

# Trail Camera Report, July 2022 for Community Conservation Fund of Namibia

MONTHLY REPORT

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# Report of Trail Camera Deployment in Ombonde Landscape

## Trail Cameras Assisting with Lion Monitoring in Ombonde

With support from the Community Conservation Fund of Namibia, the Lion Rangers Program, under the research lead of Dr. John Heydinger and Uakendisa Muzuma, has been deploying motion-activated digital trail cameras (trail cameras) in the Ombonde landscape of Northwest Namibia. This research landscape, centered within the adjoining core wildlife areas of Ehi-rovipuka, Omatendeka, #Khoadi-//Hoas, and Anabeb Conservancies, as well as the neighboring Etendeka Tourism Concession, is considered central to the survival and population viability of the desert-adapted lions within communal lands in northwest Namibia. Under the permission of Namibia's Ministry of Environment, Forestry and Tourism-Directorate of Scientific Services (MEFT-DSS), and with approval of the Namibia Council of Research, Science and Technology (NCRST; permit #RPIV16022022-1), Heydinger and Muzuma, with field assistance from the Lion Rangers, have begun deploying one hundred Xenon V7 Poacher Cams, procured from Panthera (USA) with generous funding from CCFN in Q4 2020. These cameras play a central part in community-centered research of lions and other large carnivores in the landscape. This includes identifying individual lions and grouping patterns, investigating intraguild carnivore overlap to better understand the related spatial ecology of carnivores in the landscape, monitoring the movements of known lions, identifying unknown individuals for potential collaring operations, and providing MEFT with ancillary monitoring of the landscape for law enforcement and wildlife security purposes.

## Camera Overview

As their relative costs decrease, and quality of digital images improves, trail cameras are proving an increasingly effective means of remotely monitoring cryptic and hard to access wildlife. Given the massive range of lions and other carnivores in northwest Namibia, trail cameras can play a central role in scientific management of these species for conservation and local benefits, as outlined for lions in the *Human-Lion Conflict Management Plan for Northwest Namibia*. As a non-invasive means of remotely monitoring wildlife, trail cameras are revealing unexpected insights into the lives of lions and other large carnivores in the Ombonde Research Landscape. Though the trail camera project is still in its early stages we are excited to share some early results, insights, and outcomes from the project.







## Camera Deployment

Cameras have been deployed in four areas so far: 41 cameras within the Apa-Carcappi river corridor (S 19.782770 E 13.967683) of Etendeka Concession (23 May - 20 July 2021), 82 cameras at the Otjiapa-Okavariona-Otjejekupe waterhole complex (S.19657538 E 13.966813) of Omatendeka Conservancy (9 October - 11 December 2021), and 82 cameras at the Otjomombonde-Omirimbue waterhole complex (S 19.718490 E 14.129904) of Omatendeka Conservancy (28 December 2021 - 14 March 2022). Currently 79 cameras are deployed in the Treehouse waterhole area (S 19.366999 E 14.343886 of the Hobatere Concession (25 July 2022 - present).

## Overview Stats

Since initial deployment on 24 May 2021, the trail cameras have been deployed for a total of 9,786 camera days. During this period they have captured:

- **photos of at least 16 individual adult and 5 juvenile desert-adapted lions**
- 526 photos of desert-adapted lions
- 683 photos of other large carnivores
- 3,185 photos of desert-adapted elephants (provided to researchers)
- XXX photos of black rhino (number removed - photos deposited with MEFT-DSS)
- 375 photos of black-faced impala
- 30,580 photos of prey species
- 37,028 photos of species of interest (carnivores, prey, mega-herbivores, & primates)
- estimated 100,000+ photos in total

Each photo has been examined and catalogued for relevant species. All photos are time and date stamped. Every camera deployment GPS location has been logged, saved, and input into a secure and double-backed up database. All camera images are double-backed up and have been lodged with MEFT-DSS.

