

# MARA PREDATOR CONSERVATION PROGRAMME



QUARTERLY REPORT  
APRIL - JUNE 2018





**Contributors:** Niels Mogensen, Brian Schuh, Michael Kaelo, Dominic Sakat, Kosiom Keiwua, Kelvin Koinet, Caroline Ng'weno

**Cover photo:** Kelvin Koinet

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**[www.marapredatorconservation.org](http://www.marapredatorconservation.org)**

# EXECUTIVE SUMMARY

Since 2013, we have been dedicated at conserving large predator populations (lion, cheetahs and other large predators) within the Greater Mara Ecosystem (GME). The goal of the programme is to support stable, healthy predator populations in the GME, using research-driven conservation approach to provide scientifically-sound research recommendations. We work closely in partnership with our stakeholders from schools, safari industry, donors and partners to ensure that people are at the heart of conservation. Mara Predator Conservation Programme (MPCP) works across the entire Greater Mara – including the Maasai Mara National Reserve (MMNR), the Mara Triangle and the 16 community conservancies that buffer these key protected areas.

Through our interdisciplinary scientific research we aim to promote coexistence between natural populations of large predators on one hand, and on the other hand humans and their livestock.

Some of the highlights during this quarter include; retrieval of GPS collar on dispersing sub-adult male, antipoison campaign and annual kids game drive, among others. We continually strive to ensure a healthy large predator population based on sound science, our scientific associate Dr. Femke Broekhuis published a paper on Cheetah Cub Recruitment in the Mara. The paper highlights clear recommendations to the management authorities, and stakeholders within the Mara as to how to manager habitat and tourists vehicles at cheetah sightings.

Looking ahead, a key aspect of our work is to secure key lion and cheetah habitats to maintain breeding populations and ensure connectivity between Serengeti-Mara ecosystems and beyond.

We have structured our quarterly report to tell our story through our three core strategic areas: scientific research, community engagement in conservation, and conservation education. For more details see below.

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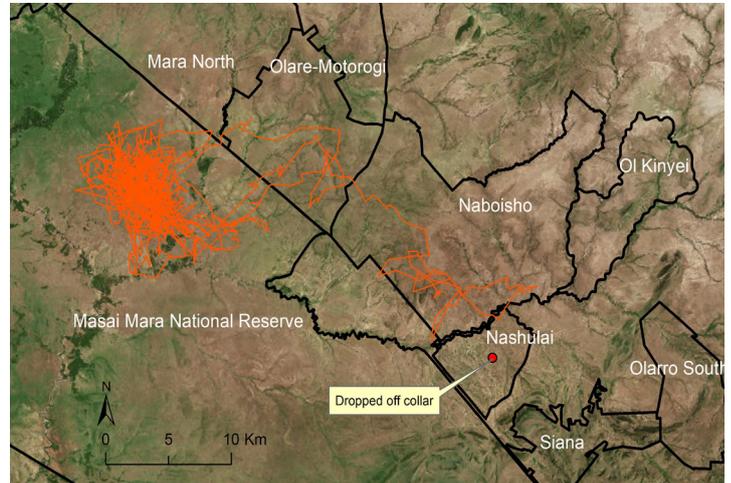
# RESEARCH UPDATES



# LION COLLARING

The last GPS collar has been retrieved successfully. Mendevu from the Topi pride was fitted with a collar last year in the National Reserve. He dispersed along with his two brothers and a sister, moving into Olare-Motorogi Conservancy and later into Naboisho Conservancy. In February however, the GPS component of the collar malfunctioned and so we lost track of him. Only the VHF signal was still working but it deemed difficult tracking Mendevu on the ground. The collar was programmed to drop off on June 1st and so we began a collar retrieval mission by means of an aerial search. We managed to get a location from the air and a field team was dispatched from the ground. We retrieved the collar inside Nashulai Conservancy (see map 1). The collar was intact, other than the break in the collar from the drop off. We can therefore assume that Mendevu was alive and well when the collar came off, but we do obviously not know whether he

was still with his brothers and sister. KWT's scientific associate Dr. Nic Elliot is in the process of analysing the collar data for all the dispersing sub-adult males and we will share these findings when they are ready.



Map 1 Data from Mendevu's collar, showing his movements. The red dot shows the location of where we retrieved the collar.



PHOTO: BRIAN SCHUH

A big relief after successfully retrieving the collar

We anticipate deploying more GPS satellite collars for lions, cheetahs, and wild dogs to facilitate obtaining fine scale spatial data that can be used to assess connectivity and identify corridors in the region. Additionally, such collars will allow us to determine what areas these predators are utilizing, where they are moving, and possibly why these movements occur, and what happens to them once they move outside the safety of protected areas.

