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HONEYGUIDE PUZZLES

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Honeyguides remain a poorly studied group, despite fieldwork in Kenya by Lester Short and Jennifer Horne (Short & Horne 1979, 1985, 1988, 1990), and the research on guiding behaviour of the Greater Honeyguide *Indicator indicator* by Hussein Isack (Isack & Reyer 1989). Their taste for beeswax, which they can detect by smell, was first noted by the Portuguese missionary Jõao dos Santos at Sofala in 1569; when he lit beeswax candles on the altar, he found these birds hovering around the burning wax (Friedmann 1955). Beeswax as a regular item in honeyguide diet has been confirmed by physiological studies showing that these birds are able to digest the wax, a rare skill for most animals (Diamond & Place 1988, Downs *et al.* 2002). They are also apparently able to discriminate between different types of wax, and ate only beeswax from African honeybees when offered mixed combs containing wax of Asian and African bees (Hepburn 2009). Here is the first puzzle: how do they tell the difference, and how different are these waxes chemically?

In the Eastern Cape, we have netted and trapped Lesser Honeyguides *Indicator minor* occasionally (73 to date); this analysis includes 16 birds ringed by Tony Tree at Stones Hill and Bathurst, and 5 ringed by Albert Schultz in Port Elizabeth. We mist-netted two Sharp-billed Honeyguides *Prodotiscus regulus* and four Greater Honeyguides, three of the latter at Mountain Zebra National Park. Unfortunately the ringing site at MZNP which produced honeyguides is now left to the buffalo, in the interests of safety! We have also measured and examined for moult all Eastern Cape museum specimens of Lesser Honeyguide from the Albany Museum (3), the Ditsong (formerly Transvaal) Museum (8) and East London Museum (33).

In five suburban gardens in Grahamstown, we set up pieces of honeycomb from old beehive frames, as a preliminary student project. At each site, Lesser Honeyguides were attracted within two days, and in one case a Greater Honeyguide was sighted. Initially we used old bee-hives with a raised lid as “drop-traps”, but clearly clap-traps will be more effective. Colour-ringing proved rather unsatisfactory, since the birds have very short tarsi, which are often concealed when they are perched. However, at two of the sites colour-ringed birds were resighted on several occasions; no interchange between sites was observed, even though the greatest straight-line distance between them was < 4 km. It seems unlikely that a piece of wax comb can provide a long-range olfactory signal to the honeyguides, and it seems more probable that they are constantly scouting for opportunities to get access to beeswax. However, we have no idea over what range they can detect the scent of beeswax. The ability to digest wax may have originated from feeding on scale insects, but this is purely speculative at this stage of our knowledge. So here are more puzzles – how do honeyguides forage, and what other kinds of wax can they digest?

To date, more than 2400 Lesser Honeyguides have been ringed in southern Africa. The SAFRING data show that of 111 recaptures and 7 recoveries of Lesser Honeyguides, 108 birds were found at or within 10 km of the original ringing site and only three had moved > 20 km. Nevertheless the greatest distance recorded was 58 km, from the Barkley West district in the Northern Cape to a farm north of Boskop in the Free State (ring 62213221), a movement within three months. The longest interval between ringing and recapture was 69 months [5 years 9 months, ring AP78051], but 74 of the 118 birds were recaptured or recovered within the first 12 months after ringing. How well do these data represent survival and dispersal in this species?

Les Underhill and his co-authors (Underhill *et al.* 1995) reported on the measurements and moult of Lesser Honeyguides from the Western Cape, and the late Dale Hanmer has also

published data from Mozambique and Malawi (Hanmer 1997). In all three regions, the distribution of wing-length is clearly bimodal, with the male birds longer-winged (based on the measurements of sexed museum specimens). On our measurements, it seems that birds with a wing-length ≥ 91 mm can be considered male, and those with wings ≤ 88 mm can be categorised as female. There is overlap in the 89-90 mm range. However, body weight shows a single peak, and we have no evidence for obvious dimorphism in other measurements (cf. Friedmann 1955). Why should there be dimorphism in wing-length?

Stresemann & Stresemann (1966) commented on the moult of the Greater Honeyguide, and noted that all honeyguides have nine primary feathers, unlike the barbets and woodpeckers, their closest relatives. Lesser Honeyguides in Malawi and Mozambique moulted their primary remiges between January and July, and based on recapture data, the duration of primary moult was estimated at 140-145 days (Hanmer 1997). For the Western Cape, Underhill *et al.* (1995) used the model of Underhill and Zucchini (1988) to estimate the duration of primary moult at 140 days, with a mean starting date of 9 January and mean completion date on 28 May. Birds in the Eastern Cape (primarily a summer rainfall region) start their wing moult later, around 14 March on average, but our preliminary estimate of moult duration is shorter, around 100 days. Is this a regional difference, or merely a more accurate estimate?

Stresemann & Stresemann (1966) noted contradictions in early reports of honeyguide moult, and they found that in the Greater Honeyguide the partial post-juvenile moult includes some of the outer remiges. Thus subadult Lesser Honeyguides may show mixed feather generations in the wing; we have seen one instance of this. We would encourage other ringers who may handle this species regularly to examine their data, and see whether there is support from other regions for the patterns which we have described, and whether they can answer any of the puzzling questions.

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Fig. Longest movement of a Lesser Honeyguide (from http://afring.adu.org.za/m3/retrap_process.php?ringno=62213221&inscription=SAFRING)

Ring details

Ring number: **62213221** New retrap

Common Name: **Honeyguide, Lesser**

Scientific Name: **Indicator minor**

Links: SABAP2

Ring history

Code	Start date	Location code	Estimated distance	Time since last sighting
1	1968-07-28	2829S2441E		
X	1968-10-25	2820S2515E	57.88km	89 days

Cumulative distance travelled	57.88 km
Cumulative timespan of records	89 days