Southern Ground-Hornbill Research and Conservation Program
Quarterly Report

July 2018

End of breeding season of 2017/2018

Yet another breeding season has come and gone, and we are fast approaching the next one. This previous season brought some success with the birds of the APNR with 9 out of 14 breeding attempts being successful (64% success rate).

Groups with fledglings:	Thornybush, Karan Khaya, Hermansburg, Java, Ntsiri, Janovsky, Addger, Pitlochry, Senalala
Unsuccessful groups:	Jejane – eggs failed (inexperienced female), Strydom – birds destroyed their own nest, Lillydale – nest abandoned, Rhino Road – predated close to fledging, Copenhagen – nest abandoned

Fig. 2. Pitlochry chick leaving the nest

Interestingly, the Rhino Road nestling was killed and eaten inside of the nest which ended up being somewhat of a mystery as to what killed it. The chick was about 80 days old (about to fledge) and was almost fully grown with the ability to defend itself when it was killed. The usual suspect for chicks being eaten are leopards, however, this chick was eaten inside of the nest which is too small for a leopard to fit inside. With the only evidence being that of the beak remaining in the nest, the bite marks were analysed, and the conclusion was that the death of the nestling was due to a honey badger.

Fig. 1. Beak of Rhino Road chick in nest

Harvested Chicks

The two harvested chicks (Addger and Java) from last year are still alive and well.
Addger chick was released onto Thaba Tholo and has been accepted by the release group and is being monitored at a distance by trained personnel. This release group now contains three harvested birds from the APNR (Addger2018, Rhino Road2014 & Hermansburg2010) where Hermansburg2010 is now the alpha male of the group.
Java chick was placed into the care of a captive pair of birds at Loskop Dam to be parent reared and has been earmarked for release in the future.

Fig. 2. Thaba Tholo birds

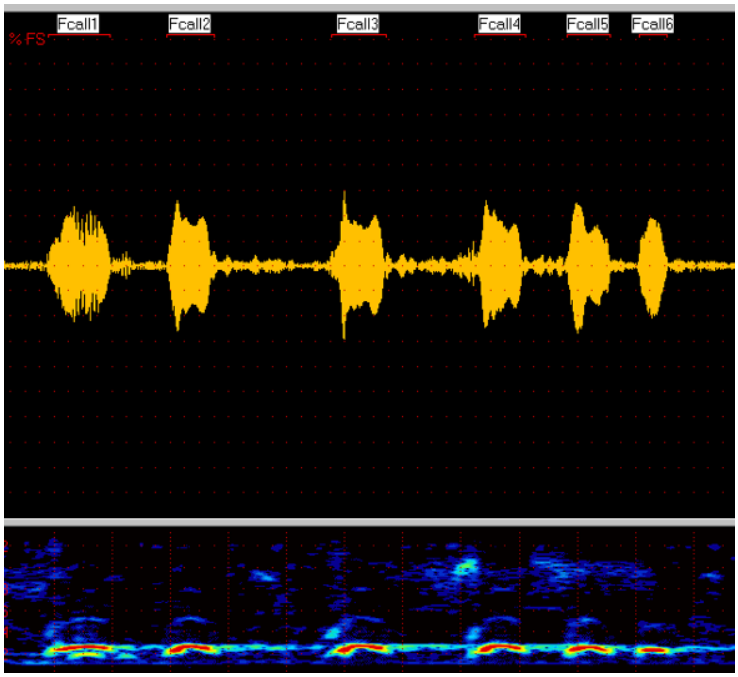
Research

The ground-hornbill research is going very well, and we are moving forward at a steady pace. During May, I attended a course in Paris in order to start analysing the vocalisation recordings acquired from the breeding season. The analyses of these recordings are going well and have proved to be extremely interesting. In total, we have high quality recordings for 10 groups around the reserves, along with several recordings of captive birds from several different locations.
The objectives of the vocalisation research are to: 1) describe the repertoire of ground-hornbill vocalisations; 2) determine if individual and group vocalisations contain 'signatures' which will allow for identification and 3) determine how individuals respond to playbacks and contribute to territorial defence.

From each of the recordings, several parameters are being analysed for differences between groups and between individuals. These parameters include temporal differences and frequency differences. Amplitude differences cannot be measured because the recordings were done at different distances and amplitude decreases with distance, so they are incomparable.

Temporal parameters:	1. Duration of calls and individual notes
	2. Duration of silence between them
Frequency parameters:	1. Maximum frequencies of each call
	2. The distribution of energy in the calls

The initial analysis of these parameters has shown differences between both individuals and groups. This is however yet to be confirmed.
The example below shows the temporal differences between the chorus call of the female of Caroline group and the female of Hermansburg group respectively. Caroline female has a call which is much longer and contains one note more than that of the Hermansburg female.



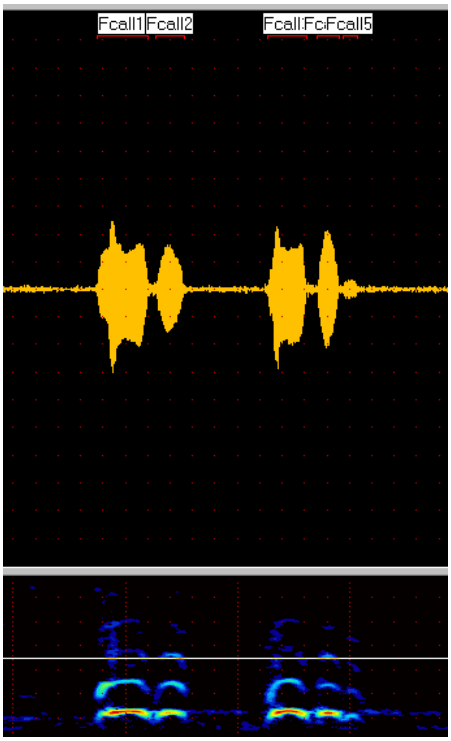


Fig. 3. Comparison of the chorus call of Caroline female (top) and Hermansburg female (bottom)

Once all the analysis for the recordings is complete, we will have a deeper understanding of the different 'signature' calls which the groups around the APNR have. We will then be testing to what extent the birds are able to recognise each other using a series of playback experiments. On the border of the groups' territories, we will play 3 three different calls and observe how each group respond to them. The different calls include:

1. a neighbour call (calls from a familiar group in an adjoining territory);
2. a stranger call (calls from an unfamiliar group) and
3. a call from a neighbour group which has been artificially modified.

From the responses of the birds, we will also be able to determine which individuals of the groups are contributing towards the physical territorial defence. All of the playback experiments will be done prior to the breeding season to ensure that no nests are abandoned.

Fundraising

I have managed to arrange a large portrait of a ground hornbill to be painted which will be donated. Although it has not even been started yet, plans to try and sell it need to begin and any ideas about how to actually go about the sale will be much appreciated.

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 Timbavati PNR, Klaserie PNR, Tanda Tula Lodge, and Ntsiri PNR for helping with fuel. Dow Chemicals continues its generous support of the research. Elephants Alive researchers, thank you for your sightings of SGHs in the APNR, they are always appreciated. 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.
Email: nghututu@gmail.com
Cell: 071 325 8956