



FitzPatrick Institute of
African Ornithology



UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

APNR Southern Ground-Hornbill Research & Conservation Project

QUARTERLY REPORT

April 2024



email: nghututu@gmail.com

call: 072 345 6584

ABOUT US

The APNR Southern Ground-Hornbill Project works towards slowing and reversing the decline of the species while carrying out fundamental research on these endangered birds. For the past 23 years, researchers from the FitzPatrick Institute of African Ornithology have been investigating Southern Ground-Hornbills' habitat-use, reproductive success, and behaviour. Conservation efforts concentrate on installing and monitoring artificial nests, while our research delves into the social system, dynamics, and benefits of group living among Southern Ground-Hornbills in a changing environment.



2023/2024 BREEDING SEASON

This season in the APNR, 10 out of 15 ground-hornbill breeding attempts were successful (66.7 % success rate). All the chicks fledged between mid-February and end of March, plus we have included a bonus chick from a newly discovered nest on Ingwelala. We were delighted by the success of the pair nesting in the Baobab Ridge nest, marking the groups first recorded breeding event. Notably, there was a low predation rate this season, contributing to the overall positive success. Out of the five failed attempts, we only have confirmation of predation at one nest (Bladerwick). The single egg laid at Copenhagen nest failed to hatch. The incubating female was attacked and killed at Tawane nest. At Thornybush, the 3 week old chick died, we think possibly due to exposure during a cold, wet spell where it was left unprotected by the female overnight. Finally, the Senalala nest was found empty, for unknown reasons, when we checked for a hatched chick.



Picture 1. Chick from Yankee Dam nest during last measurements before fledging.

Successful Nests:

Timbavati PNR:

- Karan Khaya
- Addger
- Caroline
- Von Tonder

Klaserie PNR:

- Baobab Ridge
- Ntoma

Umbabat PNR:

- N'tsiri
- Yankee Dam
- Ingwelala

Balule PNR:

- York

IN THE NICK OF TIME

On the morning of March 21st, at 84 days old, this plucky chick took its first flight from the nest, encouraged by its parents. Remarkably, later that same day, a leopard climbed the tree and investigated the nest. Had the chick not taken the leap that morning, it would have been an easy meal for the leopard. This nest, Von Tonder (Timbavati PNR), hasn't had much luck in the past, with previous chicks falling prey to predators. We're relieved that this time, the leopard arrived just a tad too late!



Picture 2. Camera trap footage of chick fledging from Von Tonder nest on the morning of the 21st March.



Picture 3. Camera trap footage of a leopard at the same nest later in the day on the 21st March.

YORK'S CHICK

During our last visit to the York nest in Balule PNR, it was evident that the 75-day-old chick was in very poor health. Unlike typical behavior at this stage, the chick was weak, lying on its side and didn't resist when we removed it from the nest. It was severely underweight and infested with lice, which were crawling under the skin at the beak. During previous visits we had noticed the chick's lighter weight and persistent begging for food. After reviewing camera trap footage, we discovered that the adult female was struggling with a leg injury, likely hindering her ability to forage which slowed and limited the rest of the group in their foraging efforts. Consequently, the chick was largely neglected, receiving minimal food and as a result of food stress, became overwhelmed with infection and a severe lice infestation.



Picture 4. York chick, held by field assistant Sam while being treated by Dr Bart Gazendan and an intern from WildScapes (left). Lice infestation around the beak, and lice under microscope (right).

Since the chick had made it this far and was nearing at fledging age, we decided to take action. The team at WildScapes provided veterinary intervention, treating the lice infestation and infection. Following the treatment, we continued to monitor the chick for several days, providing supplementary food and fluids to support its recovery. We are happy to report that the chick successfully fledged in March. Although we are still awaiting confirmation of its continued survival, we believe that its survival prospects have improved now that it is out of the nest and foraging with the group. We will attempt to monitor the adult female's leg injury, but it is unlikely that we will be able to intervene and provide veterinary assistance.

NEW NEST DISCOVERY



Picture 5. Natural nest cavity in a Leadwood tree.

To our excitement, we discovered a very large chick in the nest, estimated to be 70 - 80 days old and nearing the fledging stage. As part of our monitoring efforts, we attached a leg ring for identification purposes and conducted routine measurements to contribute to our database. We were fortunate to receive assistance from the conservation manager and interns from Ingwelala, who guided us to the location of the nest and helped us to ring the chick.

