Project Update: March 2022

Objective 1: Conduct Camera Trap Surveys

Linyanti Surveys

In October 2021, the TKPP team set up a large camera trap survey in the Linyanti system, a remote wetland in northern Botswana. The Linyanti system is fed by the Kwando River which flows from Angola, south through the Caprivi strip of Namibia and into Botswana, with the outflow forming the Linyanti river which flows towards the Chobe. On the Namibian side is Nkasa Rupara National Park, which forms the bulk of the wetland, and to the south in Botswana, are wildlife management areas which extend south until the meet the ephemeral Savuti channel in the east, or the Selinda spillway which extends westwards towards the Okavango Delta. A total of 63 camera traps were set up in this area in October 2021 (Figure 1), in an attempt to survey the large carnivore populations of this region. At the same time, one of our partners from Namibia, Kwando Carnivore Project, set up eight traps in the accessible parts of Nkasa Rupara National Park in Namibia. The number of traps in Nkasa Rupara had to be reduced due to difficulties with access in the park after a long rainy season. The survey ran for a total of approximately 50 days and was taken down in mid-December 2021. To keep stakeholders in the concession informed of the research, information pamphlets were provided to camps to be shared between managers and guides, and be made available to guests where requested. These outlined the objectives of the surveys and gave a short description of the methods used. While out in the field, the TKPP team also made effort to talk to guides from the different camps to discuss the project and explain how the cameras work (Figure 2).
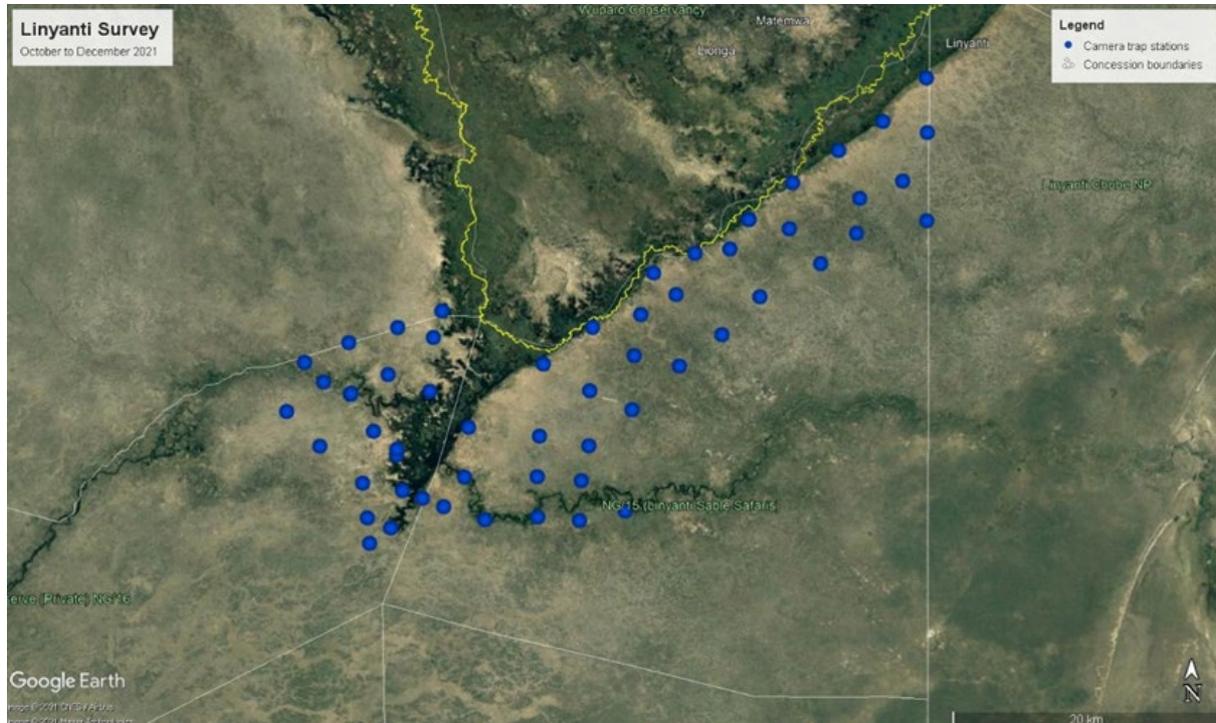

Figure 1. Placement of camera traps for the Linyanti survey on the Botswana side and also in Nkasa Rupara National Park in Namibia.

