



ZAMBEZE DELTA ECOLOGY
HOLISTIC ECOSYSTEM RESEARCH PROJECT



MONTHLY REPORT
SEPTEMBER 2019

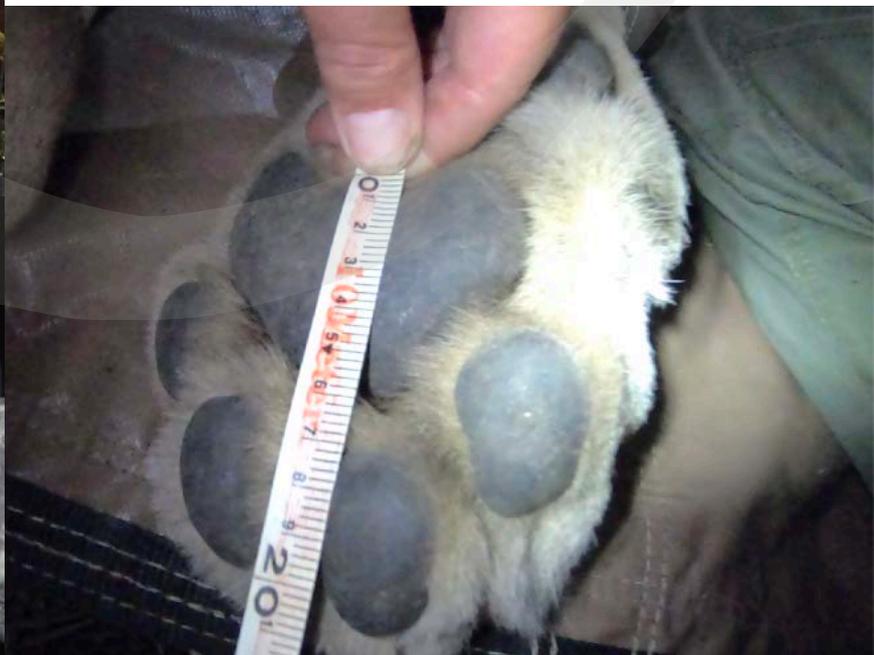
THE TEMBE 3

BACK ON TRACK

After more than one year since their release, four uncollared female lions have managed to elude our monitoring team. Three from Tembe Elephant Park and one from Khamab Kalahari Game Reserve in South Africa.

On 17 September 2019, Mark Haldane sighted three uncollared lionesses on the floodplain in Coutada 11. The team, with the assistance of Dr Joao Almeida, drove down to the floodplain at 18:00 to collar these three lionesses. After locating the three females, Dr Almeida darted the lions. As soon as the

lions were under sedation, we were able to take the necessary measurements of each lion and scan their microchips. From their numbers we confirmed that these three females originated from Tembe. What is even better news is that one of the females was pregnant! All lionesses were in excellent condition and we fitted each one with a GPS satellite tracking collar (3198, 3199 & 3200) to monitor their movements. We are extremely excited to get eyes on our three girls again, as each reintroduced lion represents a significant part of this projects' success!



SNARED LADY

THE (UN)LUCKY ONE

To successfully monitor the Zambeze Delta lion population, our team needs to follow the GPS collar movement of each lion every single day. From this data, we ask ourselves important questions such as: Is the lion moving alone or in a group? Is this lion moving normally? How far has this lion moved in the last few days? Is the lion in a high risk area? By answering these questions, we are essentially using GPS collar data (and each lion's individual history) to predict both the lion's behaviour and likely events that are taking place.

The *Snared Lady* (2777), found herself caught in another snare. In one night, 2777 moved over 10km (likely where she picked up the snare) and the following 3 days she showed limited movement. On 14 September, we flew to her location and saw that a snare was wrapped around her back right foot causing substantial swelling. So the team darted her, removed the snare and loaded her in the helicopter and brought her back to the floodplain in Coutada 11. Here we continued to treat her wounds and monitor her recovery from the anaesthesia.

