

MARA PREDATOR CONSERVATION PROGRAMME



ANNUAL
REPORT | 2019



KWT
KENYA WILDLIFE TRUST

EXECUTIVE SUMMARY

THIS ANNUAL REPORT covers the progress of the Mara Predator Conservation Programme (MPCP) in 2019. The overall goal of MPCP is to support stable, healthy predator populations in the Greater Mara Ecosystem by providing scientific evidence for conservation action. The programme is strongly guided by Kenya Wildlife Trust's value proposition of being driven by science and focused on people.

The 12 months of 2019 included a 3 months' intensive monitoring session for our research team which is aligned with the ongoing National Lion Survey. We recorded 249 lion and 89 cheetah sightings during the monitoring session. The updated lion & cheetah densities will be published in the 1st quarterly report of 2020.

For the first time ever, we have documented wild dogs denning, breeding and raising puppies in Mara. Though we were not successful in collaring the wild dogs, we got some valuable insights on their behavior using camera traps and the details are discussed in this report.

We are delighted to have successfully acquired new predator collaring permits, and in 2020 we hope to collar lions and wild dogs in our efforts to gain more insight into predator spatial ecology.

We continued to implement community outreach initiatives that are informed by research findings. Our work is aimed at increasing the understanding and appreciation of the roles of predators in the Mara ecosystem and reinforcing positive attitudes towards wildlife in the Mara.

In 2019, we built 4 predator-proof bomas, carried out anti-poison campaigns in 14 markets, held 5 poison response trainings and 13 community barazas. All these were aimed at reducing human-wildlife conflict instances.

Our wildlife clubs witnessed tremendous growth with the addition of 3 more schools in the list of schools that we support. We are now supporting 9 schools. For the first time, we took 45 club members to a conservation trip to Lewa Wildlife Conservancy and held the first Wildlife Clubs Open Day.

On an operational level, we welcomed new team members to our research team. Grace Cheptoo and Timan Saitoti. Grace was interning with us in 2019 and Saitoti has worked with us previously. They both bring fresh impetus to our team.

Lead authors: Niels Mogensen & Michael Kaelo

Contributors: Grace Cheptoo, Timan Saitoti, Lydia Cornu, and Dominic Sakat

Maps and graphics: Niels Mogensen

Photographs: Niels Mogensen, Michael Kaelo, Dominic Sakat

Design & Layout: David Mbugua

Printed in March 2020 by the Mara Predator Conservation Programme Maasai Mara, Kenya

www.marapredatorconservation.org

CONTENTS

EXECUTIVE SUMMARY

RESEARCH UPDATE

COMMUNITY UPDATE

APPENDIX

Intensive Monitoring

Lion and cheetah sightings

Lion prides overview

Cheetahs

Wild Dogs

Livestock activity

Community engagements through Awareness creation

Community Barazas

Schools Outreach Program

Annual art competition

Annual Holiday Kids Camp

Twende Porini

Wildlife Clubs Open day

Annual game drives

Wildlife Clubs members Visit Lewa

Human Wildlife Conflict Mitigation measures

Recycled plastic poles bomas

Exploring new methods Lion deterrent lights & the i-cow experiment

Poison Response Trainings

Anti-poison Campaigns

Looking into 2020

Acknowledgments

3

6

16

23

24

25



Drove 8,952 km during the annual intensive monitoring



Finalised the 2018 lion and cheetah figures



Carried out 1 intensive monitoring session



340 people equipped with poison response skills



4 predator-proof bomas built



1st ever conservation trip for 45 wildlife club member to Lewa Wildlife Conservancy

2019 KEY HIGHLIGHTS

RESEARCH UPDATE

Intensive Monitoring

In 2019, we carried out only one intensive monitoring session aligning it to the ongoing National Lion Survey. The monitoring spanned the period between August 01 - October 31. Having only one session per year will also allow us to provide updated predator figures quicker, and we expect to have the 2019 lion and cheetah density estimates published in the first quarterly report of 2020. We have four years worth of good data (2015-2018) with two surveys per year, which will enable us to include seasonality when we analyse interactions between and across predators, livestock, prey and tourism.

During the three months intensive monitoring period of 2019, we drove a total of 8,952 km , and our effort is displayed on figure 1.

