

Final Project Evaluation Report

Your Details	
Full Name	Lucy. V. Kemp
Project Title	Re-wilding of Southern Ground-Hornbills
Application ID	23609-D
Grant Amount	£10,000
Email Address	project@ground-hornbill.org.za
Date of this Report	2019/04/06

1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
The establishment of four "bush-schools".				Three bush schools, each with a wild alpha male successfully established and all three have now laid fertile eggs. We attempted four but one (two individuals) failed due to unknown reason as the telemetry failed. We will ensure that two more groups are formed in 2019. We have managed to re-wild a total of 11 hand-reared chicks from these bush schools over the past 6 years.
Final release-site selection will become increasingly GIS-based and this will be ground-truthed on the various 'bush-schools' to ensure maximum accuracy.				We have found that the GIS-scale site selection proves useful but that ground-truthing is vital. Successful releases are dependent on a variety of factors Active engagement of communities, not only within but surrounding potential release sites is vital. Landowners need to be made aware of the potentially fatal impacts of their routine activities such as the use of pesticides could have on reintroduced birds.
We will publish this work in a peer-reviewed journal.				<p>Koeppel, K.N. & Kemp, L.V. 2015. Lead Toxicosis in a Southern Ground Hornbill <i>Bucorvus leadbeateri</i> in South Africa. <i>Journal of Avian Medicine and Surgery</i>. 29(4). DOI: 10.1647/2014-037.</p> <p>Kemp, L.V. 2017. Conservation biology and molecular ecology of the Southern Ground-Hornbill (<i>Bucorvus leadbeateri</i>). The University of the Free State.</p> <p>Kemp, L. V. & Bruford, M.W. 2018. <i>Southern Ground-Hornbill Habitat Viability Assessment Workshop Final Report</i>.</p> <p>Taylor, M.R. & Kemp, L. V. 2015. Southern Ground-Hornbill. In <i>The Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland</i>. M.R. (ed). Taylor, Ed.</p>

			<p>Johannesburg, South Africa: BirdLife South Africa.</p> <p>Kemp, L. V. et al. In press. Review of trial reintroductions of the long-lived, cooperative breeding Southern Ground-Hornbill <i>Bucorvus leadbeateri</i>. Bird Conservation International</p> <p>Koepfel, K.N. & Kemp, L.V. In press. Immuno-efficacy of a Newcastle Disease Virus vaccine for use in Endangered Southern Ground-Hornbill <i>Bucorvus leadbeateri</i>. <i>Journal of Avian Medicine and Surgery</i>.</p> <p>We have 3 more manuscripts in advanced stages of preparation.</p> <p>Conferences:</p> <p>7th International Hornbill Conference, Malaysia 2017</p> <p>2nd IUCN SSC RSG Reintroduction Conference, USA, 2018</p>
<p>The associated education and awareness programme will allow us to reach commercial and rural farmers and rural schools.</p>			<p>The education and awareness programme; ambassador programme and the custodianship programme have been a success. We shall continue to expand the programmes into new areas. We shall establish and maintain collaboration with other environmental organisations.</p>
<p>The need for a shepherd for the safety and monitoring of each group will create jobs in a country with an unemployment rate of over 24%. Acquisition of skills through our training programmes equips the shepherds with marketable skills.</p>			<p>Only one release site monitored by shepherds. Research showed that a reintroduction site only requires a wild alpha male to train naïve juveniles. Alternative means of community empowerment have been developed, such as craft production.</p>
<p>We will write re-wilding and release protocols so that other African countries experiencing the same decline will have a basis to start</p>			<p>Completed and document readily available. Lucy Kemp's PhD provided valuable information that added to our existing knowledge.</p>

<p>their own conservation efforts, pioneering conservation methodologies for the rest of the African range.</p>			
<p>The fine-tuning of custodianship agreements will ensure the released groups are looked after by the landowners that assisted with the release and that if the habitat deteriorates for any reason (mining etc) the birds can be moved to a safer site and new custodians.</p>			<p>A number of farmers and landowners have signed on to the agreements.</p>

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

The project has experienced rapid growth over the past few years and so we have spent much time working on a theory of change and given how quickly new data is coming in and the uncertainty of the South African political climate we have adjusted our review of our objectives and progress to a shorter 3-year cycle so we can work to identify and overcome barriers much more efficiently.

