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NOTES ON SOME BIRDS OF THE ARABUKO-SOKOKE FOREST

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From 8 December 1984 to 2 January 1985 we studied honeyguides, barbets and woodpeckers in the *Afzelia-Brachystegia* and, mainly the *Brachystegia* woodland area for some 6½ km along the track bordering the south side of the Nature Reserve in the Arabuko-Sokoke Forest (see Britton & Zimmerman 1979, and Kelsey & Langton 1984, for description and map). We set the locality as 11-18 km WSW of Gedi at 0:18S, 39:55E. While there we observed, as our research permitted, other birds of this unique and threatened forest. We report new observations or unusual behaviour of 13 species. Most of these observations took place along the track or near the Nature Reserve's southern boundary track at 3-5 km in from the entrance. We tape-recorded many of the species reported here, but vocal analyses will appear elsewhere.

Southern Banded Snake Eagle *Circaetus fasciolatus*
At 10:15 to 10:45 on 13 December we heard a low, regular series of sounds overhead, and observed a Southern Banded Snake Eagle very high above, soaring in regular circles we judged to be 1 km in diameter. No visual displays other than the soaring were noted. Its call, repeated about every 5-10 s as the bird soared was a *ka-ka-ka-ka-KAW*, recorded on tape. According to Brown *et al.* (1982: 345) the species voice is not recorded on tape, although they well render it verbally. Again at 09:58 on 14th, presumably the same bird soared and called for 20 min overhead, the notes rendered *ka-ka-ka-ka-KA-OH* and *ka-ka-ka-ka-KAAA*. We did not observe it again until we heard it calling similarly overhead at 09:45 on 2 January. Brown & Amadon (1968) assume the crowing call given in soaring flight is related to breeding (nuptial flights), which may be the case.

Bateleur *Terathopius ecaudatus*
Bateleurs occasionally appeared over the *Brachystegia-Afzelia* area of the forest where we were conducting our honeyguide and barbet studies. At 11:00 on 13 December, over the trees to the north of the track, we saw a male Bateleur flying strangely, its long wings beating far upward and downward in apparently heavy, laboured flight quite in contrast to its normal soaring flight. As it crossed above an open area between trees it momentarily switched to the typical

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The authors would have preferred to depart from the following *Birds of East Africa* English names (their preference in brackets): Chestnut-fronted Helmet Shrike and Retz's Helmet Shrike (Helmet-shrike), Drongo (African Drongo) and Indian House Crow (House Crow). Dr Short will make a case for these and other deviations with G.S. Keith (in prep). *Ed.*

soaring flight, then peculiarly flew in two tight (diameter 300-400m) circles, mixing its flight every few seconds from normal soaring to wings beating downward and outward, as if braking; at all times its yellow-orange legs dangled beneath it. Quick reversals of these two patterns occurred, giving a 'jerky' circular pattern of flight at perhaps 30 m above the trees. At times the 'braking' action was so pronounced that the bird's head, raised during the beating-wing portion of the display flight, was far back and the dangling legs actually were out in front of the bird's head, the wings fluttering. The only described display somewhat resembling this is an aggressive up-down stretching of a bird while perched (Brown 1955). Repeated *ka-ka-ka* calls were uttered during the circular flights. Normal soaring took the bird perhaps 40 m along its path, then as if being reined back, its head would go up and back, it called, the legs were thrust forward, and the wings rapidly beat up and down. We saw the bird through gaps in the trees on the north horizon; it made at least two full circles, probably more, over 10 min, and some 30 of the 'braking' portions of the flight display were well observed. No female was noted, but she may have been perched, or elsewhere about the male, for a pair flew over us from the north to the east (towards the *Afzelia* forest) the next day (14 December). In any case, we observed the male well enough to be certain that he was not directly engaged in a mutual display, for he did not dive and no female appeared. The display usually ascribed to them (see Brown & Amadon 1968) has the female turning on her back in flight and presenting her claws upward to his.

We saw and heard the same or another male performing the display flight just described between 11:20 and 11:28 on 30 December. This form of display flight to our knowledge has not been described before (e.g. Brown & Amadon 1968, Brown *et al.* 1982).