Thank you!

We are extremely grateful to the Department of Wildlife and National Parks for supporting this research, and our supporters, Great Plains Conservation, who have provided valuable ground support.

We would further like to express our gratitude to our sponsors from WWF and Rufford Foundation for supporting WildCRU in our research.

If you would like to find out more, please visit our website and follow us on social media:
www.wildcru.org
www.facebook.com/TKPProgramme/
www.twitter.com/wildcru_ox

If you would like to support the conservation of Africa's last remaining carnivore populations, please go to www.wildcru.org/support-us/
Thank you very much for your support! Through you we can conserve Africa's carnivore populations into the future!
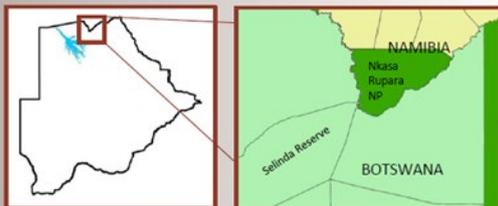
LINYANTI REGION CARNIVORE SURVEY

Part of Oxford University's Wildlife Conservation Research Unit, the Trans-Kalahari Predator Programme has been operating in Botswana since 2013. Our main focus is the conservation of large carnivores, with a special focus on African lions. Our objectives are two-fold: we aim to conserve carnivores at a local scale by providing practical solutions for human-carnivore co-existence, and at a landscape scale through the identification and conservation of wildlife corridors not only within Botswana, but across the entire Kavango-Zambezi Transfrontier Conservation Area.

Motion-controlled camera trap surveys are currently the most reliable and accurate method for surveying large carnivores, and are thus a valuable tool in producing an updated estimate of large carnivore population sizes in the Okavango Delta. Understanding the abundance and distribution of large carnivores throughout the Okavango ecosystem will play a crucial role in contributing to their conservation in this ecosystem and will help to guide land use management decision making.

Linyanti Region, northern Botswana. Light green indicate wildlife management areas, dark green National Parks, and yellow community conservancies

Carnivores are extremely difficult to count so population sizes are often unknown. Starting in 2017, the Trans-Kalahari Predator Programme embarked on a journey to survey large carnivores across the major National Parks and Reserves in Botswana, in close collaboration with the Botswana Department of Wildlife and National Parks. Selinda Reserve, situated in the Linyanti Region, is a key dispersal area for carnivores moving between Botswana and Namibia. It was therefore identified as a priority site for carnivore surveys to produce updated population estimates, particularly for leopard and lion. The data from the survey will also be used to set up a lion database for improved monitoring of trans-boundary lion movements between the two countries, and we are partnering with Kwando Carnivore Project in Namibia on this initiative, who will simultaneously survey Nkasa Rupara NP.

Left and right side images of the same leopard captured at a camera station. Capturing both sides of the same animal enables us to identify individuals.

Individual surveys are conducted over a period of eight to ten weeks, with the camera traps set up in a grid system, approximately 4km apart. Each camera station consists of two camera traps placed opposite one another and mounted on poles, at shoulder height of the target species. The two cameras enable us to capture images of both sides of the target species, which is vital for individual identification. Cameras are placed on roads or major game trails to maximise the number of animals recorded. The camera traps are relatively discreet, and usually not noticed, particularly during the day. At night, cameras have a white flash which helps produce high quality imagery.

(Left to right) African lion, African wild dog and cheetah captured during the camera trap surveys.

Cameras also allow us to determine the distribution of rarer nocturnal species such as aardwolf, civet and aardvark (left to right).

Figure 2. Front (top) and back (bottom) of the pamphlets provided to camps based in the concessions of interest. Pamphlets outlined the objectives of the surveys and explained how the cameras work so that guides and managers could be informed and share information with their guests where it was requested.

In December 2021, the data from the surveys was downloaded, and sorting of data and extraction of the necessary carnivore information will commence in early 2022. So far, we have recorded a reasonable number of large carnivores, including lion, leopard, spotted hyaena and wild dog (Figure 3). There were very few pictures of cheetah, but there was a good combination of both dry-land adapted small carnivores such as bat-eared fox and caracal in the drier parts of the concession dominated by Mopane woodlands, and wetland adapted small carnivores such as serval along the Savuti channels and Linyanti marsh (Figure 3).