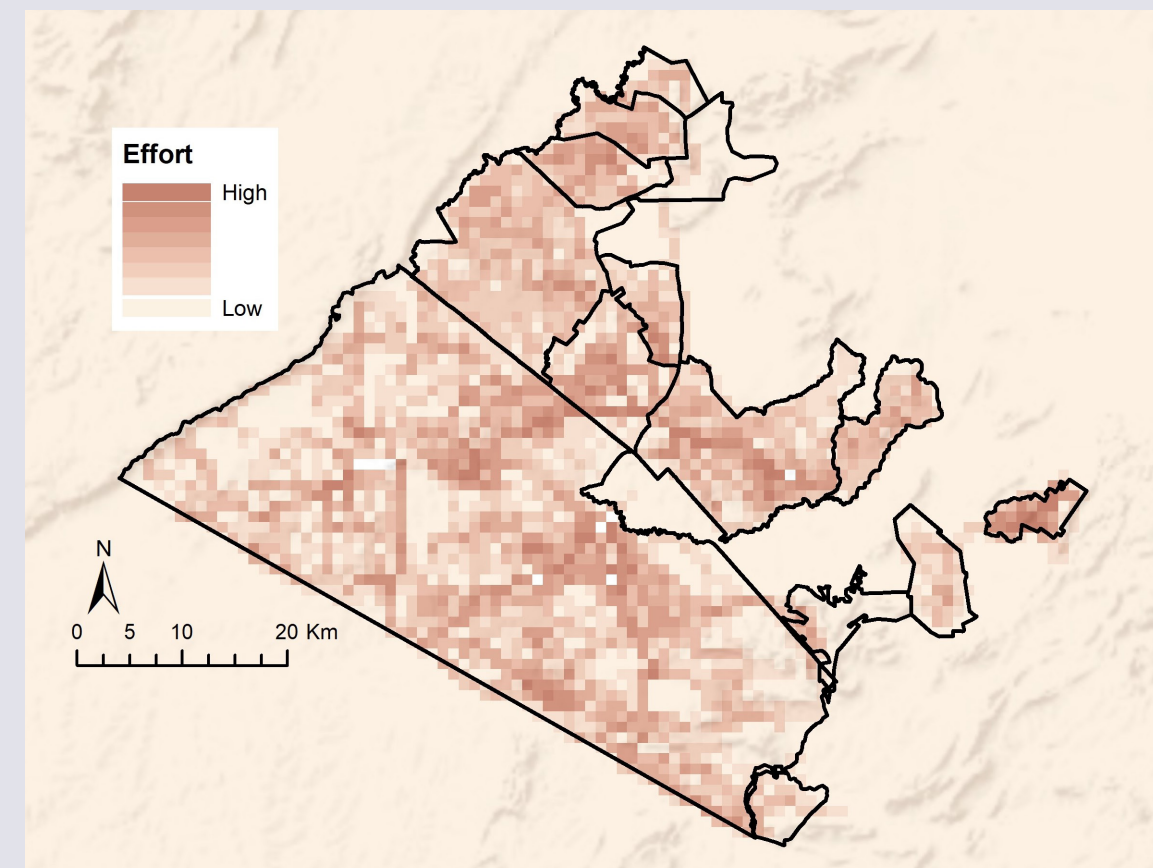


Figure 1. 2019 intensive monitoring effort map

Lion and cheetah sightings

We had a total of 249 lion sightings and 89 cheetah sightings over the three month period, and their distribution can be seen in figures 2 and 3.

