

SOUTHERN GROUND-HORNBILLS IN TROUBLE

The Southern Ground-Hornbill *Bucorvus leadbeateri* is one of the iconic species of southern Africa's savannas. Once widespread and fairly common, a recent analysis of the species' status in South Africa has revealed that both its range and numbers decreased by approximately two-thirds during the 20th Century. Because it is such a long-lived and slow-reproducing bird, this represents a numerical decrease of approximately 22% per generation. On this basis alone, IUCN criteria require that its national conservation listing should be elevated to Critically Endangered. Habitat loss and degradation have undoubtedly contributed to the species' worsening conservation status, but even the fully protected population in Kruger National Park has very low reproductive success, and second-born chicks (destined to die in the wild) are 'harvested' for captive breeding programmes in a long-term attempt to bolster the wild population.

The Ground-Hornbill Research and Conservation Project run by the Percy FitzPatrick Institute of African Ornithology is based at the Association of Private Nature Reserves (APNR) in the eastern lowveld of South Africa. This is an area of 180 000 hectares adjacent to the Kruger National Park. Ground-hornbills, despite their name, are tree-nesters, reliant on the availability of natural cavities in large trees. Suspecting that suitable nest sites were in short supply, we erected many artificial nests in the APNR (not a trivial exercise because each weighs almost a quarter of a tonne!). Subsequently, the majority of successful breeding attempts

have been in these artificial nests, implying that a shortage of nest sites may contribute to the species' low breeding success elsewhere. Fire and logging both reduce nest availability, as does tree damage by elephants.

Being a group-living species (only one pair within a group breeds), ground-hornbills require large home ranges. In South Africa home ranges are regularly as large as 100km². A consequence of this is that large areas are needed to conserve the species – even on the 180 000 ha APNR, there are only approximately 30 resident groups.

Put in a nutshell, ground-hornbills do things very slowly. Because they also occur at low densities, and pairs do not breed every year, it takes a long time to generate sufficient data to provide any hope of explaining the causes of differences in breeding performance between groups. From a conservation perspective, however, this is the holy grail: if we can explain why some groups perform better than others, it may be possible to introduce adaptive habitat management which will benefit the birds.

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We can now identify those groups that contribute the most to the population's reproductive output, and those that are contributing the least. In particular, we plan to focus our attention on quality of the home range and how the birds use their home ranges (i.e. are there 'hotspots' within them?). The reason for this is that habitat loss and degradation are suspected to be the key factors responsible for the species' poor conservation status. If we can identify the core of the problem we have a platform for its solution. This is a challenging task, because each group 'wanders' over a home range of ca 60km². It is a task made doubly challenging not only by the habitat (tall-grass savanna in which these shy birds are difficult to follow), but also by the fact that the study area is home to elephants, lions, leopards, rhinos and buffalos! In order to understand how the birds use these large home ranges, we will have to employ cutting-edge technology in the form of satellite tracking.

Satellite tracking is expensive – each device costs around US\$ 4000 and data downloads have to be paid for in Euros; artificial nests are also expensive, as is fuel to work over such a large area. We have had some success in fundraising for this important savanna conservation initiative, but the project's costs are high and recurrent, so all contributions are very welcome!

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The Percy FitzPatrick Institute has been monitoring group distribution, composition and breeding performance at the APNR since the breeding season of 2001/2002: we therefore have reproductive data spanning eight breeding seasons. Within the study area there are 30 ground-hornbill groups, totalling 112 birds. Forty-two birds carry unique colour-bands, allowing us to identify 14 groups with certainty. An additional three birds carry radio transmitters. Breeding performance of 23 groups has been monitored over a total of 178 group-years. Despite the fact that eight of the 23 groups have produced no young since the study started, overall the birds have made 53 breeding attempts and raised 36 young (a 68% success rate). This translates to an average of 1 chick/group/4.9 years, almost double the breeding success that the birds achieve in Kruger National Park. Part of the reason for the high breeding success in



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APNR residents look on as a young ground-hornbill is ringed and measured.

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