

Breeding Booted Eagles at Brukkaros, Namibia?

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Summary

Booted Eagles *Aquila pennatus minisculus* are classified as *Endangered* in Namibia because of their small population and unique subspecies status, but their breeding population is poorly known. We checked the Brukkaros crater in southern Namibia in July 2006 for Booted Eagles to determine any evidence of breeding following exceptional rains there early in 2006. Observations of two pale and two dark morph Booted Eagles mobbing a Verreaux's Eagle *Aquila verreauxii* close to a suspected nest site with copious fecal whitewash covering the cliff face led us to suspect that breeding had been successful there. We suspect that we were watching a pair of eagles with flying young because a follow up visit in September revealed no birds. Two pairs of Booted Eagles cannot be ruled out, however. Higher than normal raptor road count densities suggest good number of Booted Eagles in Namibia in 2006. The coincidence of the breeding of the eagles' chief prey such as doves, francolins and Namaqua Sandgrouse from March-May provides an explanation for the early breeding enigma of Namibia's Booted Eagles. Systematic observations of other inselbergs and mountains in western Namibia between April and July are needed to understand the nature of the breeding of this overlooked species in Namibia. We hope that further observations will negate the idea that the Namibian population is actually separate to the breeding population in South Africa.

Introduction

The mention of a Booted Eagle at a nest in the Brukkaros crater of southern Namibia in December 2004 (Scholtz 2005) extends southwards the known range of breeding Booted Eagles in Namibia from the Waterberg Plateau where they were first discovered breeding in July 1983 (Brown 1985). It also extends the “Namibian” population closer to the known core population of this recently recognised small subspecies (*Aquila pennatus minisculus*) in South Africa (Steyn & Grobler 1985, Pepler et al. 2000).

Here we provide further evidence that the Brukkaros crater in southern Namibia supports breeding Booted Eagles, that early breeding may be related to prey breeding and that further breeding records may occur in Namibian highlands and inselbergs such as the Spitzkoppe Mountains.

Methods and Study Area

We camped at the Brukkaros Crater (25.8°S, 17.7°E), southern Namibia and on the morning of 5 July 2006 walked into the crater’s southern entrance. We spent about an hour surveying the cliffs of the crater from below, in bright conditions. Road surveys up to that point were centred on the Erongo Wilderness Lodge of central west Namibia down to the border town of Noordoewer to look for Booted Eagle from 30 June through to 5 July 2006.

Results

Two Booted Eagles were seen soaring and diving at an unseen species on the steep southeast-facing cliffs at the southern entrance to the crater at about 08h00. One bird was a typical pale morph bird and the other a dark morph bird (Kemp & Kemp 1998). Fecal whitewash was spattered over several areas of the cliff and in particular at the base of a small fig which was copiously whitewashed, as if commonly used. The fig tree was about a third of the way up a vertical cliff with numerous ledges and breaks estimated at about 150m high. Further observations indicated they were mobbing a perched Verreauxs’ Eagle *Aquila verreauxii* which took flight about 20 min later, and was then followed by four Booted

Eagles – two light morph and two dark birds. One light morph bird was particularly aggressive towards the larger eagle and, together with one of the dark birds, called several times while mobbing the adult Verreauxs' Eagle causing it to fly towards its own nest site on the opposite wall of the canyon, about 400m away. Another, unused Verreauxs' Eagle nest was also present on this cliff-face. The mobbing was persistent and aggressive continuing for about 20 min in total with the Verreauxs' Eagle turning over mid-air at least once to present talons to the incoming Booted Eagle.

We could not get close enough to the dark plumaged Booted Eagles to determine eye colour (young birds have dark eyes and essentially similar plumage to the adults: Kemp & Kemp 1998), but it initially occurred to us that we were either watching two pale adults and their two youngsters or possibly two pairs of Booted Eagles, one of which was defending its nesting site. The birds showed no animosity to one another which is typical for adjacent pairs of Booted Eagles (R Martin pers comm), but the ongoing aggression towards the Verreauxs' Eagle suggested something to defend (nest or young), given that it was initially perched within about 80m of their presumed nest site. The large quantity of white-wash around the fig tree on the cliff face and the rest of the cliff suggested long term occupation by the Booted Eagles. We believe that we were watching one pair defending its nest site which may have been used earlier in the season, but did not see any other potential nest site that would explain the presence of the second "pair".

Observations at Spitzkoppe (22.2 °S,15.7 °E) some 500-600 km north of Brukkaros, from 2-3 July indicated 3 Booted Eagles roosting high on the rocks of the main massif – two pale and one dark bird, but no signs of nesting. There, as in Brukkaros, fecal white-wash around rock figs high on the cliff faces, indicates several roosting areas that may be frequently used by Booted Eagles or other raptors. We saw no Booted Eagles at the Erongo Wilderness Lodge (21.47°S, 15.85°E) from 30 June - 1 July although we have commonly seen birds there in winter in previous years (RE Simmons and PE Barnard pers obs).