Figure 3. Large and small carnivores captured on camera during the Linyanti Survey from top left: lion, leopard, spotted hyena, aardwolf, African wild dog, cheetah, caracal, bat-eared fox, serval and African civet.

Update Chobe National Park Surveys

In July 2019, the cameras from the Chobe National Park survey were taken down and returned to Maun. In August, the rest of the data was downloaded for the Nogatsaa and Riverfront surveys and uploaded to the Innoventix database so that the images can start being tagged by the automated system. For feedback to the stakeholders, copies of interesting pictures captured during the survey were shared with stakeholders involved in the survey, including lodges and the group of DWNP officers that were trained in the process of survey setup. Posters representing carnivores and nocturnal species captured in the park were also created for stakeholders and shared with them. Hard copies of these posters will be given to the Chobe DWNP office and Chobe Game Lodge in early 2022 as part of the feedback process (Figure 4). In the meantime, data sorting to extract carnivore pictures was started in November, and this will continue into 2022.

CHOBE NATIONAL PARK CARNIVORE SURVEY 2021

CARNIVORES AND NOCTURNAL SPECIES

Figure 4. *Poster of large and small carnivores and nocturnal species captured during the Chobe National Park survey in 2021. This poster was sent in pdf form to stakeholders and hard copies will be delivered in 2022.*

Objective 2: Create long-term stakeholder driven database of lions

Using pictures captured from the Linyanti survey, a database of lions will be created starting with the Selinda concession owned by Great Plains. Between October and December 2021, TKPP was working with Great Plains Conservation in discussing the setup and running of SMART for their monitoring teams in Linyanti and the northern Okavango Delta. Great Plains has since ordered rugged outdoor devices for use by their monitors, and the environmental manager has begun the process of setting up the SMART database for the company to start its use in the field. For carnivore data, TKPP and Great Plains will be sharing data collection methods to ensure compatibility of data collected in the field. The SMART database will also be linked to WildBook, an initiative of Tech4Conservation which used artificial intelligence algorithms to individually identify African carnivores from ID pictures submitted from the field and host a database of identified individuals. TKPP recently signed an MOU with Tech4Conservation, and in the last 2 months a similar MOU has been established between Tech4Conservation and Great Plains. Additional training in SMART database management took place in March 2022, led by Xia Stevens from Panthera. Funds towards this have been raised by TKPP's Project Coordinator Dr Jess Isden through the Lion Recovery Fund. For the Chobe Lion Database, IDs of lions from the camera trap surveys will be added to the database as data is sorted. Additional information and updates on the lions continue to be provided through the Chobe Lion Group.

Objective 3: Capacity building

The Linyanti survey was used as an opportunity to build capacity within the CLAWS team, with whom TKPP will be collaborating in 2022. Botilo Tshimologo, who is involved in the research activities with CLAWS, joined the survey team for the initial setup (Figure 5). This was used as an opportunity to share protocols for the practical setup of surveys, including practicalities around trap placement in the field such as considerations for site selection at pre-determined GPS locations, height of cameras, distance and angle between cameras, protocols for checking camera settings and the protocols for data collection at the camera trap site (including records of SD card numbers, camera numbers, GPS positions, habitat information and site pictures). As Botilo did work historically in the Linyanti area on wild dogs, he was also a very useful asset in providing information on and navigating the area during the setup process. Botilo also participated in the stakeholder engagement informing guides about the project and gathering information on the composition of lion prides and other predators in the area. In addition, Piet Tshekiso, who is a guide at Great Plains Selinda Concession, joined the TKPP team in the set -up of the camera traps on the Selinda Concession. His local knowledge of the predator movements in the area proved vital in placement of supplementary cameras in key areas which are known to be frequented. During this process, Piet also participated in the setup of cameras, and was taught the same protocols for survey setup and monitoring. Piet also assisted in the sharing of information with other guides in the concession throughout the survey.

For further training with DWNP, plans were discussed with the Director of Research, Malebogo Somolekae, for conducting additional training on data sorting, management and analysis of survey data. This has been planned for early 2022. Over the course of the last few months, the DWNP have been planning their own camera trap surveys as part of a National Leopard Survey which will commence in 2022.

Figure 5. Botilo Tshimologo from CLAWS participated in setup of the Linyanti survey as part of a capacity building exercise. Botilo will collaborate with TKPP next year to conduct surveys in NG11 and NG13.