# MORE DISPERSING SUB-ADULT NEWS

As we have been documenting many dispersing young males who have disappeared, hence one of the needs for collaring, we have also been documenting sub-adult male coalitions re-appearing in the protected areas after a spell of absence and we have also seen successful takeovers. A few examples of this include the coalition known as the Croton Island males, who dispersed from the Oloolaimutia pride in the Reserve and ended up with the Isiketa pride in Olare-Motorogi Conservancy, a Rekero male coalition, also from the Reserve, who took over all the prides in Naboisho Conservancy, a six male coalition, known as the 6-pack, born into the Moniko pride in Olare-Motorogi Conservancy, dispersing and establishing themselves with Marsh lions in the Reserve, and a couple of males from the Offbeat pride in Mara North Conservancy settling down with the Oloolaimutia pride. A recent and interesting finding has been from another dispersing group from the Offbeat pride. They were originally a group of seven males who left their natal pride, but four of them went to



*Two of the four dispersing Offbeat males*

the Reserve while two of them were seen in Olare Motorogi Conservancy. The group of four left the Reserve, entered Naboisho Conservancy and have been trying to take over the Moniko pride (the original old adult Moniko females have moved to Naboisho) resulting in the killing of an adult female and at least two cubs, one quite large.

The four males killed and ate the smaller cub, which may seem odd and raises the question as to why lions perform cannibalism? We have been seeing this trend a good number of times now, both from infanticidal males, mothers who feast on their dead offspring, and lions scavenging dead lions of any size. It might be more common than we realise.



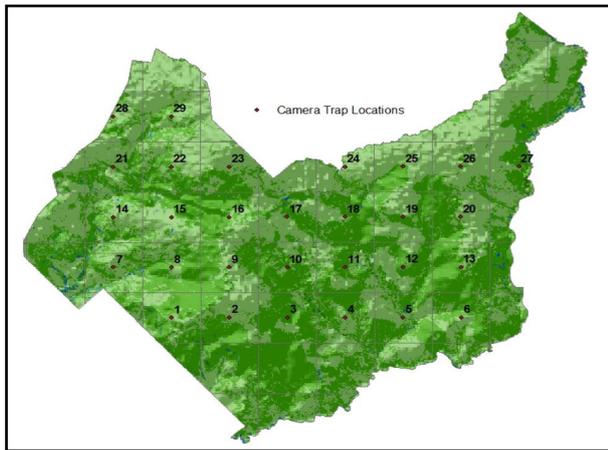
*Remains of cub eaten by lions*

The biggest challenge with investigating this type of behaviour is that it is difficult to document before it is too late, i.e. the lions are eaten before anyone can obtain the information. Plausible explanations include the obvious reason to obtain valuable nutrients and energy and also refusing hyenas, who lions compete with, a free meal.

# CAMERA TRAPS IN NABOISHO

Camera traps are often used to collect data on a wide variety of animals within a landscape. In addition, camera traps allow us to continuously monitor throughout the night, helping us learn more about the presence and distribution of predators, herbivores, livestock, and the potential threats that are otherwise difficult to observe.

This quarter MPCP launched a pilot study, deploying 29 camera traps for a three-week period in Naboisho Conservancy (see map 2).



Map 2



Camera photo 1 honey badger capture on camera trap

During this time the cameras have taken over 300,000 pictures capturing all the common herbivore species as well as rarely seen species such as honey badgers (see camera photo 1). The cameras have also captured several predator species such as black-backed jackal, spotted hyena and lions (camera photo 2). With the help of citizen scientists, we hope to expand camera trap studies into neighbouring conservancies, with the goal of supporting the intensive monitoring program.

