



APNR Southern Ground-Hornbill Research & Conservation Project



January Quarterly Report 2022

Breeding Season 2021/22

The breeding season got off to a slow start this year with the first eggs of the season only being laid in early November. A cluster of groups laid during this period, and then a second cluster laid eggs in the beginning of December to make a total of 13 breeding groups for the season. Of these 13 breeding attempts, there are currently 9 remaining. The 4 failures occurred from predation or an unknown cause. These failures occurred shortly after the chicks hatched.

Successful groups to date

Timbavati PNR: Karan Khaya, Lornay
Klaserie PNR: Copenhagen, Dover, Pitlochry, Senalala
Umbabat PNR: Ntsiri, Yankee Dam
Balule PNR: Jejane

Unsuccessful groups to date

Timbavati PNR: Hermansburg, Johnniesdale
Klaserie PNR: Janovsky, Oppenheimer

Predation failures: Johnniesdale (TPNR) and Oppenheimer (KPNR) groups' nestlings both failed soon after hatching. Johnniesdale nestling was predated at 20 days old by a leopard (Figure 1). The leopard spent an entire day in the nest tree before the nestling was eventually pulled out of the nest and dropped. We arrived at the nest shortly after this had occurred as we subsequently ended up chasing the leopard away. Oppenheimer nestling, at 6 days old, was predated by a genet inside the nest. While adult ground-hornbills are generally able to protect their nestlings from genets, this female was unfortunately startled which caused her to flush out of the nest and leave the nestling exposed overnight.

We are in the process of designing a study in which to investigate the effects of predation on the breeding success of the species. This study is not into full fruition, and we

are open to suggestions on how we might be able to predator proof some of the trees, specifically against genets and leopards.

Unknown failures: Janovsky (KPNR) and Hermansburg (TPNR) groups also failed soon after hatching, and although we cannot confirm the reason for failure, we suspect that it is likely due to predation as well.



Figure 1. Leopard predated Johnniesdale nestling.

Group movements

This year, there have seen several groups which have shifted territories and are now occupying different nesting sites. Below are the observed movements from the different groups this season, along with a figure for graphic description (Figure 2).

Copenhagen group (KPNR) – after occupying Charloscar nest last breeding season, Copenhagen group have now occupied another nest on the western side of their home-range.

Charloscar group (KPNR) – after being displaced last year from Charloscar nest, the group has moved eastwards to occupy the new nest which was placed on Baobab Ridge. They showed interest in the nest and lined it with nesting material. However, no eggs were laid.

Pitlochry group (KPNR) – last breeding season, this group was responsible for attacking the Oppenheimer female within the Oppenheimer nest. They seemingly have now taken

residence in this area, and although they attempted to breed, their nestling was predated as described above.

Ntsiri group (UPNR) – this group moved west and displaced Strydom group from their nesting site at Yankee Dam nest. There is currently a nestling within the nest. Another unknown group has moved into the vacant nesting site at Ntsiri nest as a result of this movement. We are in the process of identifying where this group have come from.

Strydom group (KPNR) – this group moved south-westwards and displaced Senalala group from the Senalala nesting site. There is currently still a nestling within this nest.

Senalala group (KPNR) – while this group has been displaced from their nesting site, we have been unable to get a visual of the group this season, although we suspect they have moved southwards.

Almost all the movements which we have observed this year have been within the KPNR, although we suspect that this has occurred throughout the reserves. Regardless, this data shows that the ground-hornbill home-ranges are potentially not as defined as previously thought. Following the movements of these birds remains a difficult task and we are once again calling on everyone within the reserves to please send through their sightings and videos of the birds.

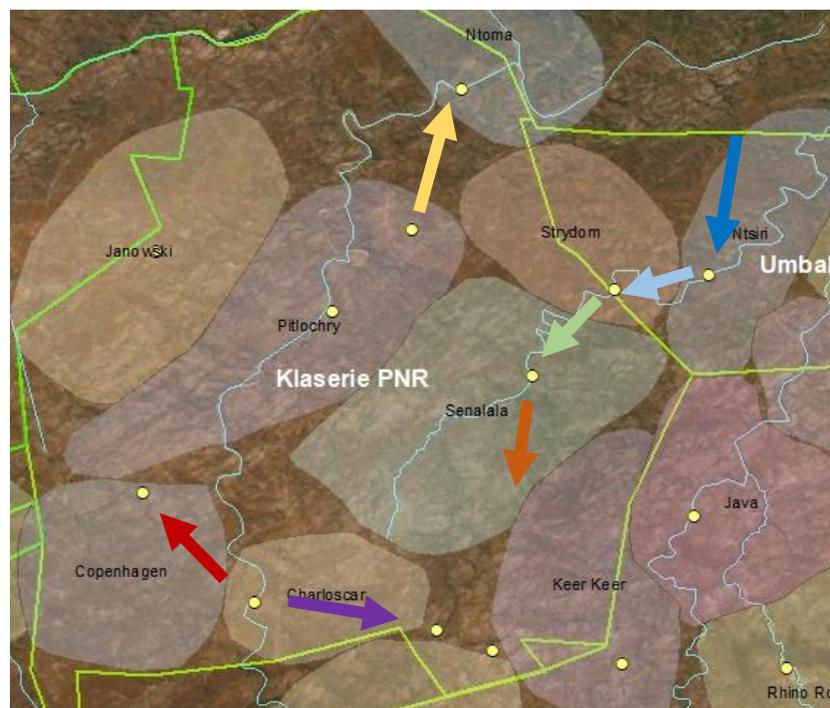


Figure 2. The observed group movements within the KPNR and UPNR this breeding season. Yellow arrow = Pitlochry group, red arrow = Copenhagen group, purple arrow = Charloscar group, orange arrow = Senalala group, green arrow = Strydom group, light-blue arrow = Ntsiri group, dark-blue arrow = unknown group.

