

Final Evaluation Report

Your Details	
Full Name	Jessica Harvey-Carroll
Project Title	Quantifying the post-release survival and behaviour of trafficked Temminck's pangolins
Application ID	37221-1
Date of this Report	29.04.2024

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
Validation of accelerometer use in Pangolins			Y	We have successfully validated the use of accelerometers to record fine-scale behaviours such as feeding and walking in ground pangolin. This has produced a peer reviewed publication (currently in review).
Deployment of Accelerometers in pangolins			Y	Accelerometers have been deployed on both wild and rehabilitated pangolin. Data is being processed for a second peer-reviewed publication.
Publication and communication of findings			Y	A manuscript is in review to Animal Biotelemetry ("Classification of African ground pangolin behaviour based on accelerometer readouts: validation of bio- logging methods"). A second manuscript is in progress on the post-release behaviour of ground pangolin. Following the publication of each manuscript, findings will be communicated to NGOs conducting release of trafficked pangolins.

2. Describe the three most important outcomes of your project.

- a) Accelerometers are suitable for assessing behaviour of the ground pangolin (Figure 1).
- b) We have begun to characterise daily behaviour (and in turn activity budgets) for rehabilitated and released pangolins (Figure 1).

- c) A publication is currently in review ("Classification of African ground pangolin behaviour based on accelerometer readouts: validation of bio-logging methods". *Animal Biotelemetry*.) A second manuscript is in progress on the post-release behaviour of ground pangolin.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

Research and ethics permissions from the Zimbabwe Government took longer than anticipated to acquire, delaying the project by a year. This resulted in an increase in travel prices included into the budget. Now all permits are in place for continuation of this research.

4. Describe the involvement of local communities and how they have benefited from the project.

This project was conducted in collaboration with a local NGO, Tikki Hywood Foundation (THF). THF is the longest running pangolin NGO in Africa. THF employs members of the local community to conduct pangolin care and post-release support. This was the first research project conducted by the charity and has provided the first information on fine-scale pangolin behaviour which will be used to refine rehabilitation practises. During the fieldwork period, talks were given on data analysis and experimental design. Additionally as a result of this project I am now mentoring an early career research assistant at THF.

5. Are there any plans to continue this work?

Yes. Deployment of accelerometers on pangolin has now been integrated into THF release protocols until a sufficient sample size of sex and age classes has been obtained.

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

This project is producing two publications which will be disseminated widely. THF has strong connections with other NGOs conducting similar work globally and will also aid sharing of methodologies and results. A press release will be conducted, alongside publication of a popular science article.

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

This project has been very successful and THF has now integrated the deployment of accelerometers on rehabilitated and wild pangolins. We will continue to collect data to increase sample sized and eventually create a species distribution map with pangolin behaviour. We will apply for further funding to deploy more accelerometers. This will be vital for future conservation efforts of this species.

8. 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?

No, but funding acknowledgements of Rufford are in manuscripts.

9. Provide a full list of all the members of your team and their role in the project.

Daire Carroll: Supporting data analysis, manuscript preparation and fieldwork assistance.

Cara Trivella: Research assistant at THF. Logistics, in field assistance.

Ellen Connelly: Head of conservation at THF, logistics and fieldwork assistance.

Lisa Hywood: Director of THF, logistics.

10. Any other comments?

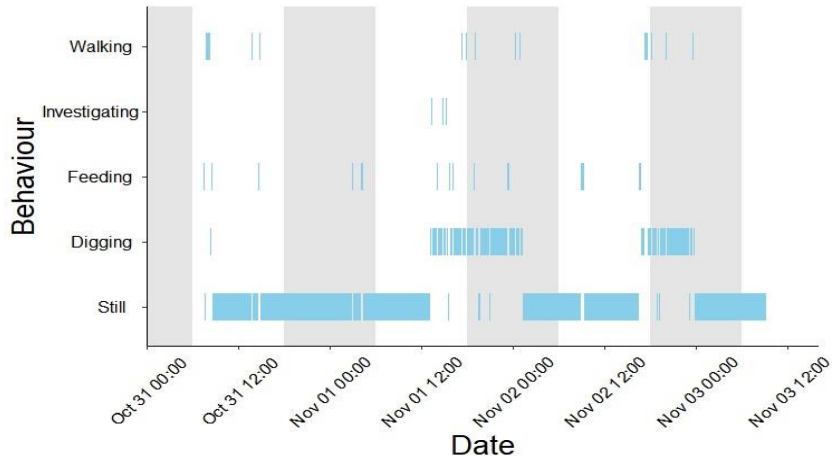
As a result of the collaboration with THF, we have published a peer reviewed publication:

Carroll, D., Harvey-Carroll, J., Trivella, C.M. and Connelly, E., 2024. Non-fatal removal of ground pangolin (*Smutsia temminckii* Smuts, 1832) tracking devices by predators. *African Journal of Ecology*, 62(1), p.e13225.

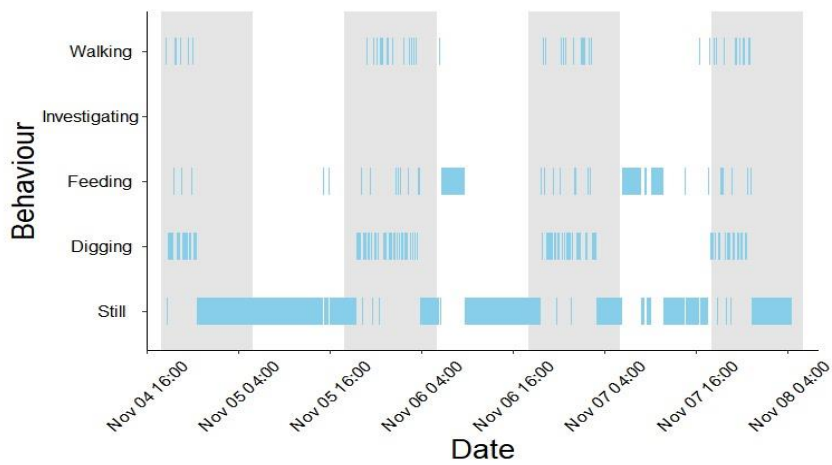
And have an additional manuscript in review:

Harvey-Carroll, J., Carroll, D., Trivella, C.M. and Connelly, E., A framework for the ethical use of animal-borne devices in post- release monitoring following rehabilitation: case study of the ground pangolin *Smutsia temminckii*. *Animal Welfare*.

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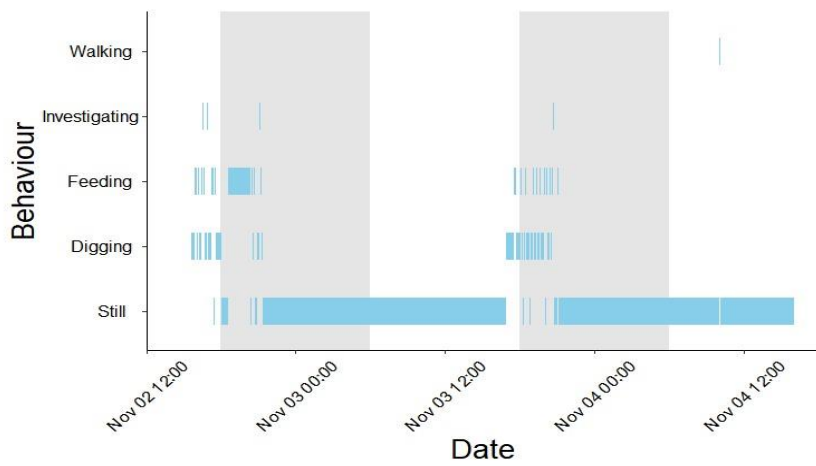


Figure 1. The classification of free ranging pangolin behaviour into discrete behaviours. Individual blue bars represent behaviour across a 4 second period. These pangolins were not observed outside of device attachment and retrieval. Shaded regions represent night, with light regions representing day.