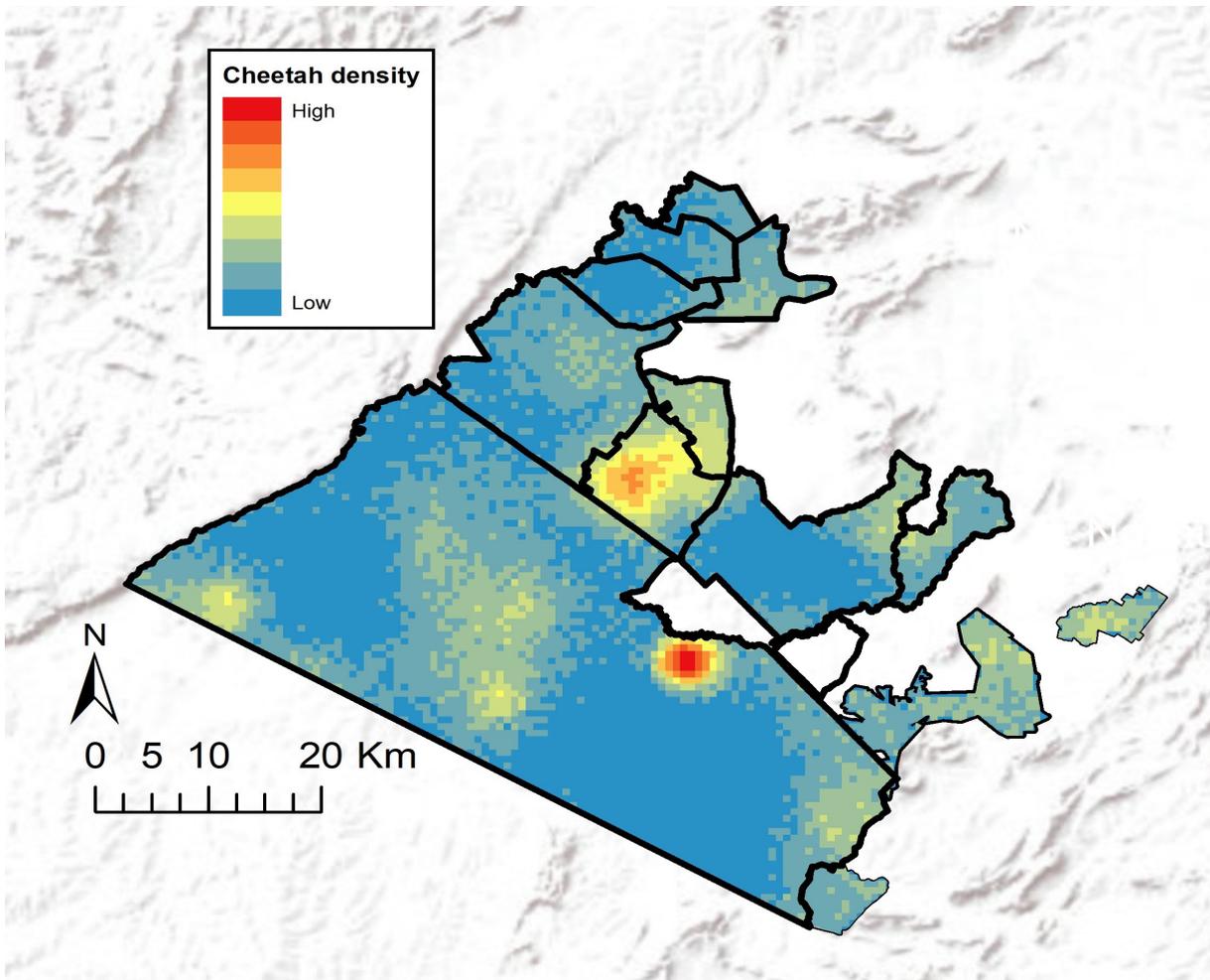


Camera photo 2 Lion captured on camera trap

# CHEETAH DISTRIBUTION

During this year's first intensive monitoring session (01 February-02 May) we recorded 148 sightings of 44 individual cheetahs >1-year-old in the National Reserve and the surrounding Conservancies. After dividing the study area into 1x1 km grid cells, we have been able to make a cheetah distribution map based on these cheetah sightings (see map 3), incorporating the number of days spent in each grid cell, and habitat as variables.

In order to accurately estimate cheetah density, a more complicated model needs to be used, taking into account additional variables, such as distance travelled per cell (effort), sex, and detectability. KWT's scientific associate Dr. Femke Broekhuis, will be working on this in order to come up with a true cheetah density estimate for this period.