We look forward to integrating this nest in our routine monitoring over the coming years. There's a possibility that the group occupying this nest could be the same birds we observed using N'tsiri's nest in 2019. However, to confirm this, we require photographs of the birds.

In February, a new natural nest was discovered in Ingwelala (Umbabat PNR). We extend our gratitude to the members and staff at Ingwelala for alerting us to this nest and providing sightings of the birds. This nest is one of the smallest we have recorded in the APNR, with an incredibly narrow entrance (16cm wide) which must have been quite a challenge for the female to manoeuvre in and out!

Finding natural nests is incredibly difficult, underscoring the importance of community involvement and local knowledge to inform us about regular sightings during the breeding season.



Picture 6. Chick inside the nest.



Picture 7. Carrie and Sam ringing the chick with interns from Ingwelala.

RESEARCH

Carrie's research on the impact of heat on nestling growth and physiology made significant strides this season, due to the breeding success of the birds. She is currently busy in the analysis phase, laying the groundwork for her PhD write up.

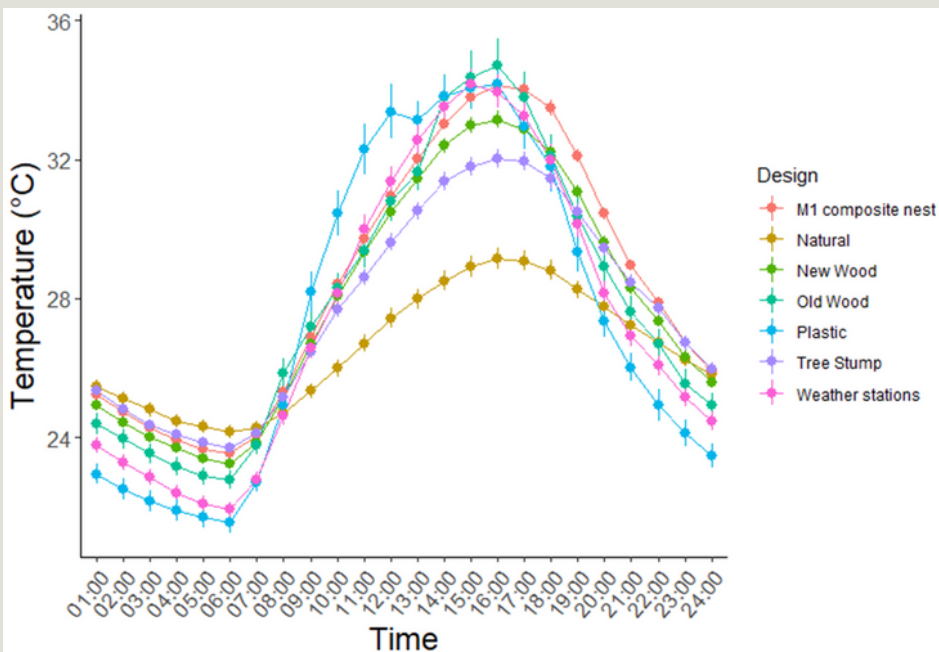
This progress marks a crucial step forward in our understanding of the ecology of these birds and their vulnerability to a warming climate. As each year sets new records for high air temperatures, it's now more crucial than ever that we prioritize and intensify our efforts to understand and mitigate the effects of climate change on wildlife and their habitats



Picture 8. A chick at 20 days old being weighed and measured

NEST TEMPERATURES

This season, as with previous ones, we installed temperature loggers inside each nest, recording hourly nest temperatures. We're delving deeper into the significance of various nesting materials and how the location of a nest within a tree influences its exposure to solar radiation. It's becoming evident how effectively natural nests mitigate both high and low air temperatures. However, our dataset only includes data from two natural nests located in living trees; we anticipate that natural nests in dead trees will offer less insulation, behaving more like tree stump nests. Natural nests, while buffering external temperatures, can be more susceptible to rain exposure, potentially explaining the Thornybush chick's death, whereas artificial nests provide greater rain protection. Our next step is to connect this data to the effects of nest temperatures on chick growth and physiology.



