Project Update: November 2022

Background

Transport networks, in this instance roads, are critical elements of human economic development and society, and global rates of network construction will likely rise for the foreseeable future, particularly in Africa. As a result, over 30 development corridors of over 53 000 km length are planned for Africa, and these developments will traverse and reshape natural landscapes, which negatively impacts wildlife populations by causing lack of habitat connectivity and roadkill. Road ecology in South Africa is a rapidly emerging field of research for which the Endangered Wildlife Trust (EWT) is spearheading pioneering initiatives in the country that tackles the issue of wildlife deaths on our roads head on through partnering with road agencies, this includes the Trans African Concessions (TRAC).

The TRAC N4 Toll Route passes through landscapes that comprise patches of grasslands, bushlands, freshwater ecosystems, and wetlands, which attract numerous wildlife in the vicinity of the road. Increased animal activity on, and adjacent to, the highway often results in increased wildlife-vehicle collisions (WVC, i.e., roadkill). Through the partnership work undertaken by the EWT and TRAC, roadkill occurrence data are regularly recorded by the route patrol teams. From the data collected, several sections along the TRAC N4 route are emerging as roadkill hotspot areas (i.e., where most roadkill is reported), requiring roadkill intervention measures to be proposed, trialled, assessed and adopted.

Through a doctoral study we are researching how useful existing road infrastructure is in helping animals to move across roads, so we can improve road safety for wildlife and all road users. Our current study presents a road underpass and camera trap roadkill mitigation project that attempts to broaden the understanding of whether animals can crossroads successfully using existing road underpass structures. Through undertaking surveys of existing road structure (e.g., under-and-over passes), on the N4 highway, we can determine how best they may be modified in such that they benefit wildlife and assist in roadkill reduction. Camera traps will provide a reliable approach of monitoring animal behaviour and utilisation of the modified road underpass structures. This means that instead of adopting roadside fencing, which in turn produces a negative impact by preventing ecological connectivity, our study will use roadside fencing to funnel wildlife towards the closest crossing structures as illustrated in Figure 1.

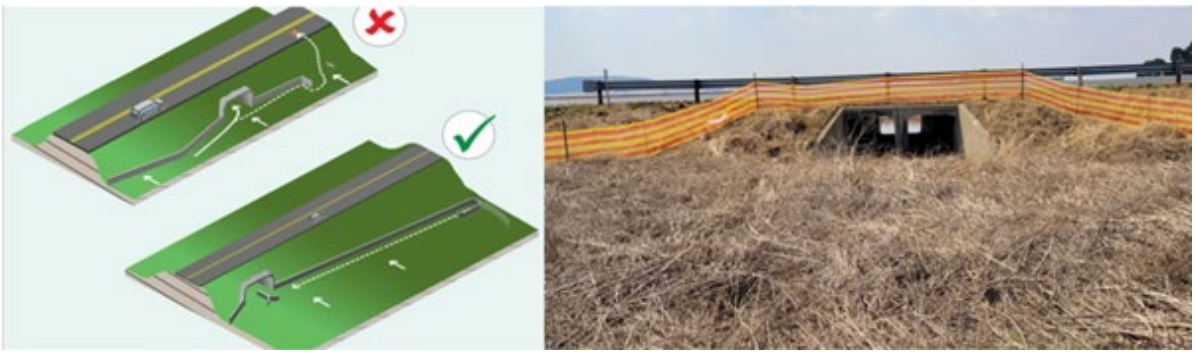

Figure 1: An example of wildlife underpass structure design (Modified from Marcel Huijser/WTI)

Activity 1: Training of route patrollers

Existing staff, especially those conducting patrols receive ongoing training with support offered through a WhatsApp group. 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. Consequently, we have observed a significant improvement in the quality of data submitted to the roadkill database and this enable us to establish and maintain a comprehensive wildlife incident database through the collection of data in a scientific manner.

To ensure that all relevant employees of the TRAC are capacitated in terms of data collection protocols, species identification, and broader insight into the concept and importance of road ecology, a training course is to be presented to the TRAC staff. In addition, the researcher will accompany road patrol teams at least once per annum (waiting for TRAC to finalised logistics for 2022 training).

Activity 2: Deployment of Camera Traps underneath the monitored road underpass structures

The fieldwork for this project commenced in July 2022, and eight underpass structures were fitted with cameras traps to monitor if wildlife is indeed utilising them to cross the highway safely. These cameras were deployed in road sections that have emerged as wildlife roadkill hotspots where roadkill-reduction measures are most urgently needed (Figure 2).

Figure 2: Thabo undertaking fieldwork for deploying camera traps on the N4 Toll Route

Activity 3: Monitoring of Camera Traps underneath the monitored underpass
Fieldwork for monitoring the camera traps is undertaken monthly by the researcher, and so far, the camera trap data obtained from the cameras underneath the N4 Toll Route underpasses indicates that there is animal activity underneath the monitored underpasses.

The data show that the camera traps have captured a total nine mammal species of both wildlife and livestock utilising the monitored structures. These comprise A–Common Reedbuck, B–Serval, C–Large Sotted Genet, D–Cape Porcupine, E– Water Mongoose, F–Yellow Mongoose, G–Cattle, H–Slender Mongoose and I–Feral Cat (see Figure 3 below).

Figure 3: Mammal utilising the monitored underpasses on the N4 Toll Route

From knowledge of other studies that are like ours, we had expected mainly mammal species to use the underpasses; however, data from this project also show that other wildlife taxa (e.g., birds), utilise the underpasses (some for crossing, nesting, and feeding; Figure 4).

Figure 4: Hadeda Ibis utilising the underpasses on the N4 Toll Route

Conclusion

The project is running well although it is experiencing some minor delays 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 5: Thabo undertaking fieldwork for monitoring the camera traps