Map 3 showing the cheetah distribution for the period of February 1st-May 2nd

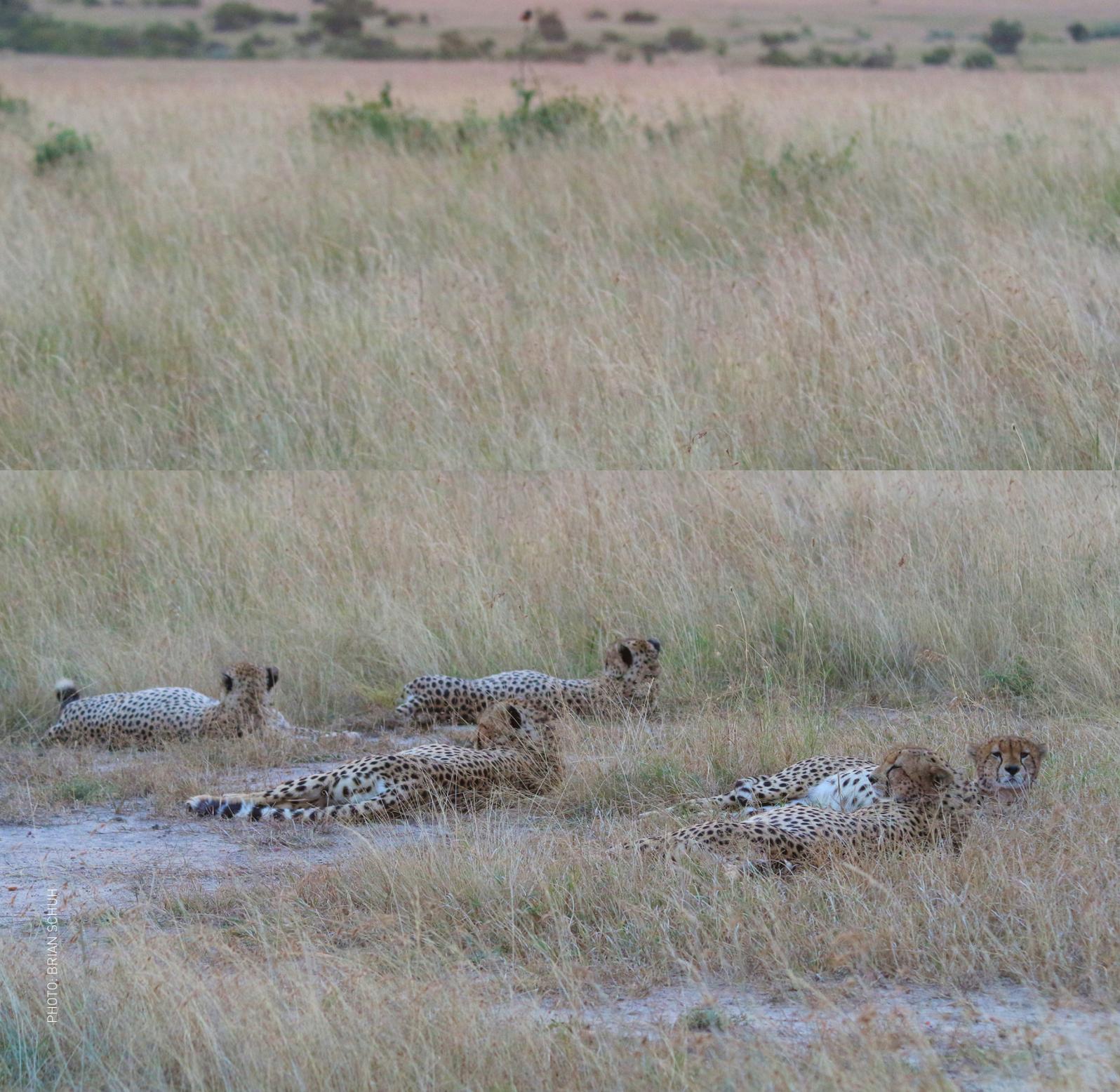


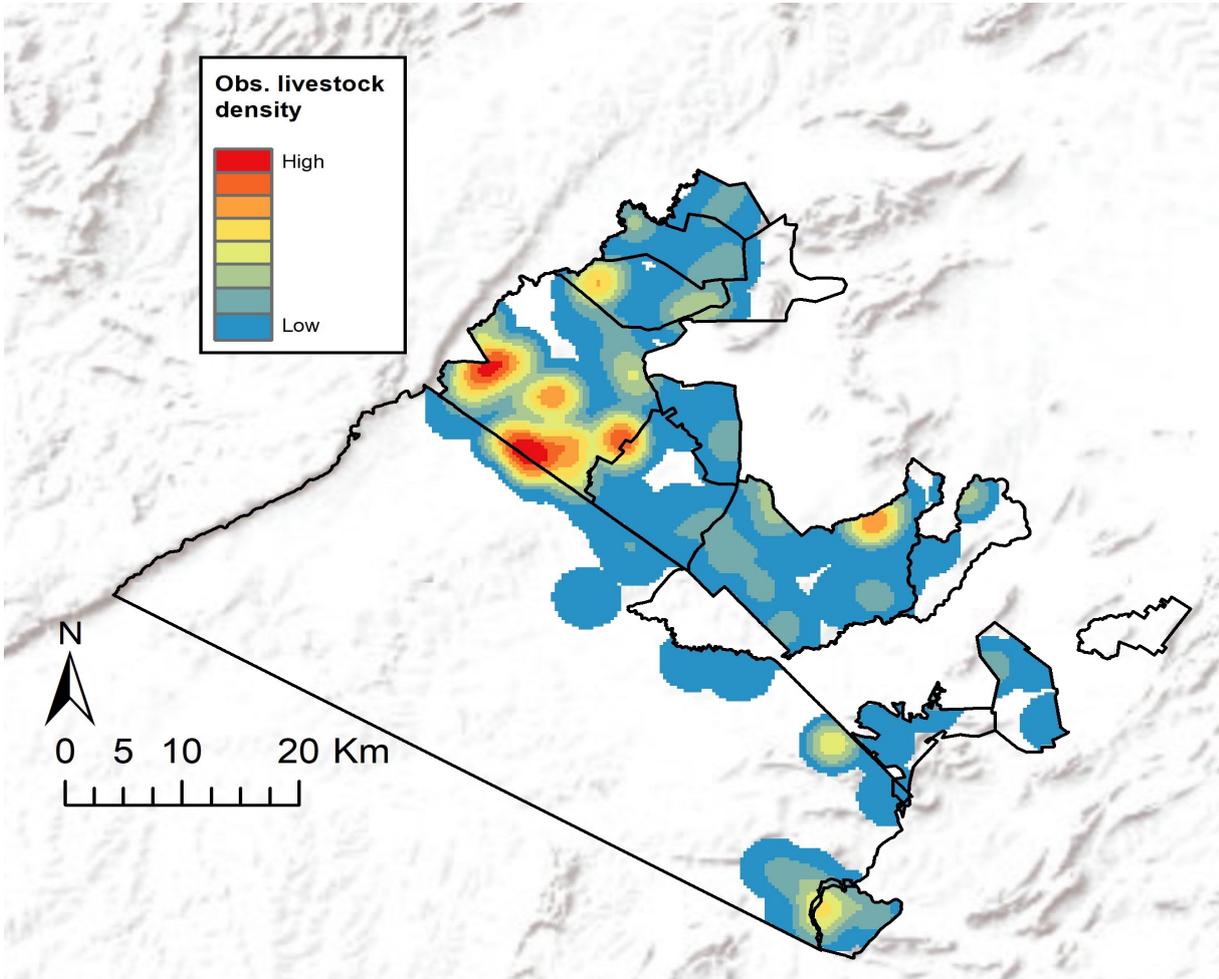
PHOTO: BRIAN SCHUH

### *Five Musketeers*

We identified two cheetah hotspots, one located in Olare-Motorogi Conservancy (OMC) and another in the National Reserve near the Tipilikwani Junction. One major reason for the dense distribution around the Tipilikwani Junction are the five Musketeers (coalition of five male cheetahs), who were sighted 13 times around this area during the intensive session. Understanding the distribution and density trends of cheetahs throughout the landscape is vital for their conservation efforts.