Without the Cabela Family Foundation's long-term donation of regular aerial support to monitor these lions, none of this would have been possible! We hope this female stays out of trouble!



LIONESS 3071

ONE & ONE

Lioness 3071 has spent the past month raising her cub(s) in Coutada 14. We were fortunate enough to get a sighting of a cub on the 13th and again on the 21st of September. Based on these sightings, we believe she only has one cub in her first litter. Female lions typically give birth to ~3 cubs/litter, although it is not uncommon for females to have only one cub in their first litter. Usually with more experience, females are capable of successfully raising more cubs in a litter.



Figure A. The single cub of lioness 3071.

THE MAK PRIDE

Since the release, six female lions have occupied the north-east of Coutada 10 and south-east of Coutada 11. This pride is called the *Mak Pride* because all six individuals originated from Makalali Game Reserve in South Africa. All these lionesses display some degree of fission-fusion movements (i.e. merge into one group and then split up into smaller groups), which is quite normal behaviour for lions. This pride is doing exceptionally well, with 16 cubs already confirmed in the first year!



Figure B. Two lionesses (2774 and 2782) pictured here with two cubs. Based on collar data and visual observations, our lions prefer dense stands of wild date palm (*Phoenix reclinata*) as they provide sufficient shade and cover.

LION SPATIAL MOVEMENTS

SEPTEMBER

HOME RANGES & TERRITORIES

Lions live in social units called prides which occupy specific areas. These areas are known as home ranges and/or territories. A home range is larger in size and covers the lions' entire area, whereas a territory is smaller and is actively defended by scent-marking, vocalisation and aggressive encounters with other individuals. Lions have territories for two main purposes: (1) to secure food and water resources for themselves (and their cubs if a female) and (2) for males to obtain mating rights over females.

Based on the GPS collar data, we use 95% of GPS locations to estimate home range size and 50% of locations to estimate core range (or territory size). Although these estimations are not absolute, they do provide a very good idea of lion spatial movement.

ZAMBEZE DELTA LION RANGES

In September, the average lion core and home ranges were 14.1 and 40.0 km² respectively, which is smaller than previous months. This decrease in range size is likely attributed to the additional females (3201 & 3071) that gave birth to cubs in mid-August. Home ranges of lionesses with cubs (15.5km²) were almost half that of lionesses without cubs (37.7km²). When raising their cubs, lionesses typically keep their cubs hidden for the first few months. During this time, they will hunt and return to the den to nurse their cubs.

It is interesting to note the very stable areas held by the Mak pride, 2778, 3071 and 3204 (Figure C). The rest of the lions show a much more scattered distribution of GPS points. With one eye to the future, one can picture how additional prides may form and fill in the gaps that currently exist between pride ranges.