Additionally, cameras have been deployed immediately prior to more than 12 lion collaring operations to identify key individuals, and are being used to monitor the frequency of pastoralists' use of waterpoints within the Ehi-rovipuka core wildlife area.



### Some Notes of Interest

The trail cameras have already played an important role in certain field operations. For example, camera data collected from the Otjiapa-Okavariona-Otjejekupe waterhole complex played a central role in the decision to translocate the male lion NPL-27 away from the Ehi-rovipuka farming area in June 2022. Previously, NPL-27 had been identified as the only adult male lion within the Otjiapa-Okavariona-Otjejekupe area from October-December 2021; collar data further confirmed this was the core of NPL-27's home range dating back to at least October 2019. NPL-27's sudden departure from the area in May 2022, in combination with Lion Rangers' work in the area, suggested he had been forced out by two younger, more fit, male lions who had dispersed from further east. Once NPL-27 killed livestock in Omatendeka and Ehi-rovipuka (the first record of him killing stock) the decision was taken by MEFT to have the lion translocated. Whereas previously he would have been returned to his original range, the data from the trail cameras and Lion Rangers strongly suggested the area was unsuitable. It was inferred that if NPL-27 was returned to Otjiapa-Okavariona-Otjejekupe, it would result either in him returning to farming areas, or being killed by the now-resident pair of males. Based on feedback from Lion Rangers' foot-patrols, and camera deployment at Otjomombonde-Omirimbue, the decision was taken for NPL-27 to be translocated to this area. In contrast to other, recent, translocations, this one has thus far been successful, NPL-27 appears to be setting up a new home range in this core wildlife area. We attribute much of the success stemming from this decision to critical data from the trail cameras and Lion Rangers.

Furthermore, trail camera data from Etendeka and Otjiapa-Okavariona-Otjejekupe, in particular, is causing a re-evaluation of brown hyena ranging patterns. Previously, brown hyena were considered to reside primarily near the Skeleton Coast, only moving in-land within Kunene infrequently. Communal conservancies west of and up to the escarpment were considered areas inhabited overwhelmingly by spotted hyena only. The similarity between spotted hyena and brown hyena tracks makes it challenging to differentiate the two based upon spoor. This, combined with both species' extremely cryptic habits means little is known about their ranging patterns in Kunene. Trail camera data from May-December 2021 revealed a greater number of brown hyena photos ( $n = 176$ ) than spotted hyena photos ( $n = 120$ ) captured. While data need to be analyzed further, and this represents a relatively small temporal sample, the rate of brown hyena capture is already causing a re-assessment of spoor identification among the Lion Rangers, as well as a reconsideration of both brown and spotted hyena spatial ecology in the area. More research and analysis are needed.





### Moving Forward....

The trail cameras will continue to play a central role in monitoring lions and other large carnivores in Ombede landscape and beyond, as directed by MEFT-DSS. The data collected from these cameras will play an important part in the forthcoming, first-ever Northwest Lion Population Survey, to be undertaken from August-September 2022. As time allows we anticipate producing at least two peer-reviewed scientific publications from the already collected data. The first will focus on spatial and temporal overlap of the carnivore guild within the landscape; we aim to answer whether the presence of lions or other large carnivores affects the likelihood of the presence of other members of the carnivore guild. This information could help farmers better anticipate the likelihood of conflict from certain carnivore species, given the presence or absence of their conspecifics. It will also provide important population management information for MEFT. The second publication will examine the spatial and temporal overlap of certain prey species, relative to the presence of large carnivores. To what extent do prey avoid pathways favored by lions and other large carnivores? This information will help researchers better understand patterns of avoidance by prey, and provide MEFT and communities with information on movement responses of prey and carnivores in relation to one another. Finally, we are working with other researchers to develop artificial intelligence means of identifying and classifying individual species within trail camera photos. This will save researcher time when it comes to data analysis, enabling us to spend more time implementing research and interventions relevant to desert-adapted lion monitoring, research, and mitigating human-lion conflict.







KFW