# LIVESTOCK DENSITY

We also collect data on livestock during our intensive monitoring periods. This enables us to make livestock density maps. The density is based on livestock sightings, correcting for time spent in each grid cell (see map 4 below).



Map 4 Livestock density

Coupled with the distribution and population estimates for all predators, we hope to identify the impact that livestock grazing has on the landscape and wildlife. In addition, by passing this information onto the conservancy management, we can help inform on proper management decisions for the wildlife and the surrounding community.

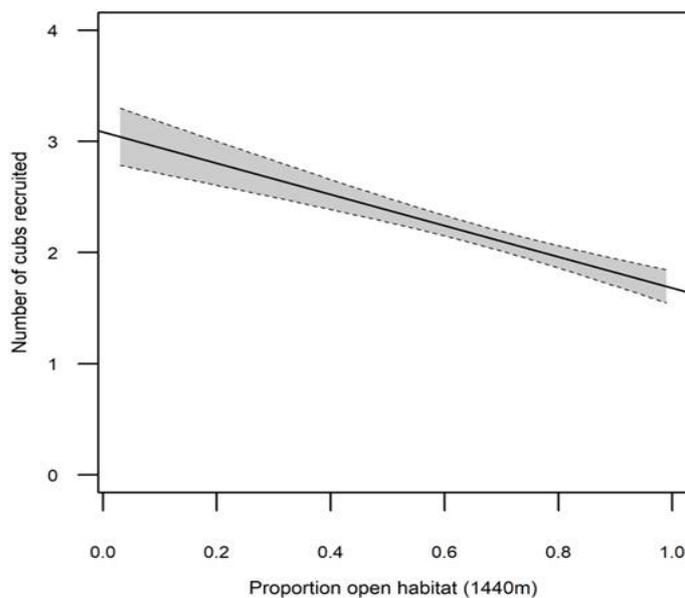
# PUBLICATIONS ON CHEETAHS

KWT's staff members have published two scientific papers this quarter, and from these papers management reports have been produced.

The first paper authored by our Scientific Associate in charge of cheetahs Dr. Femke Broekhuis, looks at the impact of tourism and habitat on the survival of cheetah cubs. The aim of the study was to determine the effect of habitat, tourist abundance, lion abundance and spotted hyena on the number of cubs that reach independence.

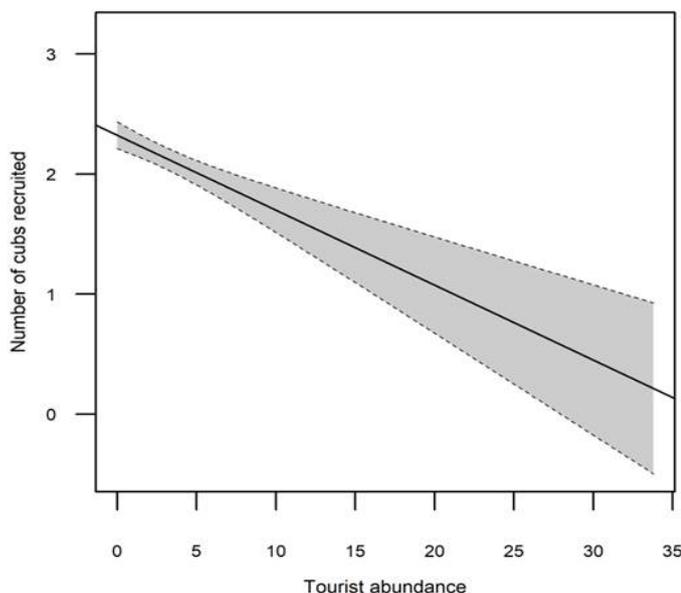
## Key findings:

The amount of open habitat and high tourist abundance both limited the number of cheetah cubs raised to independence. More specifically, cheetahs in open habitats on average raised fewer than two cubs to independence compared to approximately three cubs for mother's residing in denser habitat such as Acacia woodland



*Broekhuis, F. (2018) Natural and anthropogenic drivers of cub recruitment in a large carnivore. Ecology and Evolution.*

Similarly, females in areas with a lot of tourists on average raised one cub or less to independence compared to more than two cubs in low tourist areas. Neither lion nor spotted hyaena abundance was found to have an impact on cub recruitment



*Broekhuis, F. (2018) Natural and anthropogenic drivers of cub recruitment in a large carnivore. Ecology and Evolution.*

## Recommendations:

### Habitat Management:

While cheetahs are often considered to be an open plains species, denser vegetation is important for cub survival. In areas where habitat is managed, care should be taken that a diversity of habitats is available. For example, areas that are burned could have a negative effect on cheetah cub recruitment as by attracting female cheetahs with cubs to open areas where prey abundance is high, cub recruitment is likely to be low.

