at Molai might be 'itinerant breeders' (*sensu* Ward 1971), i.e. whether these birds might already have bred successfully further south earlier in the rains before coming north. There would have been ample time for them to have done so.

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