

Final Evaluation Report

Your Details	
Full Name	Lucy Valeska Kemp
Project Title	Trans-disciplinary conservation combining cultural beliefs, science and technology for population restoration of the Endangered Southern Ground-Hornbill
Application ID	29170-C
Grant Amount	£15,000
Email Address	project@ground-hornbill.org.za
Date of this Report	13/6/2021

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
Reduce unnatural mortality.				This will sadly never be fully achieved.
Restore population using reintroductions.				This is now ongoing, and we now have national support for the two major reintroduction cores.
Manage micro-and macro-habitats for maximum SGH productivity.				We achieved this through the supporting individual landowners to remove known threats, encourage better land-use practices and provide artificial nests.
Development of bespoke conservation interventions based on cultural beliefs and Indigenous Knowledge-Systems.				We found that the belief structures are so varied even within language groups that we have now increased the scope of the project to increase the number of interviews to better understand this and so be able to produce the bespoke plans.
Building research and conservation capacity for SGH within the project, grass-roots NGOs, provincial and national conservation authorities				We conducted a free IUCN SSC CPSG Conservation Planning Workshop for local NGOs, and provincial nature conservation officials (15 attendees). I have an MSc student Patience Shito and two nature conservation students from the University of Mpumalanga.
Future-proofing SGH conservation plans for climate change.				We are currently collaborating with the IUCN SSC Climate Change Specialist Group to conduct an analysis of the impact climate change will have on the species so we can hold the workshop.
Implementation of a national monitoring plan to ensure we can evaluate progress for the above objectives.				The implementation plan has been fully enacted and we have had incredible success with this model. We have a decade (2009-2019) as the baseline, and we have established the national conservation status to a very high degree of accuracy (600 family units), and now in the second year of the programme we have 45 WhatsApp

				Champion groups, comprising nearly 1000 citizen scientists. We feel this might be an excellent model for other wide-ranging, naturally low-density species.
--	--	--	--	---

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

It was the Covid-19 pandemic that just made it that much more difficult to complete our targets and we lost many of our very loyal supporters as they had to downsize to first look after their own teams.

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

- A National Biodiversity Management Plan for South Africa to be gazetted.
- A National Monitoring Plan for SGH.
- Research into, and mitigation of, threats to SGH.

4. What do you consider to be the most significant achievement of this work?

We have managed to publish nine scientific papers in peer-reviewed journals. These papers are based on our research and findings on unnatural drivers of SGH mortality such as lead poisoning and persecution.

1. Koeppel, K. N., Kemp, L. V., Maartens, L. H. & Thompson, P. N. Immunogenicity of Newcastle Disease Vaccine in Southern Ground-hornbill (*Bucorvus leadbeateri*). J. Avian Med. Surg. 34, (2020).

2. Scheun, J., Neller, S., Bennett, N., Kemp, L. V. & Ganswindt, A. Endocrine correlates of gender and throat colouration in the Southern Ground-Hornbill (*Bucorvus leadbeateri*). Integr. Zool.

3. Janse van Vuuren, A.; Kemp, L. V.; McKechnie, A. The beak and unfeathered skin as heat radiators in the Southern Ground-hornbill. J. Avian Biol. 51, (2020).

4. Kemp, L. V. & Ezzey, P. Report of kidnapping in cooperative breeding Southern Ground-Hornbill in South Africa with consequences for conservation reintroductions. Ostrich J. African Ornithol. 91, 91–93 (2020). Page 4 of 9

5. Kemp, L. V. et al. Review of trial reintroductions of the long-lived, cooperative breeding Southern Ground-Hornbill *Bucorvus leadbeateri*. Bird Conserv. Int.

6. L. L. Laubscher; K. N. Koeppel, Robert Campbell, L. V. Kemp and Raath, C. P. (submitted) Complication with re-sedation in Southern Ground-Hornbills (*Bucorvus leadbeateri*) following partial reversal of two orally administered sedation protocols. Vet record: Case Reports.

7. Danel, S, Kemp, L., Zidat, T., Lucas, A., Bonadonna, F. & D. Biro. (Submitted 2021) If at First You Don't Succeed: Stick to One Side! Ground-hornbills and Skuas Fail to Use

Human-given Cues in a Two-way Object-choice task. Journal of Comparative Psychology.

8. Danel, S, Kemp, L & D. Biro. (Submitted 2021) Social diffusion of new foraging techniques in the Southern ground-hornbill (*Bucorvus leadbeateri*). Learning and Behaviour.

9. Koeppel, K. N. & Kemp, L.V. (In press: accepted 2021). Ground-hornbill Medicine. Fowler's Zoo and Wild Animal Medicine.

We also conducted the multi-stakeholder Reintroduction Workshop and from this, established a national strategic plan.

5. Briefly describe the involvement of local communities and how they have benefitted from the project.

We have conducted the population and perceptions interviews in Limpopo, KwaZulu Natal (KZN) and Mpumalanga provinces. Many communities that share their landscape with SGH are largely unaware of its status, as well as the myriad threats that the species faces. We have conducted awareness campaigns in conjunction with our interviews. We have engaged with local traditional leadership in our provinces of operation and have established a close connection with the Zulu Royal House and have the Prime Minister to the Zulu Nation and monarchy, Prince Mangosuthu Buthelezi as the Mabula Ground Hornbill Project patron and advisor. The plight of SGH has been upscaled to a top priority in all levels of traditional leadership in KZN. We trained young women from the rural areas of KZN to develop and implement local conservation initiatives, as well as lead the implementation of the population and perception surveys.