### Tourist Management

Cheetahs, especially with cubs, are a major tourist attraction and commonly attract large numbers of vehicles (during this study, we observed a case of 64 vehicles present at one sighting over a period of 2 hr). It is important that strict viewing guidelines are implemented and enforced. Actions that could be taken to ensure that tourists do not have a negative impact on cheetahs include:

- Allowing no more than five vehicles at a cheetah sighting
- Ensuring that no tourist vehicles are allowed near a cheetah lair (den)
- Ensuring that vehicles keep a minimum distance of 30m at a cheetah sighting
- Ensuring that noise levels and general disturbance at sightings are kept to a minimum
- Ensuring that vehicles do not separate mothers and cubs and that
- Cheetahs on a kill are not enclosed by vehicles so that they can detect approaching danger

While this study shows that high tourist abundance has a negative impact on cheetah cub recruitment, it is important to note that tourism also plays an important, positive role in cheetah conservation through, for example, the creation and maintenance of protected areas and wildlife conservancies and positively influencing attitudes and behavioural intentions of local people towards predators. It also demonstrates the importance of limiting the number of tourist vehicles at each cheetah sighting, like the Mara conservancies have implemented. However, the results presented here are worrying as growth rates for cheetahs inside the wildlife areas need to be high if they are to compensate for declines outside the wildlife areas.

The second paper, written by Britt Klaassen and Dr Femke Broekhuis, based on cheetah collar data, looks at identifying suitable habitats for cheetahs by determining whether cheetahs avoid or select for the following features:

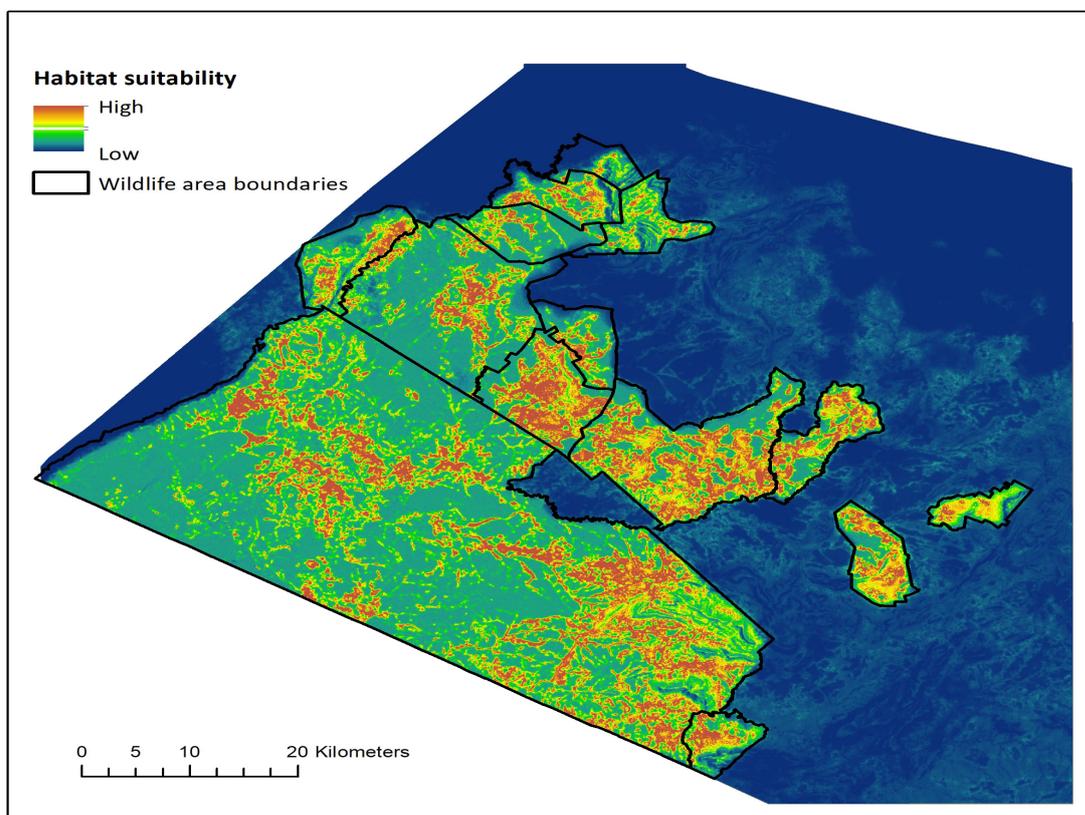
- Human pressure (includes settlements, livestock enclosures, dams, towns and agricultural land)
- Protected areas (MMNR and the surrounding wildlife conservancies)
- Semi-closed habitat (includes Acacia woodland, mixed scrub and bushes)
- Edge density (transition between open and semi-closed habitat)
- Slope (steepness)