Ring-necked Dove *Streptopelia capicola*
A display of this widespread dove was observed closely on 28 December. A presumed male perched near us had been singing regularly. Suddenly the singer flew up simultaneously accompanied by its presumed mate, who flew from an adjacent tree. Both flew parallel and upward some 10-12 m, then each flew in a circle in the opposite direction, one to the right, the other to the left, their flight a floating, soaring display with wings outstretched; both then completed their circle parallel to one another, and they dropped together to perch side by side on a dead branch. The male landed with feathers puffed out and commenced bowing to the (apparent) female, giving a series of soft huffy *coo-coo-oo-oo* notes before her, as she crouched beside him with plumage appressed. She then flew away, the presumed male following her closely. Such a mutual display of two birds in flight was not mentioned by Goodwin (1970), nor can we find any reference to it elsewhere.

Thick-billed Cuckoo *Pachycoccyx audeberti*
Occasionally this cuckoo flew over us in display flight, wings flapping or in soaring flight as it is called (voice recorded); we

sometimes heard it calling at a distance. These display flights occurred throughout December, at which time Chestnut-fronted Helmet Shrikes *Prionops scopifrons*, a likely host, and probably Retz's Helmet Shrike *P. retzii*, definitely a host (Vernon 1985), were beginning to breed. On 20 December at 10:25 we observed an apparent pair flying parallel to one another in a wide circling pattern over the treetops; only one bird was uttering the characteristic whistled *phwee-eee-bit, phwee-eee-bit* call (in series of 1-10, at 4 sets per 5 s) as we recorded the voice on tape. These were much faster than the one per 3 s *were-wick* calls of Vernon's birds (1985: 831). Previously we had heard and seen the single bird's display flight in approximately the same area during July 1982. We did not observe the group displays reported by Vernon (1985) in Zimbabwe, but the solo and duo flights are similar to those he described. Brown & Britton (1980: 63) give a November oviduct egg date from the Tana River, and the birds we observed were likely breeding.

Böhm's Spinetail *Neafrapus boehmi*

We tape-recorded voices of these spinetails as they flew in groups of three to six over the *Brachystegia* woodland. As we conducted our primary studies we noticed that their calls and activity centred over a semi-open area about 60 m in diameter to the north of the Nature Reserve boundary track. They seemed to display, flying fast, then floating in twos and threes over this area, uttering chittering calls. At 10:20 on 26 December, while we looked carefully at a nearly dead (one branch bore leaves) *Brachystegia spiciformis*, Short decided to scratch its bark; then out of a chimney-like hole 3½ m up, between the two main forks of the tree flew a Böhm's Spinetail. What it was doing in the hole we do not know, but of course we suspected nesting. At 10:32 a group of six spinetails circled low over the same tree, dipping down, 'buzzing' it in twos and threes, and twittering. None went into the tree. Later that day we watched the area over the tree to see if they would enter it. At 16:56 a group of three flew low over the area, twittering as they shifted from their slow-appearing normal flight to a spread dihedral, fluttering, then speeding up as they zoomed over the tree. At such times the two uttered their chittering *bydddyew-tyew*, or *zew-tew, tyew-tyew* notes. We saw them again at 17:05, 17:25 and 18:16; at 18:16 Mottle-throated Spinetails *Telecanthura ussheri* and Palm Swifts *Cypsiurus parvus* were also flying higher overhead. At 18:33 the spinetails bulleted very low past the hole in the tree. At 18:38, in the gathering darkness four twittered in a circle overhead. Finally, at 18:48 we heard them above and they dived, at least one going straight down into the hole. Hence the cavity at least was used for roosting. We continued to see them daily, trying again on 28 December to descry their roosting. Although a group appeared over the tree at 18:30, none entered the hole that night.

On 30 December we watched at the tree from 07:45. The spinetails called and circled it at 08:05, then at 09:05, at 09:10 to 09:14, and at 09:21. The birds now were zooming by the hole in dropping

flight from east to west, first one, then a pair down, then up again, twittering all the while. This was repeated at 09:25. Later, at 14:04, we observed a large monitor lizard put its head out of the hole, then duck back down inside. We do not know if it had been there before this day.