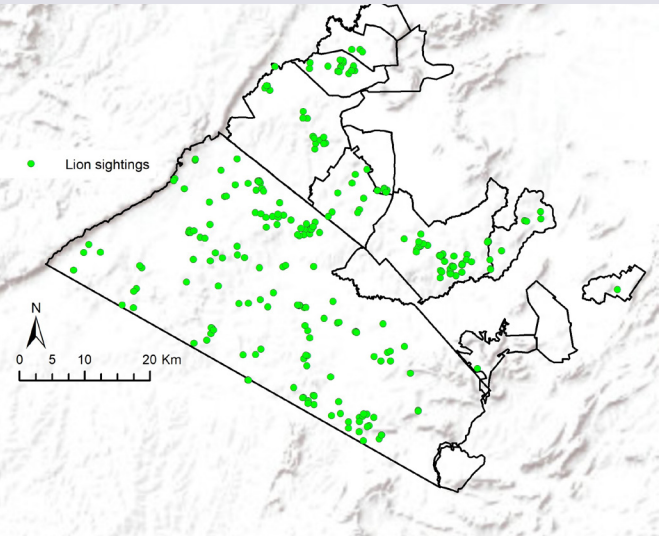


Figure 2. Lion sightings

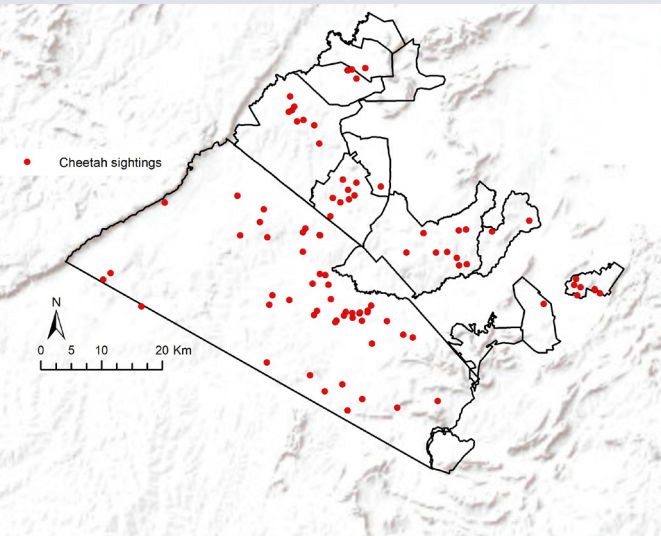


Figure 3. Cheetah sightings

Using our lion and cheetah sightings and accounting for our effort as shown in figure 1, enables us to calculate indexes of abundance. The maps produced are weighted according to the number of kilometers driven per area and the number of individuals seen.

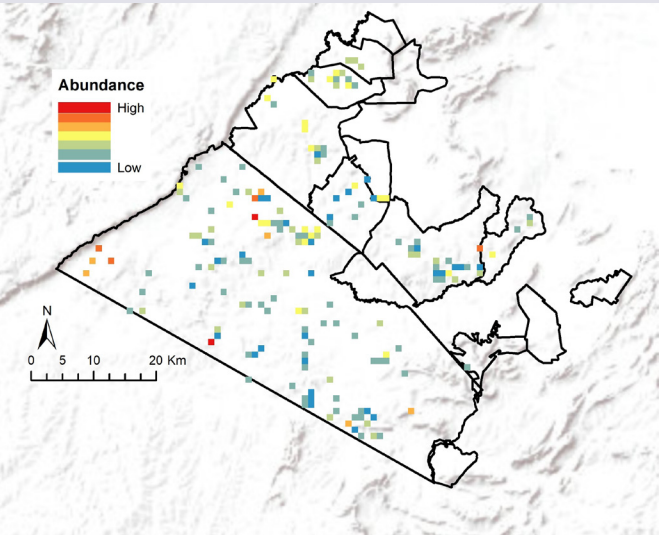


Figure 4. Lion index of abundance

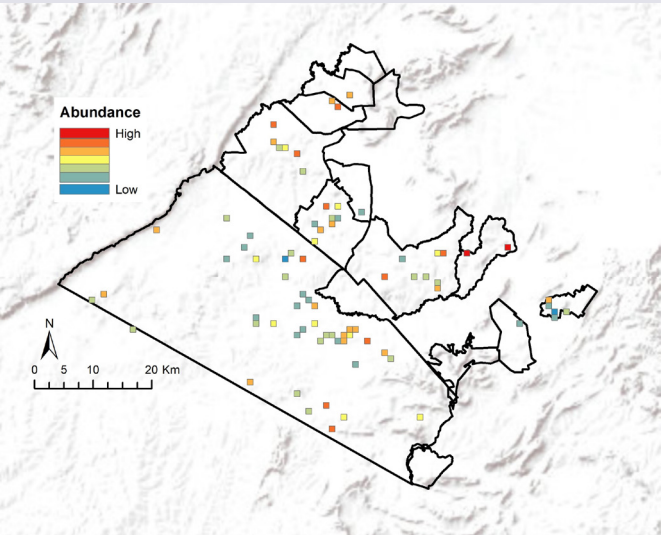


Figure 5. Cheetah index of abundance

MPCP uses the spatially-explicit capture recapture method to gain insight into lion and cheetah densities. We will provide 2019 densities and heat maps for these two species in our first quarterly report of 2020.