## Key findings:

Their results show that cheetahs have a strong preference for protected areas and avoid human presence. This would suggest that cheetahs potentially consider humans as a bigger threat than other predators. What is striking about the data is that the collared cheetahs rarely left the protected areas despite frequently coming close to the boundaries. None of the protected areas are fenced making it possible for cheetahs to move into the human-dominated areas. However, a high number of human settlements are found on the borders of the protected areas, possibly creating a barrier. This barrier is however not a hard boundary as there is occasional movement of cheetahs in and out of the protected areas. We found that cheetahs preferred areas dominated by semi-closed habitat which could explain why cheetahs preferred the protected areas despite the high lion densities. Semi-closed habitat provides concealment, thereby minimising the possibility of being detected by other predators. By selecting areas that provide coverage, an individual may increase its fitness thereby increasing its longevity. This illustrates the importance of conserving dense vegetation patches both inside and outside protected areas. In addition, cheetahs selected for areas with a high density of edges between open and semi-closed habitat which could increase their hunting success as they use wooded areas to stalk and open habitat to pursue and catch prey. We also found that cheetahs avoided steep slopes probably as it limits their hunting ability.

## Recommendations:

The most suitable areas for cheetahs are found in Olare-Motorogi, Naboisho, Ol Kinyei and Olarro South Conservancies and in the East of Maasai Mara National Reserve and around the major rivers.



*Klaassen, B. & Broekhuis, F\*. (2018) Living on the edge: multi-scale habitat selection by cheetahs in a human-wildlife landscape. Ecology and Evolution. \*Joint first authorship*

Their findings show that protected areas are important for cheetahs and future conservation planning priorities could include the expansion of current conservancies and the creation of new conservancies and wildlife corridors to ensure connectivity. This is something that could be considered, especially in light of the increasing development in the area, including the erection of fences and the tarmacking of the Sekenani road. However, it is important to note that while increasing the amount of land that is protected can be beneficial to cheetahs, it can also have a negative conservation outcome if local people become resentful, especially if they are displaced or access to resources are restricted. Land protection schemes should therefore not only take the needs of cheetahs and other wildlife into account, but also those of the people, if conservation is to be successful. In addition, it is still believed that 77% of the current range of cheetahs globally lies outside formally protected areas. As cheetahs do predate on livestock, conservation efforts should foster a tolerance towards cheetahs and other predators outside the protected areas.

Based on the findings the following is recommended:

- If additional land is set aside for conservancies and corridors, then this should include a variety of habitat types, especially semi-closed habitat.
- The creation of too much open space, through for example overgrazing and burning, should be controlled.
- Development of a spatial plan for the Maasai Mara region which includes regulations on human development.
- Additional research should be carried out to determine areas that could be good for connectivity outside the protected areas.

For original articles, please go to the links here:

[Broekhuis, F. \(2018\) Natural and anthropogenic drivers of cub recruitment in a large carnivore. Ecology and Evolution. <https://doi.org/10.1002/ece3.4180>](https://doi.org/10.1002/ece3.4180)

[Klaassen, B. & Broekhuis, F. \(2018\) Living on the edge: Multiscale habitat selection by cheetahs in a human-wildlife landscape. Ecology and Evolution. <https://onlinelibrary.wiley.com/doi/full/10.1002/ece3.4269>](https://onlinelibrary.wiley.com/doi/full/10.1002/ece3.4269)



*Broekhuis, F. (2018) Natural and anthropogenic drivers of cub recruitment in a large carnivore. Ecology and Evolution.*



## COMMUNITY UPDATES

### **WILDLIFE POISONING RESPONSE TRAINING**

Following the success of the initial trainings for conservancy rangers, we continued with our wildlife poisoning response training. On 3rd and 4th May we organized training sessions for 16 Narok County Government (NCG) rangers and 20 Community Trainers of Trainees (ToTs) respectively. The training which featured both practical and theory sessions was aimed at ensuring these key people are able to respond to poisoning incidences and help in scene management.

Three trainings were organized to target the village representatives from Naramatisho Group Ranch, Sekenani and Kishermoruak areas between 16th and 18th May 2018, considering that these are some of the villages that have lately been reporting high incidents of Human Wildlife Conflict. Important to note is that the trained community ToTs were the

trainers for the three trainings, under minimal supervision. The major focus was on how to manage a wildlife poisoning scene, laying emphasis on the importance of reporting, cordoning off and decontaminating suspected poisoning scenes.

The participants were representatives of other villages that border the areas from which the community ToTs were drawn from. The 45 participants from these 3 areas are expected to act as contact persons and be able to report and attend to poisoning events that occur within their villages.

A PDF document on the key steps to follow in responding to Wildlife Poisoning incidences has been developed and shared to the participants to enhance their effectiveness while responding to poisoning incidences.

# ANTI-POISON CAMPAIGN

The use of poison bait is one of the widespread livestock predator eradication methods used in the Mara hence poses a threat to all the biodiversity in the ecosystem. Increasing awareness is one of the key strategies in reversing the trend by communities taking appropriate actions during incidences of livestock predation.

It's on this premise that Mara predators conservation programme (MPCP) in collaboration with Nature Kenya organized a wildlife anti poisoning campaign to raise awareness and sensitize the public on dangers and effects of using poison in killing wildlife, hence strengthen the actions geared towards elimination of poison use.

A seven day awareness campaign was conducted in seven strategic market centres between June 14th to 21st 2018, which consisted of two public meetings in each market centre.