On 31 December we brought a ladder to examine the hole in the tree. The large opening into the centre of the tree was 28 cm across, and a small (10 cm) opening was located a metre below. The monitor lizard was not inside. The cavity proved to be a complete hollow, with just an outer shell, from the base of the tree, at which it was perhaps 45 cm across, up through both branches, one of which ended in a broken stub with a 10-cm hole - this branch was entirely hollow, and too small for the lizard to enter. We found no signs of nests in the main hollow trunk, but the configuration of the opening and branches prevented us from looking up the hollow branches, which the swifts, once entering the main opening, could safely have used.

On 1 January we watched at the hole until 19:00, from a hide close to the tree. Although the spinetails 'buzzed' the tree at 18:15 and 18:33, none was seen to enter, but a bat left the hole at 18:50. The next day (2 January) the spinetails actively swirled around the tree, which was the only place in the area where we saw them descend so low, and gave their twittering calls at 09:27-09:30, 09:45, 10:00 and noon.

There were other trees, particularly *Brachystegia spiciformis*, that had large holes in the trunk where branches had broken off, and the wood had rotted away. We think it likely that such natural holes and not man-made wells and mine shafts (in which they are known to nest (Maclean 1985), but which do not occur, nor did they ever occur, throughout the range of *N. boehmi*) will prove to be the usual nesting and roosting situation of these spinetails. Maclean (1985: 369) noted that nests have been found in baobab hollows, as well as in wells and mine shafts. Brown & Britton (1980: 68) mention a record accepted "with some reserve" from A.D. Forbes-Watson of three young in "an underground chamber at Sokoke", in late January-early February (year unknown).

Striped Kingfisher *Halcyon chelicuti* and Brown-hooded Kingfisher *H. albiventris*

Both species were calling and 'duetting' during December. We observed frequent interactions between them. The distribution of the singing birds and their points of interaction suggest that their territories are largely or entirely overlapping. The possibility that they may maintain interspecific territories needs study. Most chases followed an approach by one or two of the smaller *chelicuti* to a calling, larger *albiventris*, e.g. at 09:21 on 3 December. Some vocal portions of these interactions were recorded on tape.

Chestnut-fronted Helmet Shrike *Prionops scopifrons*

This helmet shrike was observed more frequently than Retz's Helmet Shrike and was dominant to the latter in encounters when groups met.

Groups of *scopifrons* contained 4-12 individuals, but the nesting activity we observed did not involve more than four birds. We frequently noted individuals carrying fibrous nesting material at different sites during December. On 27 December we discovered a nest under construction by some members of a 10-bird group. The nest was situated in the lower canopy (height about 18 m) of a 25 m *Brachystegia spiciformis* on a horizontal branch 3.5 cm thick, 12 cm beyond a fork, and consisted at the time of a 1½-cm cup of fibres and lichens. The site was at a slight bump or rise on the branchlet, into which the nest appeared to merge. At least two birds carried materials, but other individuals (one or two) accompanied them to the site, where all but one of the four moulded the nest, entering the nest one by one (usually after bowing and wing-spreading in front of it), inserting the material, if any, that it had carried to the nest, sitting with appressed tail and spread body feathers, wings flitting, then turning in a full circle, pressing fully, 'tamping down' the nest and any pieces they had put into it. Over the next several days we saw three and four birds carry material (fibres, bits of lichen, moss) to the nest site. One of the four was attacked twice by another individual, and it was prevented from getting into the nest. All the birds that came to the nest waited until all three had taken their turns before they flew off as a group. The intervals between visits varied from 15 min to 2 h. By 30 December the nest was 3 cm high, with construction occurring irregularly. For the first time we saw spider webs carried to and incorporated into the nest, which Maclean (1985: 665) describes as a 'shallow cup' of plant fibres, felted with spider 'web'. Low calls were often heard, and two individuals particularly displayed, bowing to one another with material in their bills, before going one by one to the nest. Later, 20 m from the nest tree, as the entire group fed low in bushes and a dead, fallen tree, two helmet shrikes bowed, spreading their head feathers to one another, then one courtship-fed the other. Among three birds of a different group seen on 22 December, one solicited almost continuously, and another attempted to copulate with it.