Some of the difficulties we found was being able to balance the time required to fundraise to meet our growing budget requirements and implement the work. To overcome this, we have now hired a research coordinator so that there is no lag time. In terms of reintroductions the use of the land claimant communities for the construction work, as required by the reserve co-management agreement, led to delays and escalating expenses. In the delays the pairs that were temporarily housed in our reintroduction soft-release aviaries laid eggs and so we had to wait for them to fledge those chicks before we could move them into the new centre. This then delayed the planned reintroductions for the year significantly and we are now playing catch up to ensure those birds are all reintroduced in the next six months.

It has been an intensive learning process for the team learning how best to tackle reintroductions of a socially complex, long-lived species, but we feel, as long as we document this process well (Kemp et al. 2019 in press and two more papers in prep) then, any other conservation action undertaken elsewhere in the range will have a clear, tried-and-tested recipe for successful conservation action and so will waste no time in implementation.

3. Briefly describe the three most important outcomes of your project.

a) The construction and official opening of the Baobab.

This is a world-class, centralised hand-rearing centre for southern ground-hornbills at Loskop Dam Nature Reserve was officially launched on the 24th October 2018. The centre has the capacity to house 15 chicks destined for reintroduction per breeding season. The baobab came to fruition through tireless cooperation between the Mabula Ground Hornbill Project, government agencies, non-governmental organisations, individuals and community members from surrounding areas. The construction phase was a good employment and skills development opportunity as many of the workers on the construction site were sourced from the surrounding communities and landowners. Some were unskilled upon arrival but have since gained valuable knowledge and skills which they can take with as they move on to new ventures.

Within the facility, ground-hornbill chicks are reared in such a way as to maximise their socialisation and interaction with adult ground-hornbills that are housed in the facility. This will ensure that the quality of ground-hornbills produced will be of a high standard suitable for reintroductions. The centre housed its first batch of harvested chicks in the 2018-2019 season and all the chicks have since fledged.

The potential for world-class research is now possible for the species at the centre (with an observation room and high-quality live-streaming cameras) and will be starting with a post-doc from France who will be undertaking a six-month study into cognitive behaviour.

b) A successful education and awareness campaign.

The education and awareness campaign has covered extensive areas in the provinces where the species occurs that we have had funding to reach: Limpopo, Mpumalanga and KwaZulu Natal. Primary and secondary school learners, rural communities, game ranchers, farmers, landowners and the general public have been our focus. Each of these focal groups has a programme that is uniquely tailored to their circumstances and addresses their needs and shortcomings in terms of the active conservation of southern ground-hornbills.

Our ambassadorship programme was well received by learners throughout the country and the learners actively monitor and report on the groups of ground-hornbill that occur in their areas. The custodianship programme that is being rolled out for private landowners and farmers has recorded much success with a number of landowners signing up to be custodians of southern ground-hornbill groups that occur on their land. In addition, we have had numerous articles in the print, electronic and social media platforms which have drawn encouraging responses from members of the public, not only in South Africa but throughout the world.

c) Artificial nest prototype.

Our work in the past decade has given us invaluable insights into the components of a successful release site. The nest has been identified as the anchor upon which any group of ground-hornbills centralises its activities. In the past, our artificial nests were comprised of a simple hollowed-out tree log that was erected in a tree at the suitable height required by the birds. Although uptake was high, the nests were not durable and none of them lasted beyond ten years in the wild. Ground-hornbills are a long-lived species; thus it could only be sustainable if we provide them with a nest that can last as long as they do.

Through a collaboration with a local university, Tshwane University of Technology, we have managed to produce a new nest prototype that is relatively lightweight, highly durable and, most importantly, hornbill-proof. The results of our pilot tests are promising as the nests have proven very hardy. With a few minor modifications, the nests will be mass produced and distributed before the next breeding season. Paper in prep.

And all our reintroduced groups have now bred successfully.

5. Are there any plans to continue this work?

Definitely! Re-wilding and reintroduction of southern ground-hornbills is a core mission of the Mabula Ground Hornbill Project and given the longevity and other R-selected life-history traits of the species a long-term conservation effort. The species is listed as endangered in South Africa and Namibia and there is still much to be done to slow, halt and ultimately reverse population declines of this iconic savanna bird. Results will only truly be visible many years, if not decades from now.