One market for the livestock that comprised mainly of men and the other market for foodstuffs that comprised mainly of women and countable men.



The choice of markets centres was based on Mara landscape representation, wildlife poisoning hotspots and central meeting points for most people hence a wider audience. The centres comprised of Ngosvani in Majimoto Ward, Narok South Subcounty, Naikara in Naikara Ward in Narok West Subcounty, Ewaso Ngiro in Narok South, Oololomutia, Nkineji, Aitong and Olpusimoru on Kenya Tanzania border. The turnout was commendable and varied from market to market and ranged from 800 – 1000 per market.

The message was underscored by Buffalo dancers who are a group of 'morans' who advocate for conservation initiatives through folk songs and skits. The dances and skits were interactive and the public was indulged. Some of the community volunteers championing conservation initiatives were rewarded with T-shirts while 'stop wildlife poisoning' flyers were distributed to the general public.



# RECYCLED PLASTIC POLES BOMAS

Human wildlife conflict is a big threat facing conservation of big carnivores in the Mara. These conflicts, in most cases, occur in areas closer to protected areas where predators easily wonder into bomas. The result of these conflicts is loss of livelihoods by local communities as their livestock get killed by predators.

In 2017 the Programme helped establish one boma at James Sairowua's homestead in Aitong area and the results so far indicate that this boma, which had previously suffered a lot of depredation has since then recorded zero depredation cases over the last one year.

Following the success of this intervention, the

programme has in this quarter put up other two Recycled Plastic Poles Bomas (RPPBs) at Mzee Kool's homestead in Endoinyo erinka and at Ole Sitany's homestead at Olesere areas. These two bomas border Pardamat and Naboisho conservancies respectively and were selected based on the fact that they are prone to Human Wildlife Conflict. There are a number of advantages to putting up these RPPBs. Some of these include; plastic poles are not susceptible to damage by termites, they can be moved in case a person wants to relocate, they provide a substitute to cedar posts whose use has resulted in forest degradation in the Mau and Loita.



# ANNUAL GAME DRIVES FOR WILDLIFE CLUB SCHOOLS

Engaging children in conservation is one of our key objectives as a programme. Even though these young learners live next to wildlife areas, some have never seen some of these rare cats like cheetahs and lions. The only encounter they have had with the predators is perhaps back at their villages as problematic animals. To change this perception and try making them future conservationists, we have continued to engage them in various activities through Wildlife Clubs. Working together with Wildlife clubs of Kenya which is the umbrella body of all wildlife clubs in Kenya

This quarter we had some good time to interact with the members, having the curriculum for the year we were able to carry on the activities as planned. Among the activities done were; club meetings, clean ups, nature hikes, debate and the most favourite game drive to wildlife areas.

Conservation starts at their respective schools, we encourage them to conserve the natural trees and to plant new one to make the school beautiful and conducive. The wildlife club members are encouraged to lead

the environmental activities done at the six schools that we work with. Clean ups were done in neighboring villages and conservation knowledge shared to villagers to try to make the communities tolerant of carnivores.

We also managed to take more than 250 kids to see wildlife in various wildlife areas. This annual trip to either community conservancy or the reserve seem to be the most influential activity to kids. We also educate them on the grazing plan in conservancy, Predator proof bomas and also visit local air strips to help them appreciate how people fly from other continent to come and see wildlife especially carnivores.

We have seen the importance of these game drives since we started, kids were asked to write a composition/story about their visit to wildlife area and the results are amazing. Some never thought lions sleep most of their time and hunt wild animals not domestic animals as mistaken, some admire to be game warden as well as guides, all these are sign of change of perception admire or love wildlife.



# WILD DOGS BARAZA

Wild dogs are an important predator in the Mara, not only for their touristic value but also for the role they play in predator-prey interactions. More recently there has been a lot of sightings of wild dogs in the Mara; predominantly around Olderkesi area, Siana and Pardamat.

The community that lives in the above areas are predominantly pastoralists and solely depend on their livestock for food and income. The presence of wild dogs in such areas brought about issues of Human Wildlife conflicts; where people complain that their

livestock are being killed by wild dogs. On the other side, there has been interest from the tourism industry on such areas as well as our conservation objectives to ensure their survival.

On 11<sup>th</sup> April, we organized a baraza at Olpusimoru area to discuss emerging issues related to wild dogs in the area. We involved Olderkesi conservancy in the baraza as the area lies in their jurisdiction. The baraza which was attended by 17 participants was a key step towards close collaboration with community members in conservation of wild dogs in the area.



# ACKNOWLEDGEMENTS

The Mara Predator Conservation Programme activities were made possible by the support of our various stakeholders, partners and donors. We thank individuals from all of these organizations for their foresight, generosity, and patience. Throughout it all, we have endless gratitude to our donors and supporters for continuing to support us. Without you, we would not be here to make a lasting change for both large predators and people in Kenya. Specifically, we wish to thank WWF, and ManCo for their continued enthusiasm and support for our research work.

Lastly, we are more proud of our growing team who not only works tirelessly, but demonstrates the sense of conservation ownership that we are encouraging throughout the area.



**Mara Predator Conservation Programme**  
info@marapredatorconservation.org | www.marapredatorconservation.org

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