

## **Project Update: May 2023**

### **SUMMARY**

This PhD study is a project in partnership with the University of KwaZulu Natal (UKZN), the Endangered Wildlife Trust (EWT), The Rufford Foundation and Trans African Concessions (TRAC N4). The project aims to investigate the ecological impacts of the N4 Toll Route on animal movement and behaviour using camera traps. New research and a pilot project are being undertaken to establish the performance of road underpass structures, such as culverts, viaducts, and bridges on the N4 route, with the aim of preventing wildlife-conflict with vehicles (i.e., roadkill).

### **AIM and OBJECTIVES**

The doctoral study seeks to research how useful road infrastructure is in helping animals to traverse beneath roads, so we can improve road safety for wildlife and all road users, through preventing a wildlife-vehicle collision. This project presents a camera trap roadkill mitigation project that attempts to broaden the understanding of whether animals can crossroads successfully using modified under-road wildlife crossings on the N4 toll route.

Through undertaking surveys of existing road structure (underpasses) on the N4 highway we can determine how best they may benefit wildlife through providing animals with safe under-road wildlife crossings; this will assist in roadkill reduction and improve landscape connectivity in the area. Camera traps will provide a reliable approach of monitoring animal behaviour and utilisation of road underpass structures (Figure 1).

### **PROJECT UPDATES**

- Daily interactive training continues to be offered to the TRAC N4 route patrol teams, with further support provided through a WhatsApp group (Figure 1). This has enabled the patrollers to submit photographs of species they may need assistance with identification, as well as raise any queries they may have about the data collection.
- To ensure that all relevant employees of the TRAC are enabled in terms of data collection protocols, species identification, and broader insight into the concept and importance of road ecology, a training course was presented to the TRAC staff by the leading researcher. In addition, the researcher also accompanies road-route patrol teams at least once per annum for a practical demonstration of data collection.
- Consequently, we have observed a significant improvement in the quality of data submitted to the roadkill database and this enables us to establish and maintain a comprehensive wildlife incident database through the collection of data in a scientific manner.
- The preliminary camera trap data showed increasing animal activity and use of the monitored underpasses, with nine mammal, two reptile and six bird

species recorded using the underpasses for crossing beneath the TRAC N4 toll route.

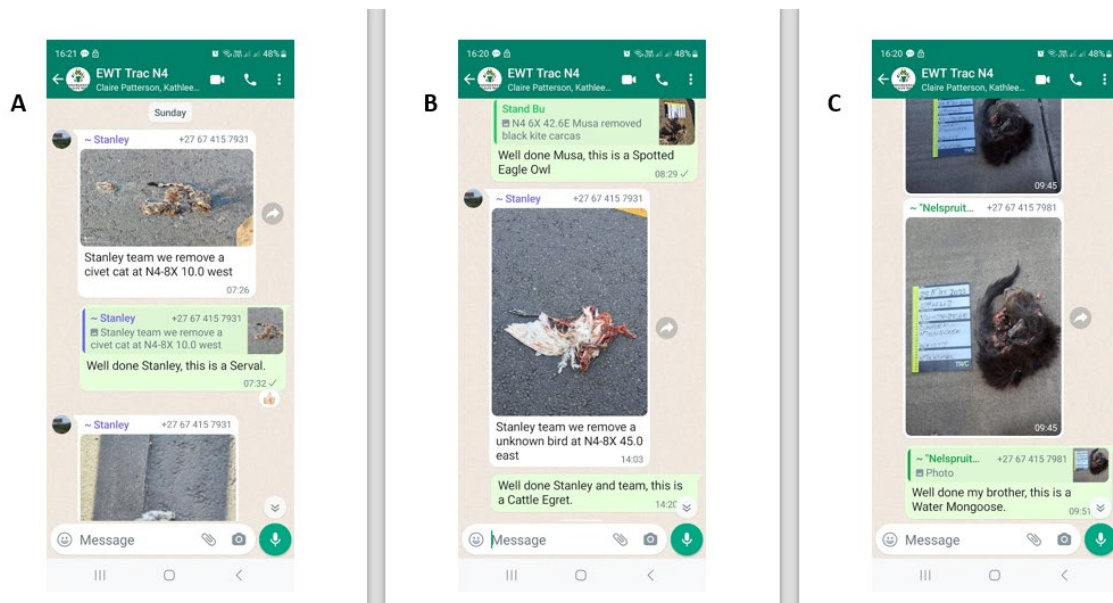
- Animal-use of the underpass structures for crossing was dependent on the characteristics of the structure (size, shape, and adjacent roadside habitat type), with various mongoose species, Cape porcupine, large spotted genet, common duiker and scrub hare showing predominant use of the EWT-TRAC underpasses.
- An abstract from this project for the Zoological Society of Southern Africa (ZSSA) was accepted, and the researcher will be attending the conference in Champagne Sport Resort (KwaZulu-Natal and shall present the preliminary data that has been gathered so far.
- A second abstract for the African Conference in Linear Infrastructure and Ecology (ACLIE) was submitted, and the researcher will be attending the conference in Kenya to present the preliminary findings of this study.
- An interview was undertaken by Kevin Mayhew (Freight News) to discuss an article to be published regarding the project. The article can be viewed: <https://www.freightnews.co.za/article/road-planning-required-avoid-danger-collisions>

## **CONCLUSION**

The project is making good progress and is on track with most of its targets – some minor delays have been experienced with the implementation of its Phase 2. The design for the mesh fence was recently approved by the road management engineers, however, the permit for beginning the fieldwork is taking time to be issued. The researcher has scheduled a meeting with the road management for engagement concerning the delays. We are thankful to The Rufford Foundation for supporting this much needed research.



**Figure 1:** Thabo during his fieldwork for monitoring the camera traps on the N4.



**Figure 2:** WhatsApp interactions between TRAC route patrollers and the researcher (Incidents reported are of A: Serval, B: Cattle Egret and C: Water Mongoose).



**Figure 3:** Road Ecology Training facilitated by the leading researcher to TRAC N4 employees on data collection and species identification.



**Figure 4:** Activity of mammals that have used the monitored EWT-TRAC underpass crossings (A-Slender Mongoose, B-Yellow Mongoose, C-Marsh Mongoose, D-Cane Rat, E-Cape Porcupine, F-Large spotted Genet, G-Serval, H-Reedbuck, I-Common Duiker).



**Figure 5:** Road Ecology Training Session with the TRAC team.



**Figure 6:** Group work exercise during the road ecology training session.