While we wait for these densities, we can provide numbers of unique individuals of lions and cheetahs that were sighted during the survey. This is summarised in the tables below.

Search effort (km driven)	Lion sightings	Lion detections*	Unique individuals >1 year old	
8,952	249	894	Male	113
Lions			Female	182
			Total	295

Table 1: Summary of lion sightings and numbers during the Aug01-Oct31 2019 survey
*Lion detections is the total count (including duplicates) of all lions seen

Search effort (km driven)	Cheetah sightings	Cheetah detections*	Unique individuals >1 year old	
8,952	89	246	Male	26
Cheetahs			Female	20
			Total	46

Table 2: Summary of cheetah sightings and numbers during the Aug01-Oct31 2019 survey
*Cheetah detections is the total count (including duplicates) of all cheetahs seen

Lion prides overview

Below is a map of the study area covered by MPCP which highlights the different lion pride locations. The map does not include all the breakaway groups that have been witnessed in the Mara. Whilst different names are used to identify the prides, we have indicated in this map the pride names assigned and used by MPCP in our day to day work.

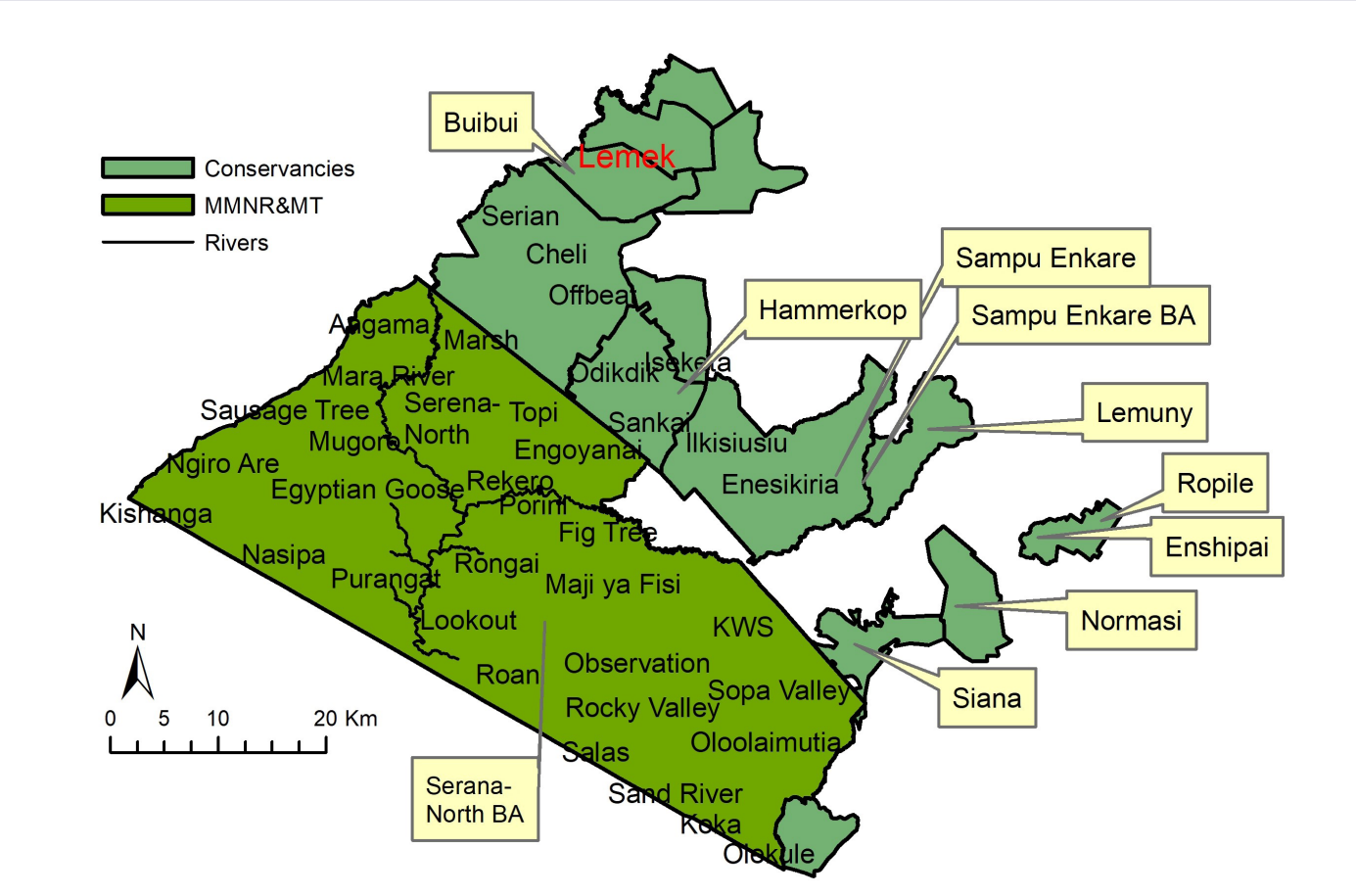


Figure 6: A simplified illustration of how the lion prides are distributed across the Mara Conservancies and the Masai Mara National Reserve



Cheetahs

Cubs births and survival

In 2019 we recorded the births of 30 cubs from eight different females whereof 17 cubs are still alive. Approximately 50% of these cubs have attained one year making their survival chances higher.

The programme recorded two females which produced large litters of cubs. Kisaru, who resides



Figure 7: Kisaru with cubs

in the northern conservancies, came out of her lair with six cubs and all are still alive and well, now seven months old. Siligi, from the Reserve, showed herself with seven cubs in November but only two cubs from that litter are still alive. We have previously documented that cheetah mothers raise more cubs to independence in the Mara conservancies than in the Reserve, which is related to tourism abundance and habitat ([for more details please see our second quarterly report from 2018](#)).

New cheetahs & dispersal events

We recorded six new individuals in our database, five from two different male coalitions, and a single male. We sighted the first coalition of three males in October in the central part of the National Reserve. They were still young and shy and had probably recently dispersed from the Serengeti. We later observed them in Olare Motorogi, Naboisho and Olkinyei conservancies respectively, and they are no longer shy of vehicles. The second coalition of two males appeared in November. These males appeared fully matured and were not as shy as the three youngsters, and we also assume that they came from the Serengeti side. The single male was first recorded in the Reserve, a dispersing youngster from the Serengeti, who later teamed up with Selenkei's sub-adults. We recorded four dispersal events totaling 13 individuals from resident mothers, whereof one died.