In other groups seen in the area we noted spider webs and mosses being carried. One group of nine individuals was observed for one hour, and we saw one individual constantly soliciting, crouching, calling *eek* notes, and wing-spreading, all in front of another, which it appeared to follow (the soliciting bird was an adult by plumage, eye and other soft part colours). For 10 min the soliciting helmet shrike waved its wings in a circle to each side in the manner of a displaying, singing male European Starling *Sturnus vulgaris*.

When last seen on 2 January the nest described above was about 4 cm high, and four birds continued to carry moss and spider webs to it in a group at about once per hour. Britton & Britton (1977) described a nest built of grasses and thin bark, as well as cobwebs, the dimensions of which (62 mm x 65 mm in diameter, 24 mm high inside the cup) suggest that the nest we describe was nearly completed on 2 January. The three nests they mention from Arabuko-Sokoke Forest all were lower than 9 m and in forks of *Brachystegia*

spiciformis. They fully described the eggs of this helmet shrike that Maclean (1985) notes as unknown. Britton & Britton (1977) and Brown & Britton (1980: 97) indicate breeding from January to July, with a peak in April. The numerous indications we had of breeding activity in December-January suggest that the peak in some years falls before the main rains, in January to March.

We tape-recorded diverse vocalizations and audible bill-snapping of both species of helmet shrikes, which have a generally similar repertory. One difference is that *scopifrons* utters a buzzy trill resembling the aggressive trill of Lesser Honeyguides *Indicator minor* not heard from *retzii*. This common call is grating, and nasal a *bdddddt, bdddddt, dddddt* - uttered repeatedly. Bill snaps often accompany *tsee-zzee-zzeee-eep* calls, or end them, as *zzee-tsip-ip* (snap), in a gun-like burst. There is a whistled, clear *fyew-dyew-dewt* song, as well as alarm calls, and complex low notes.

Behaviourally *scopifrons* is more aggressive, less shy, flycatches to a greater extent, and more often forages low in bushes, even to the ground. Several times we saw *scopifrons* flycatch while hovering for up to 30 s before tree blossoms. On 26 December, as a group of *scopifrons* fed along with a Black-headed Oriole *Oriolus larvatus* on caterpillars in a caterpillar-infested tree, one of the helmet shrikes hovered 25 s beneath a leaf frond from which it pulled out a 4-cm black and white hairy caterpillar. The dominance of *scopifrons* to *retzii* is shown by playback. When we played either *retzii* or *scopifrons* calls, *scopifrons* usually approached us; whenever both were nearby and *retzii* did respond first, several birds approaching to bow and display at us, they were supplanted and gave way to incoming *scopifrons*; and whenever both species approached initially, *scopifrons* stayed and *retzii* quickly disappeared.

Retz's Helmet Shrike *Prionops retzii*

Although we have discussed both helmet shrikes above in comparing them, we did work extensively with *P. retzii*, either where there happened to be no *P. scopifrons* about, or, using playback, after *scopifrons* habituated and drifted away. We found that Retz's Helmet Shrikes actually were more responsive to playback when they could respond freely in the absence of *scopifrons*, often uttering whistled series of notes as they approached us. These notes, a *tweeooh-tweew,* are oriole-like in quality and clearer than the similar call of *P. scopifrons*. At times four to five *retzii* flew to us, and displayed in response to our playback. This display is a deep bow with crest very erect, and anterior body feathers generally fluffed out, the wings held slightly out from the body; the slow bow is followed by a slow raising of the head nearly to a vertical position, the bill pointing skyward. The bowing usually occurred two or three times in succession. Sometimes the incoming helmet shrikes approached us in display flight, singing (song noted above, or a blasting *tyeeeow, tyeeee-owp*), with crest erect and anterior body feathers fluffed, making a cowl-like effect above the upper back - with the wings set the bird then has somewhat the

appearance of the front end of a Boeing 747. On 2 January one *retzii* sang and displayed to us for over 10 min.

Vocalizations other than songs and bill snaps that were tape-recorded include a version of the song with nasal long notes, a *tyew-tyow-dyeeeew-dyeeeeew,* and one with a grating ending *tyao-tyow-tyeeeddddaa;tyeeeddddaa;tyeeeddddaa.* Sometimes the song-like whistles follow somewhat buzzy notes, a *tzzeee-tzzeee-tzzeee-tyew tyow* or a *pyee-er-eep, pyee-er-eep, pyee-er-eep-tyewltyow.* All of these are fast, rapid-fire calls or songs. Softer notes also were obtained as recordings.