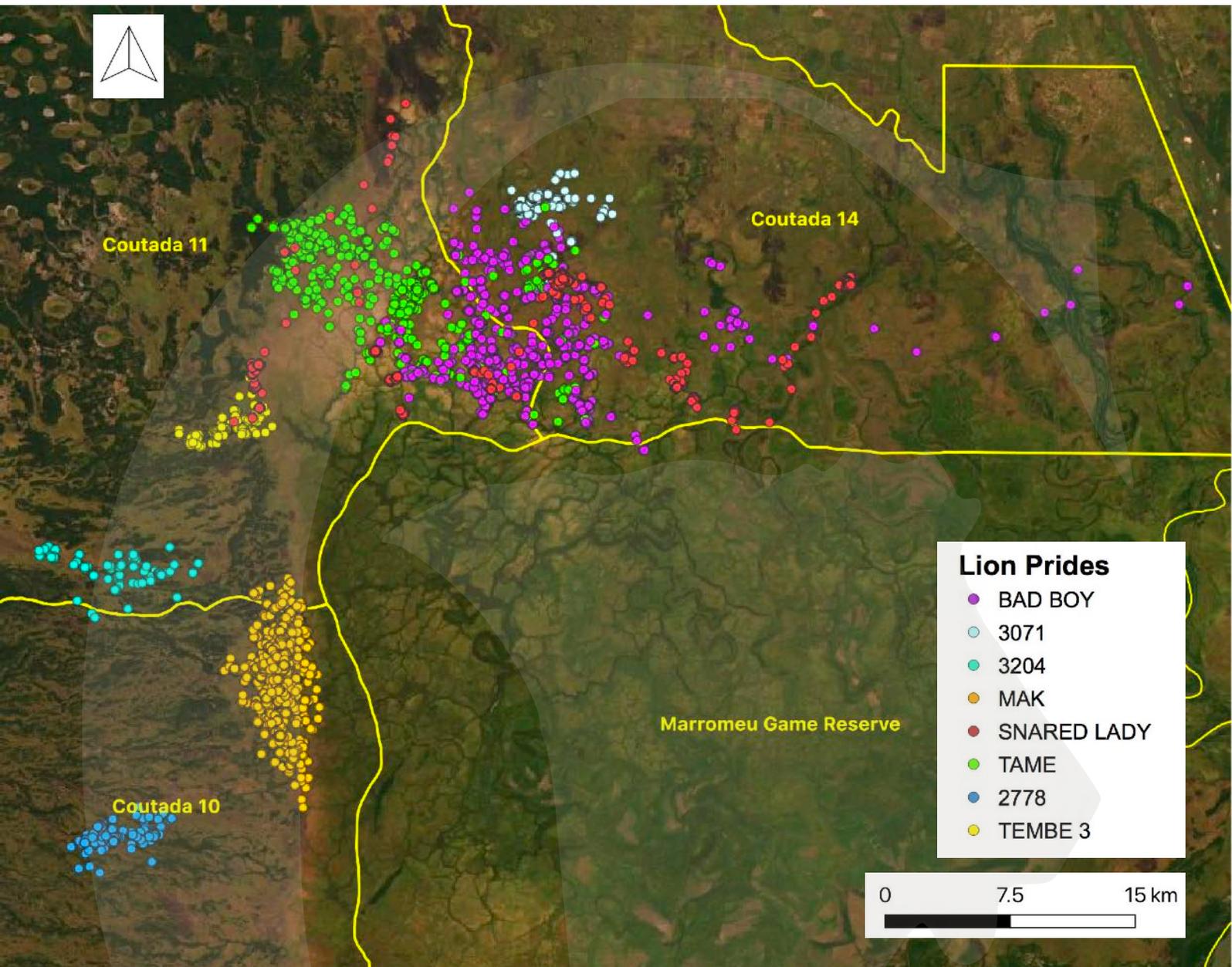
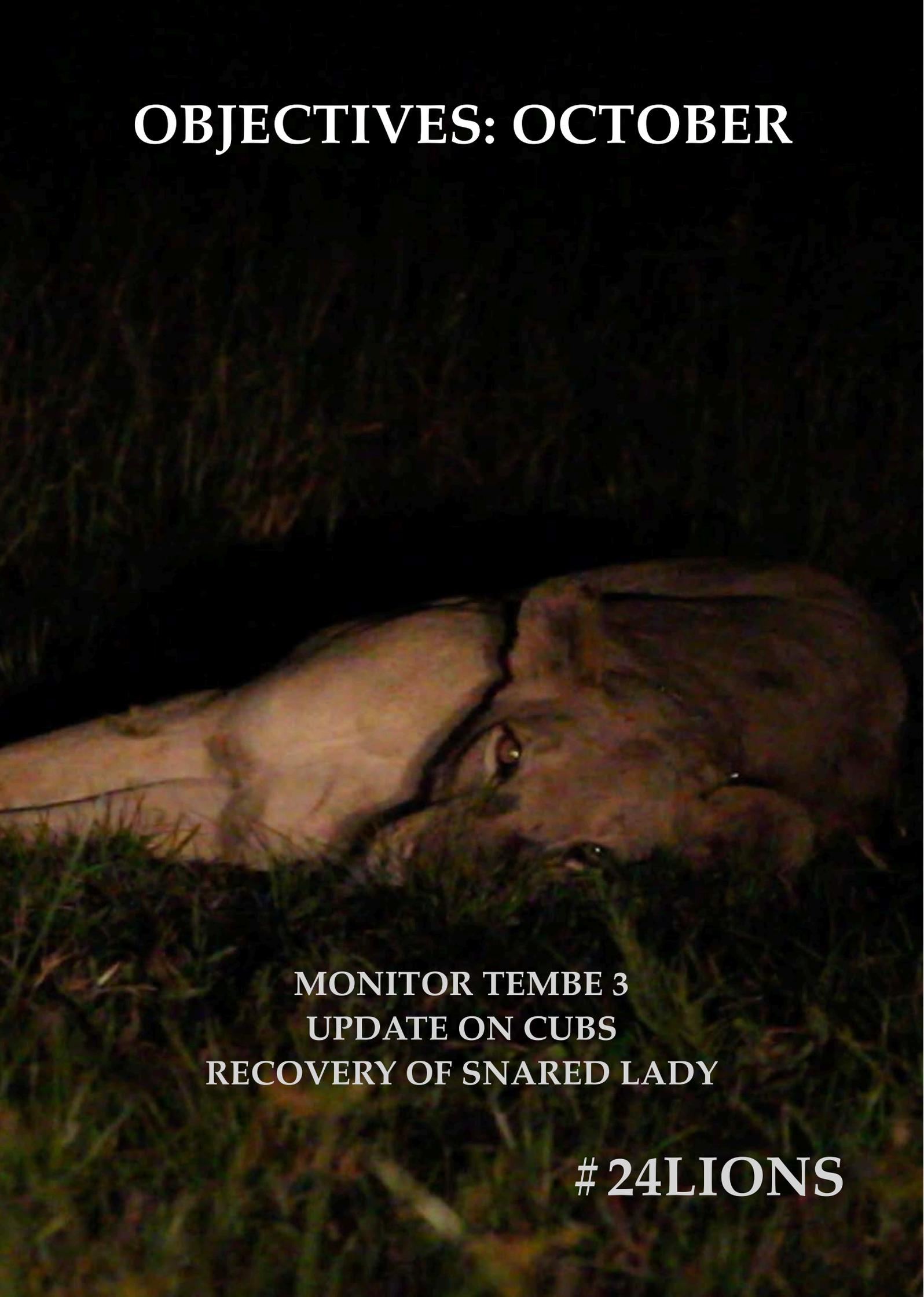


Figure C. Spatial movement data of all collared lions in September 2019. Note: (1) purple dots of male lion 3195 extending eastwards towards the Zambeze River, (2) recently collared Tembe 3 (yellow dots); & (3) red dots indicating Snared Lady's translocation from central Coutada 14 to one of the islands in Coutada 11.

STRANGE MOVEMENTS

Two outliers were observed this month. Firstly, *Snared Lady* (2777) was caught in a snare in Central Coutada 14 and was subsequently moved back into Coutada 11, hence the wide distribution. Secondly, the *Mkuze male* (3195) went on a long trek to the Zambeze River. Fortunately, he stopped about 2 miles before reaching the river, which is where he turned around and started walking back towards Coutada 11.

OBJECTIVES: OCTOBER

A close-up photograph of a lion's head lying on the grass at night. The lion's face is the central focus, with its eye visible and looking towards the camera. The background is dark, suggesting a nighttime setting in a savanna or similar environment. The text is overlaid on the image in white, bold, sans-serif font.

MONITOR TEMBE 3
UPDATE ON CUBS
RECOVERY OF SNARED LADY

24LIONS