We have established a custodianship programme, currently with 30 custodians to protect SGH nests and their surrounding habitat. These include rural communities, farmers, and private landowners. These people have previously not been actively involved or consulted in any conservation actions that are implemented in their localities, either by government agencies or non-profit organisations and they have been keen to provide input and spearhead the conservation efforts for SGH in their localities. By making their areas 'hornbill-safe', they have in turn made them safe for themselves and a variety of other species. The custodianship programme has been a vehicle to address the misuse of agricultural pesticides, secondary poisoning, and lead poisoning.

6. Are there any plans to continue this work?

The work we are doing is ongoing, thanks largely to a Whitley Grant for myself and a 1st Rufford Small Grant for Patience Shito for her MSc Conservation actions targeted at long-lived species such as SGH are a long-term commitment. We are aiming to grow and continue the work that we initiated. The restoration of the national population using various conservation tools continues. Our reintroduction programme is growing, to ultimately achieve the goal of a minimum of 10 SGH

groups in each reintroduction core. We have initiated a project to assess the status of the environment west of the Kruger National Park, which is at capacity for SGH, to develop interventions to encourage the dispersal of SGH from this protected area, which cannot support new groups of SGH. We are maintaining collaborations with multiple organisations and government agencies for the mitigation of known threats and will continue our research on novel threats as human development continues to grow in our country.

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

We will continue to share our activities and results on our social media platforms. We will publish more papers in peer-reviewed journals and produce short communications for print and electronic media. We have presented at international conferences (including the Rufford Small Grant Recipients Conference held in Livingstone, Zambia 2019), online conferences and webinars since the onset of the Covid-19 pandemic. Our website has a variety of materials based on our work that is available to download.

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

The grant was used in just over a year as anticipated. We are grateful we were able to continue with this work despite the onslaught of the pandemic.

9. 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
Nest location and ensuing custodianship training of all staff and inhabitants of the property	2250	2250		We were able to conduct this work and these landowners now report on the progress
Media interviews/articles/press releases	600	600		We spent this complete allocation, and we are thrilled with the amount of coverage we were able to achieve.
Monitoring plan launch: Posters/ brochures/ stickers (print run 25 000)	600	1100	+500	These have been printed and are beautiful and we have had very good feedback. It costs us more

				than we thought but we found a private sponsor to cover the rest, Mr Pat Goss.
Reintroductions: Initial site visits/ release aviary construction/ nest monitoring for harvest, harvest, hand rearing	2800	2800		We spent more than this on the reintroductions, largely due to a hug rise in our fuel costs, Page 7 of 9 rearing but this amount was covered by several other sponsors.
Reintroduction workshop (3 days)	3250		-3250	This workshop was conducted online due to the Covid-19 pandemic. I would like to request that this money be utilised for the two scoping meetings required with all landowners at both the two reintroduction focal sites determined from the workshop (Western Limpopo and northern Zululand)
Complete populations and- perceptions surveys (fuel, translations and camping).	1000	1000		We did indeed complete the surveys, and these formed the basis of the greater project that we are launching now thank to the Whitley Fund this was a fantastic step to upscaling this.
Construction and installation of 40 artificial nests.	4500	4500		This covered the equivalent of 14 of the 40 nests and these were completed and installed.
TOTAL	15000	12250	-2750	

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

We aim to implement the actions laid out in the BMP at a national level and have applied for an IUCN SOS Grant for this to make sure we do not lose momentum despite the pandemic.

We will complete all of the actions we laid out in our Whitley grant, much of which is building on our Rufford work.

We are expanding SGH conservation to a regional level. We have conducted an SGH Conservation Planning Workshop and published an initial Conservation Plan for SGH in Zimbabwe and will do the same in Namibia and Botswana in 2022, hoping to do the same for all range states of the SGH in Africa.

We aim to grow our citizen-science-based monitoring programme up to a point where every group of SGH is accounted for and monitored regularly.

I have launched a Northern Ground-hornbill Working Group and am now supervising a Ghanaian PhD student to complete the first biological research into this other ground-hornbill.

11. 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?

We have publicised the Rufford Foundation as one of our Gold Level sponsors on our website throughout the project, on all our presentations, newsletter and in the Acknowledgments section of our reintroduction paper, published in Bird Conservation International.

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

Prof Carl Jones and Dr Alan Kemp

Independent scientific advisors

Scientific Contributors (Board of Directors):

Dr Rob Little – Ornithology/Conservation Biology: FitzPatrick (Vice-Chair).

Prof. Antoinette Kotze – Conservation Genetics: SANBI.

Dr Hanneline Smit-Robinson – Head Conservation – BirdLife South Africa.

Leslie Mudimeli – Director (South African National Biodiversity Institute: National Zoological Gardens)

Team on the ground:

Dr Jarryd Alexander - (research and Custodianship coordinator with extensive avian experience in ecological systems, Amur falcons and endangered parrot species).

Mapula Mokwele - (finance and administration)

Natasha Nienaber - (ex-situ coordinator).

Nthabiseng Monama and Patience Shito - (environmental educators).

Hein Nel - (field assistant).

13. Any other comments?

I would just like to say what an extreme pleasure it has been to work with Rufford through all five of my grants. The way your grant system works, in particular as I see for young, up-and-coming African conservation biologists, is so valuable in a world where many of these students simply don't have the resources to fulfil their dreams. Thank you also for the recommendation to Whitley – I won!

Sadly, I have now run my course with Rufford now that I have received my completion grant but our work will always need funding. I would be extremely grateful if you ever see any other opportunities that we may not have heard of to apply for.