No Booted Eagles were present in 137 km of dirt roads travelled by us at ± 90 km/h in the Erongo Mountains area to Spitzkoppe or at Erongo Lodge itself – but a handful of Rock Kestrels *Falco rupicolus*, Pale chanting Goshawks *Melierax canorus* and Augur Buzzards *Buteo augur* were present. A further 421 km covered from Windhoek to Brukkaros on the B1 revealed only 1 Booted Eagle (near Brukkaros) but a good density of raptors including 16 Pale Chanting Goshawks, 11 Rock Kestrels, (4 unidentified kestrels – probably Rock Kestrels), 8 Black-shouldered Kites *Elanus caeruleus*, 1 Lanner Falcon *Falco biarmicus*, 1 Greater Kestrel *F. rupicoloides*, 1 Jackal Buzzard *Buteo rufofuscus*, 1 Augur Buzzard and 1 Verreaux's Eagle. This is a density of 10.7 raptors per 100 km comprising 9 species. A similar density (10.9 raptors per 100 km comprising 7 species) of more arid-land raptors occurred in 377 km to Noordoewer including 2 more Booted Eagles and 11 Pale chanting Goshawks, 10 Rock Kestrels (+1 unidentified kestrel), 6 Greater Kestrels, 5 Pygmy Falcons *Polihierax semitorquatus*, 3 Black-chested Snake Eagles *Circaetus pectoralis*, and 3 Jackal Buzzards. This density of 3 Booted Eagles in 798 km or 3.76 eagles/1000 km is substantially higher than the 0.07 Booted Eagles /1000 km seen during raptor road counts in these regions over the previous two decade when rainfall was generally much lower (Robertson & Jarvis 2005 and data from Jarvis *et al.* 2001). Namibia had experienced the best rain on record in 2005/2006 rainy season and the rainfall around Grunau, 200 km south was 300 – 400 mm, 4-5 times higher than the 75 mm per annum typical of southern Namibia (Grunau farmer to RES, pers comm).

Discussion

These observations and those of Scholtz (2005) suggest that breeding Booted Eagles are overlooked in other parts of Namibia, especially in good rain years when overall eagle density (evidenced from higher road counts) may increase. Scholtz (in litt) observed a nest site on the east side of the mountain in December 2004 and the pair was dark morph birds. Given that the nest site we observed, defended by a pale and a dark bird, was on the west-side of the crater entrance, it appears possible that two nest sites are present at the entrance of the Brukkaros crater.

There is certainly ample space and suitable steep, south-orientated cliffs in the Brukkaros Crater (which has a diameter of about 10 km) for more than one pair of Booted Eagles.

These records and the observation of Booted Eagles apparently resident in the Orange River valley in November-December (A Jenkins pers obs) support the idea that the Namibian and South African population may be one continuous population (Simmons & Brown 2006). What they do not explain is the enigma highlighted by Steyn & Grobler (2006) that the breeding recorded at the Waterberg in 1983 (July: Brown 1985) was 2 months earlier than the peak egg-laying month of September farther south in the western Cape (Martin 2005). Given that there was no further activity of Booted Eagles at Brukkaros by September it seems likely that the pair observed had also bred early and had flying young. If this is the case then back-dating 3 months from eggs to first flight (Martin 2005) suggests they may have laid eggs in early May – the start of winter! The alternative, that cannot be ruled out, is that the birds failed and moved away from this site.

If the possible egg-laying date of May is accepted it further deepens the mystery of Namibia's Booted Eagles for the following reason. It is a general rule of thumb that raptors in Namibia tend to breed about 1-2 months later than they do in South Africa. For example Fish Eagles *Haliaeetus vocifer* are laying eggs May-June in South Africa but June-July in Namibia, for Lappet-faced Vulture *Aegyptius tracheliotos* there is a July peak in South Africa but a September peak in Namibia, for Black-chested Snake-Eagle the egg-laying peak is June-August in South Africa and September-October in Namibia, but for larger species such Verreaux's Eagles the egg-laying peaks overlap – May-July for South Africa, and June in Namibia (Simmons 2005a, b, c, d).

It is difficult to determine why Booted Eagles in Namibia might be breeding earlier rather than later compared with South Africa. We propose that the prey base of medium to large birds is the key difference compared with the fish, carrion, snakes and large mammals of the

species listed above. Such bird prey may themselves may be producing most young as the rains end in Namibia (April), providing maximum prey abundance for Booted Eagles breeding then. Checking nest records in Namibia's avifaunal database (Jarvis *et al.* 2001), indicates that peak breeding for prey mentioned by Brown (1985) and Martin (2005) such as Cape Turtle Doves *Streptopelia capicola*, Redbilled Francolin *Pternistis adspersus* and Namaqua Sandgrouse *Pterocles namaqua* is March (n= 25% of 52 records), April-May-June (n= 54% of 68 records) and April-May (n= 40% of 111 records) respectively. This is the time that Namibia's Booted Eagles are breeding. Thus prey base differences may be at the heart of the differences in timing of breeding for Booted Eagle in Namibia relative to South Africa. Lanner Falcons that inhabit the same cliff sites and take similar prey may prove useful comparisons between Namibia and South Africa (A Jenkins pers comm), but too few nest records exist for this species in Namibia.

Given their apparent differentiation from Eurasian birds (Yosef *et al.* 2000) and their *Endangered* status in Namibia (Simmons & Brown 2006), further efforts should be made to locate and conserve these secretive and easily overlooked raptors. All further observations of breeding birds – and their prey - should be carefully evaluated and published.

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