Drongo *Dicrurus adsimilis*
We report a nesting of this common bird in the Bamburi Hotel garden because the nest (found by the Ian Husband family) was 1 m from the tip of the branch of a leafless baobab tree, near its top at 12 m or so up. The nest contained two young when first seen on 16 December, and was woven of fine fibres and grasses. The parents fed the young regularly each day, often pausing to attack and drive away Indian House Crows *Corvus splendens* that are such a plague along the coast. The young fledged on 24 December, and were fed thereafter about the garden at least through 29 December. Brown & Britton (1980: 79) cite breeding records for the coast in April and May, and November to January.

Eastern Bearded Scrub Robin *Cercotrichas quadrivirgata*
On 28 December we spied one of these birds flying upward from dense undergrowth to a high perch in a tree; it then went into a hole at the tip of a dead stub 18 m above the ground in the sub-canopy of an unidentified 32-m high tree. We watched them during subsequent visits and established that a pair were feeding insects to young in a hole at a rate of 2.5 feedings per hour (10 times, 4 hours, about every 20-30 minutes). On 28 December, we saw feedings, for example at 17:17, 17:24 and 17:48 between 17:00 and 18:00. No nest was visible but the feeding bird entered to the point at which only the tip of its tail could be seen from below. The route taken to feed the young varied; at times the parent flew directly upward to a perch conveniently located at the level of, and 3 m from the hole; at other times it would ascend in four or five stages over 3-4 min to the same perch before the hole. About 20 s was spent feeding the young before the adult left the nest, usually flying directly into the undergrowth, but at times descending first to one or two intermediate perches. Frequently the adults carried faecal material when leaving the nest, which they dropped as they flew downward. We observed feeding on 29, 30 and 31 December, but by 2 January the unknown number of young either had fledged or were missing, as the adults were not seen to approach the cavity. The male sang periodically nearby, and was singing (voice recorded) on 2 January, our last day. The high site of the nest is unusual, especially for a bird of the ground and undergrowth, and more observations on arboreal nests of this species would be useful.

Brown & Britton (1980: 85) noted December and January breeding records, and stated that this "dry season breeding is especially unexpected"; yet it rained in Arabuko-Sokoke Forest at least every other day during our December to early January stay, so 'dry' is a relative expression for this area.

Black-breasted Glossy Starling *Lamprotornis corruscus*
This species was observed in flocks of six to 300-400 birds, but were usually in small flocks in flight over the *Brachystegia* woods. In some fruiting trees and berry-bearing bushes 10-20 gathered to feed. Only once did we see any perched within 60 m of one of the two Blue-eared Glossy Starling *L. chalybeus* nests. We wondered if wood-gathering by man had so opened the woods as to permit *L. chalybeus* to enter and partly displace *L. corruscus*, but it might be that the latter were not nesting at the time of our visit, and hence were largely elsewhere. The one very large flock fed making a terrific din in two large fruiting trees at the west end of the track, accompanied by drongos, and by both helmet shrikes that probably were taking insects caused to fly by the movements of the starlings. On 26 December, three of these starlings from a group of seven dropped from flight to a tree and there, with feathers ruffled, they displayed, dipping their bills and giving low calls, a *hyeeh* note and a series *eh-eh, eh-eh-eh*.

Blue-eared Glossy Starling *Lamprotornis chalybeus*
We found these starlings scattered in pairs in more open parts of the *Brachystegia* woods, in areas where Black-breasted Glossy Starlings occurred only in passing flocks. The Blue-eared's characteristic *nyeee-yeh* call was often heard. Two nests were found. The first was 6 m up a 7-m dead tree stub, at the broken end of one tip, beneath which was an old hole (possibly woodpecker or barbet) in which the nest was situated. On 15 December we observed the pair coming to the nest together, sometimes one at other times both, with food, apparently all insects. Only occasionally did one bird arrive at the nest alone, and then the other invariably arrived soon after. When both simultaneously arrived bearing food, one gave way to the other. They sporadically carried food to the nest (about twice an hour on the average, but sometimes every 5-10 min). The food taken to the young was obtained in small, berry-bearing bushes, on the ground within 50 m of the nest, and by flycatching from nearby trees. On 28 and 29 December we saw adults carry berries several times to the nest, but on 30 December the nest was empty. Calls suggest that there were only two young, and the presence of one or occasionally two birds to 2 January within 100 m of the nest left us uncertain as to the fate of the young.