Figure 8: A new coalition of three males, who we have named the Chai males, after the area where we first sighted them

Mortality events

Siriwa

The first sighting of Siriwa from our records was in July 2010 from Naboisho Conservancy, where he was seen regularly. He became an impressive male over time but over the last few years with the emergence



Figure 9: Our last sighting of Siriwa

of larger male coalitions, it became difficult for him to hold on to his territory. He started exploring new territories in Olare Motorogi Conservancy and further up in Mara North Conservancy, where he later was frequently sighted. In April, we found him dead in Mara North Conservancy and from the large bite marks on his head we suspected lions were responsible for his death. He was approximately 11 years old when he died, which falls within the average lifespan of a cheetah.

Sub-adult cheetah deaths

We also had a couple of unfortunate incidences of cheetah deaths caused by human recklessness. Two young sub-adults were hit and killed by speeding vehicles on the public road that runs through Olarro Conservancy. One of the victims was one of Kiraposhe's female offspring, who was killed in May, and the other one was a daughter of Natasha, who was killed in October, shortly after she and her two siblings separated from their mother.



Figure 10: Natasha's daughter with an injury that resulted in her death

Wild Dogs

2019 saw some key developments in MPCP's baseline study on African wild dogs. We analysed results from the social survey carried out in the north of Mara North Conservancy and its surrounding area. This was done in order to investigate trends in community attitudes towards wild dogs. It emerged that the potential of wild dogs to attract tourists and therefore provide benefits to the local communities through tourism was a key determinant in people's tolerance of the wild dogs. There was a notable difference in people's perception of the risks associated with the return of wild dogs based on the respondents' gender, occupation and residence within or outside the protected area boundaries. Overall, the survey showed willingness to support conservation and tolerate wild dogs. Moreover, MPCP engaged a community field assistant to track wild dogs

with the help of the local community, and to inform the community about wild dog conservation. This allowed us to document wild dog whereabouts and collect data on sighting locations, conflict incidents and possible den locations. Members of the MPCP team actively engaged with camp managers, tour guides and rangers in order to keep them informed of the findings of the project and ensure regular communication regarding sightings.