6. How do you plan to share the results of your work with others?

We produce an online newsletter every two months that are available to the public. We also publish articles in local magazines and newspapers or give talks at workshops, public events. We have a strong presence on the major social media platforms and we use them to be used to keep people updated on happenings at the project and release sites, as well as to educate people about ground-hornbills, the threats they face and why reintroductions are required to protect the species. We produce an in-depth Annual Report in October every year. We presented our work at the IUCN SSC RSG Conference in Chicago in 2018. We published an IUCN SSC CPSG PHVA Conservation Plan in 2017 and are in the process of completing a national Biodiversity Management Plan for the South African Department of Environmental Affairs.

We currently have two papers in the press in Bird Conservation International and Journal of Avian Surgery and Medicine and three more in advanced stages of preparation.

7. Timescale: Over what period was the grant used? How does this compare to the anticipated or actual length of the project?

This grant was used over one calendar year as was anticipated. The project is on-going, given that the southern ground-hornbill is a long-lived, slow-breeding species, necessitating long-term conservation management.

8. Budget: Provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
<u>Bio-control:</u>				
Disinfectant for foot baths	155	155		¹ We were advised against using these as they trap bacteria so are just using foot baths. ² This included scrubs for the team and vehicle spray.
Foot mats at main entrances ¹	440	400	-40	
Veterinary support ²	243	250	-7	
Sub-total	835	805	-30	
<u>Fuel</u> (3750 km)	2500	4800	+2300	We successfully covered more areas than we had previously anticipated.
Sub-total	2500	4800	+2300	
<u>Rearing centre equipment:</u>				
3 x Stainless steel prep tables	340		+340	¹ I was unable to source these second hand so had to buy new.
3 x laboratory stools ¹	50	72	+22	
4 x taps ²	725			² The ZAR weakened since we submitted our original budget and so the price of goods has increased.
2 x food storage fridges (396l)	2100	2500	+400	
1 x food stock freezer	930	950	+20	
1 x 40l autoclave (40l)	2500	2500		
Sub-total	6645	6022	-623	
Total budgeted	10000	11627	+1627	

9. Looking ahead, what do you feel are the important next steps?

- Now that the Conservation Rearing Centre is complete and operational, we can move away from experimental reintroductions to simply expanding the existing population. We aim, on average to reintroduce three new groups per year, from now on. This has been modelled to immediately have a significantly

positive impact on population growth. We have a full-time ex-situ coordinator now who manages the centre and the husbandry of the ground-hornbills and food colonies to the highest standards.

- Maintain the momentum we have gained in all our activities, retain links and collaborations that are already established, as well as creating new ones with government, NGOs, communities, landowners and business entities.
- Continue expanding our education and awareness programme into new areas.
- Launch a short animation all in eleven official languages in South Africa to assist us in swiftly and effectively sharing the conservation message.
- Maintain ongoing research on the ground-hornbills (cultural perceptions, endocrine analysis, cognitive behaviour, etc. all required to constantly improve our understanding and thus our ability to improve all aspects of conservation action) and ensure that the results are published.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

Yes, we used The Rufford Foundation logo on our website, annual reports, the sponsor board at the Baobab Conservation Rearing Centre, on our sponsor page at the end of every presentation given about our work and on educational pamphlets designed for distribution in areas where the birds still occur outside of protected areas.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Dr Lucy Kemp- Project Manager

All major fundraising for the project. Principal investigator. Long-term planning and coordination of all six programmes within the project.

Dr Jarryd Alexander - Research co-ordinator

Responsible for coordinating the national monitoring plan, custodianship programme and nest monitoring.

Natasha Nel – *Ex-situ* co-ordinator

Previously the assistant project manager but currently managing all activities at the hand-rearing centre at Loskop Dam Nature Reserve.

Sophie Neller, MSc - Assistant to the Project Manager

Endocrine research on captive and wild ground-hornbills. Assists in fundraising and awareness work.

Nthabiseng Monama- Education officer

Leads all education and awareness activities, liaised with and represented the project in communities.

Heinrich Nel- Research technician

Project equipment maintenance, reintroduction site monitoring and farmer outreach, artificial nest construction.

Patience Shito - Research and conservation intern

She is currently doing her MSc (through the Univ. of Polokwane) investigating the recolonization of the Limpopo River Valley ground-hornbill population and how cultural perceptions have played a role in this.