Picture 9. Graph showing mean (+SE) hourly nest temperatures and air temperature (Weather station) From January to March 2024

Nests

- **M1 composite :** Isoboard base with M1 outer layer
- **Natural:** Natural cavity in living tree
- **New wood:** Double layered wooden nests.
- **Old wood:** Made with single pine planks
- **Plastic:** Plastic water drum
- **Tree stump:** HOLLOWED OUT TREE STUMP

HARVESTED CHICKS



Picture 10. The gang of surviving second hatched chicks ready to start socialising with adult birds.

Photo: Elaine Reeve.

Nests where second hatched chicks were removed along with sex of chick:

- Addger (Timbavati PNR) - Female
- Caroline (Timbavati PNR) - Female
- Baobab Ridge (Klaserie PNR) - Female
- N'tsiri (Umbabat PNR) - Female
- York (Balule PNR) - Male

As part of the Mabula Ground-Hornbill reintroduction program, we harvested five second hatched chicks this season from the APNR, which were hand reared by Elaine Reeve at the Baobab facility. Unfortunately the N'tsiri chick was euthanized after it became apparent it had developmental problems. A post mortem revealed that she had an underdeveloped brain, likely due to infection during incubation or trauma during hatching. The remaining four (+ one from Sabi Sands) are doing well, and are now in aviaries where they are socialising with adult birds.

Social dynamics are forming among the chicks, with some displaying outgoing behavior while others are more reserved. Introductions to other birds for eventual release are planned. Additionally, chicks from the previous year (from Senalala (Klaserie PNR) and Von Tonder (Timbavati PNR) nests) are preparing for pre-release bonding with an older wild male in the flight aviary.

Ultimately, the goal is for all the harvested chicks to be reintroduced into their natural habitat, in alignment with the conservation efforts of the Mabula Ground Hornbill Project.



Picture 11. Ground-hornbill in flight. Photo: Reto Güttinger.



HOW TO HELP

We have set up WhatsApp groups for members of the APNR (guides, wardens, managers etc.) to log sightings of ground-hornbills. This is an effective way to gather information on group movements and we encourage anyone who is interested in joining an already established WhatsApp group or would like to set one up for their area to get in touch with us. Alternatively you can email sightings to: nghututu@gmail.com

FUNDING

Please get in touch if you would like to donate to the project. Funding for ecology and conservation research is becoming increasingly hard to obtain, even as the critical need for these activities increases. This means that every donation to our research and conservation project is enormously welcomed and makes a positive impact on the conservation of the species.



R7000 can pay for a new artificial nest box + materials for repairing already installed nests.

R4500 can pay for a new camera trap, R200 can pay for a pack of batteries to power camera traps.



R450 can pay for a colour ring to ID an individual



R1700 can pay for a tank of fuel for us to carry out nest checks



R380 will pay for sampling equipment (needles, syringes, tubes, gloves) used on each juvenile before fledging.



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
UNIVERSITEIT VAN KAAPSTAD

ACKNOWLEDGMENTS



We thank the landowners and wardens of the APNR for their continued support and permission to research the ground-hornbill groups on their properties.

Thanks to John Solomon & Caroline Buckway, Wild Wonderful World, The Rufford Foundation, The Timothy Hancock Charitable Trust, Marc Solomon, Iron Man 4x4 Africa, Painted Dog TV, Mary Oppenheimer & Daughters Foundation, Alan Whyte, Peter Janovsky, Clive Coetzee, Bateleurs Nest, African Born Safaris, Wild in Africa, & Blue Sky Society, for their generous donations and funding which supports the continuation of this long-term project.

Thanks to The Royal Portfolio Foundation, Wild Wonderful World, Isambane Camp, René Vromans, Baobab Ridge, Julie McInnes and Robert Price for their generous donations towards artificial nests.

Thanks to Timbavati PNR, Klaserie PNR, N'tsiri NR, Tanda Tula Lodge, Ndlopfu, and Peter Smelting for their ongoing support in fuel donations, without which this project would not function.

Thanks to the Mabula Ground Hornbill Project for support, equipment and assistance and to Kyle Brand from TUT, and JJ's Bones Of The Earth for designing and constructing artificial research nests. Thanks to all APNR members and staff who have been of great help, both logistically and by reporting ground-hornbill sightings.



CONTACT US

Carrie: (+27) 072 345 6584

nghututu@gmail.com