On 30 December, about 100 m east of the first nest, we spied a second pair, also feeding young, in a dead stub of a *Brachystegia spiciformis*. The stub was 2 m long, about 33 cm thick, and at 13 m above ground in a 22-m high tree. Originally the hole, under the tip of the stub, was probably that of a woodpecker or barbet. The

food carried was insects. Young were fed until 2 January, the adults mainly finding food in the immediate vicinity of the nest. This pair inspected our honeycomb pieces put out for attracting honeyguides. When feeding the young both went to the nest, one remaining outside while the other fed them. We could not determine the number of young starlings in the nest.

This starling may be spreading as a result of opening of forests and woodlands, as Britton (1980) gives its range as north only to Tsavo East and Kilifi. Brown & Britton (1980) give no coastal breeding records, although indicating breeding elsewhere during the rains.

Clarke's Weaver

Any observations of this little-known weaver are worthy of note, especially outside the August-September period when it is most frequently seen (Britton 1980). At 10:50 on 31 December we were studying honeyguides in the centre of the *Brachystegia* area (with mixed *Afzelia cuanensis*) along the Nature Reserve south track, when our attention was attracted by a constant noise sounding like mobbing calls of small birds. After about 8 min of this 'disturbance' Short broke from the studies to go 80 m southeast, seeking the cause of the noise. As he approached a fruiting small tree some 6 m high he noted several *Prionops scopifrons* and *P. retzii*, two East Coast Batis *Batis soror*, two *Dicrurus adsimilis*, about four Common Bulbuls *Pycnonotus barbatus* and one Little Yellow Flycatcher *Erythrocercus holochlorus*, all but the bulbuls flycatching about that tree, which contained an estimated 125 Clarke's Weavers. The noise came from the weavers, an insistent *sss, sss, sss*. The weavers fed upon fruits of the tree, although some 20 more were perched in neighbouring trees. The other species appeared not to be with the weavers in a mixed species flock, but rather seemed to be using the noise and movements of the weavers to obtain insects flushed by the weavers (except the bulbuls that were merely feeding on the same fruits). As Short drew near, the weavers began to fly in groups of 5-12, gradually at first, then they swarmed into two nearby *Brachystegia spiciformis* trees, in which two Brown-capped Weavers *Ploceus insignis* were feeding. The bursting flight of the Clarke's Weavers was almost quelea-like. Observations took place from 10:55 to 11:04, at which time the weavers flew in a dense flock to the south. We combed the area for the next two days during the two hour period around 11:00, but did not see them again.

The flock appeared to contain about equal numbers of both sexes (see Taylor 1984 for sexual differences), although about 25 of the males appeared subadult, in greenish brown and yellowish plumage with patchy black head markings and traces of a superciliary stripe.

These observations suggest that care should be taken in reporting Clarke's Weavers in mixed species foraging flocks (Turner 1977, Britton *et al.* 1985), as Kelsey & Langton (1984) saw them only in flocks of conspecifics. Other birds may take advantage of the

presence of a mass of birds without association in a true flocking sense. The report of four of these weavers on 31 December (EANHS/OSC 1984) accords with our observations of larger numbers on the same date and almost certainly indicates presence of the birds in the forest during at least early January. Records from the Arabuko-Sokoke Forest are lacking from 1 January to 2 April (Kelsey & Langton 1984, Taylor 1984). Taylor suggested the January to March period as the likely breeding time, and they have been suggested as breeding elsewhere. We feel that it is likely that some breeding occurs in the July to September period (Kelsey & Langton 1984), as well as in January to March, and that the species probably breeds in or very near the Arabuko-Sokoke Forest. We are confident that records will be forthcoming for presence of the species in the forest during January to March. Of course all observers privileged to visit the forest should seek it at all times of year, for our knowledge of Clarke's Weaver is meagre indeed.

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