More inter-group conflict

We once again captured footage of other groups attacking a female sitting in a nest with a nestling. This happened to the Strydom group inside Senalala nest. Surprisingly, the group which attacked this female within the nest was not the displaced Senalala group, but rather an unknown group. This unknown group had ringed individuals; however, they were unrecognisable, and we think they do not come from within the APNR. Luckily this time the female within the nest stood her ground, and the chick is still currently alive (Figure 3).



Figure 3. Strydom female inside the nest about to be attacked by intruding female.

Harvest

This year, in line with the Mabula Ground-Hornbill Projects reintroduction programme, we harvested 3 redundant nestlings from the reserves. Ground-hornbills lay two eggs during most breeding attempts. These eggs hatch roughly 5 days apart from each other, resulting in the first hatchling being much larger than the second hatchling. These second hatched chicks are outcompeted by the larger one and will inevitably die. The purpose of a second egg is seen simply as an insurance measure if the first egg does not hatch. Taking these nestlings before they die allows us to double the breeding success of the species without influencing the wild population.

One nestling from Klaserie (Copenhagen group), one from Timbavati (Hermansburg group), and one from Thornybush (Thornybush group) were taken, or ‘harvested’ as it is referred to (Figure 4). All these nestlings are still alive and are currently in a specialised ground-hornbill rearing facility where they will be raised (with as little human contact as possible), placed into artificially formed groups, and then released back into their historic range within South Africa. The process is slow and takes several years to complete, but it undoubtedly contributes towards their conservation. For more information on the reintroduction project, visit [Mabula Ground-Hornbill Project - Reintroductions](#).



Figure 4. Harvested nestlings. Top left: Copenhagen (30 days old). Bottom left: Hermansburg (15 days old). Right: Thornybush (1 day old).

Research

Kyle is making steady progress with the completion of his PhD and has completed the analyses investigating the provisioning contributions at the nests. His results show, as predicted, the adult males are doing most of the work, followed by the sub-adults, and then the juveniles. It also shows that temperature is influencing the provisioning rate of the birds, with higher temperatures leading to lower provisioning rates at certain stages of breeding.

Temperature also influenced the number of parcels, the prey type and the prey sizes which the birds brought to the nest. Parcels are often brought to the nest by the group members and usually consist of a small food item with a collection of leaves for nest lining.

Carrie's research on the direct effects of temperature on nestling growth and physiology is also progressing well. She has started investigating whether high temperatures drive behavioural changes and microsite use, and whether the ground-hornbills are experiencing heat loads that require heat dissipation year-round. Preliminary data have shown that birds are exhibiting these behavioural changes even in the winter period. This may ultimately have a knock-on effect on breeding if birds are unable to maintain body condition through the dry winter period. This is however yet to be determined.

Citizen science

We are once again asking for people to send through their sightings and photographs of the birds to us. These sightings contribute significantly to our research and help us gather information on several different topics. These include group movements, survival rates, population and group numbers, temperature effects on behaviour etc.

Please contact us if you are willing to contribute. This information makes a large difference to the research and conservation of the birds within the APNR to ensure their continued persistence and growth to help populate not only the surrounding areas, but also the rest of the country.



WE NEED YOUR HELP
Seen a Ground-hornbill?

The APNR Ground-Hornbill Project are calling on citizen scientists

What we need:
PHOTOS/VIDEOS of the birds along with **DATE, TIME** and **LOCATION** of the sighting

Send to:
✉ nghututu@gmail.com
📞 **(+27) 0723456584**
apnrgroundhornbillproject.com

  **UNIVERSITY OF CAPE TOWN**
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

Acknowledgements

We thank the landowners and wardens of the APNR for their continued support and permission to work with the Ground Hornbill groups on their properties. Special thanks to National Geographic Society, The Rufford Foundation, John Solomon, Bateleurs Nest, Mary Oppenheimer & Daughters Foundation, Alan Whyte, Peter Janovsky, Clive Coetzee, The Timothy Hancock Charitable Trust, René Vromans, Baobab Ridge, Wild in Africa, Blue Sky Society, WildScapes Veterinary and Conservation Services, Wild Wonderful World for their generous donations and funding, as well as Timbavati PNR, Klaserie PNR, Tanda Tula Lodge, Ntsiri PNR, Ndlopfu, and Peter Smelting for fuel donations. Thanks to The Mabula Ground Hornbill Project for providing artificial nests and for their valuable support and knowledge. Many APNR members and staff have been of great help, both logistically and by reporting ground-hornbill sightings.

We thank one and all.

Contact the Project:

Kyle-Mark Middleton, APNR Ground-Hornbill Project, FitzPatrick Institute, PhD student

Email: nghututu@gmail.com ~ Cell: 071 325 8956

~

Carrie Hickman, APNR Ground-Hornbill Project, FitzPatrick Institute, MSc student

Email: carriehickman@gmail.com ~ Cell: 072 345 6584

~

<https://apnrgroundhornbillproject.com>

<http://www.fitzpatrick.uct.ac.za>

<https://www.facebook.com/GroundHornbillResearch>

https://www.instagram.com/apnr_ground_hornbill_project/