The programme started obtaining camera trap footage of the Lemek/Pardamat pack active around the Mara North / Aitong / Lemek areas. The photos allowed us to continue working on developing a database of wild dogs in the Mara ecosystem. In addition, we confirmed that the pack is made up of four adults, one of whom is female.



Figure 11: Wild dog activity at night

Lastly, the night photos captured of the pack corroborate the findings from studies in Zimbabwe, Botswana and Laikipia that wild dogs are not solely diurnal animals. It was thought that wild dogs, like cheetahs, had evolved to be diurnal in order to avoid competition with larger predators who are also active at night. However, given these observations of nocturnal behavior, it has to be assumed that the benefits of nocturnal activity offset the risks of encountering night active predators and competitors.

The camera traps were able to capture a heavily pregnant member of the Lemek wild dog pack, allowing the team to concentrate their efforts to locate an active den in the surrounding areas. Once the den was located, camera traps were strategically placed around it eventually capturing nine healthy puppies. Unfortunately, we were unsuccessful in deploying a GPS collar on one the pack members, despite several attempts at doing so. This was due to the rugged, sloping terrain in which they chose to den and the amount of vegetation cover in the area, which prevented us from getting a clear sighting of them. After 9-10 weeks of denning, the pack left their den and returned to their nomadic habits, making it nearly impossible for us to organise the presence of the KWS vet team to deploy a GPS collar.



Figure 12: Pregnant female

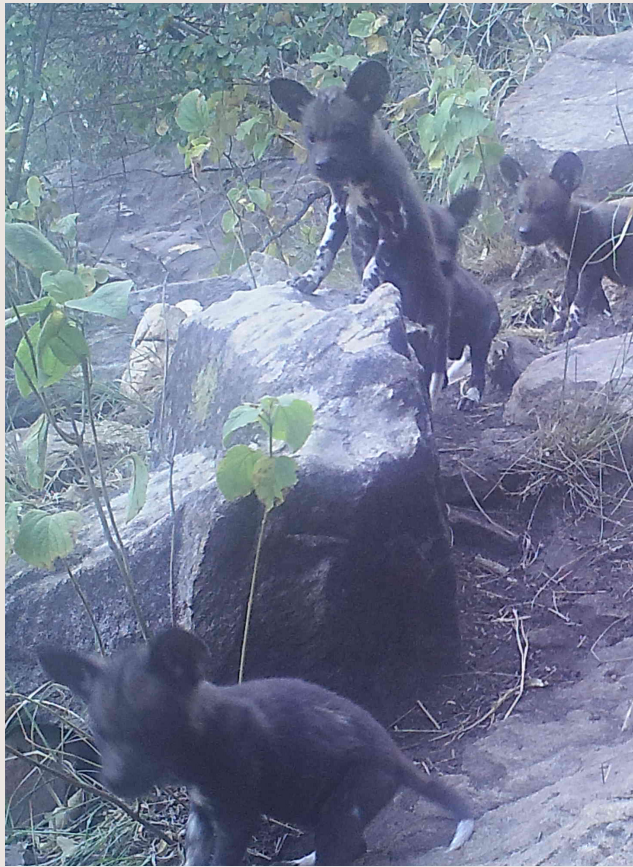


Figure 13: Puppies at the den

The heavy rains and floods toward the end of 2019 made it exceedingly difficult to keep track of the Lemek pack. They were last sighted on January 1st 2020 in Pardamat Conservation Area, with their nine puppies alive and well, but are allegedly causing conflict now and then.

Studies show that wild dogs have a limited ability to inhabit human dominated landscapes: where human densities are high and habitat consequently fragmented, they can encounter hostile community members, snares set to catch wild ungulates, high-speed traffic, and domestic dogs harboring potentially fatal diseases. The use of GPS collars would grant us invaluable insights into their movement and space use, which would then allow decision makers to carry out informed management practices in the area.

Livestock activity

Livestock pressure on the protected areas fluctuates with grass availability which in turn depends on precipitation. Livestock grazing also varies between the respective management units as a result of different management plans and if such plans are enforced. The first 10 months of 2019 were dry (see appendix, figure 1) and hence low grass availability. This partially explains the high level of livestock activity as shown on figure 14

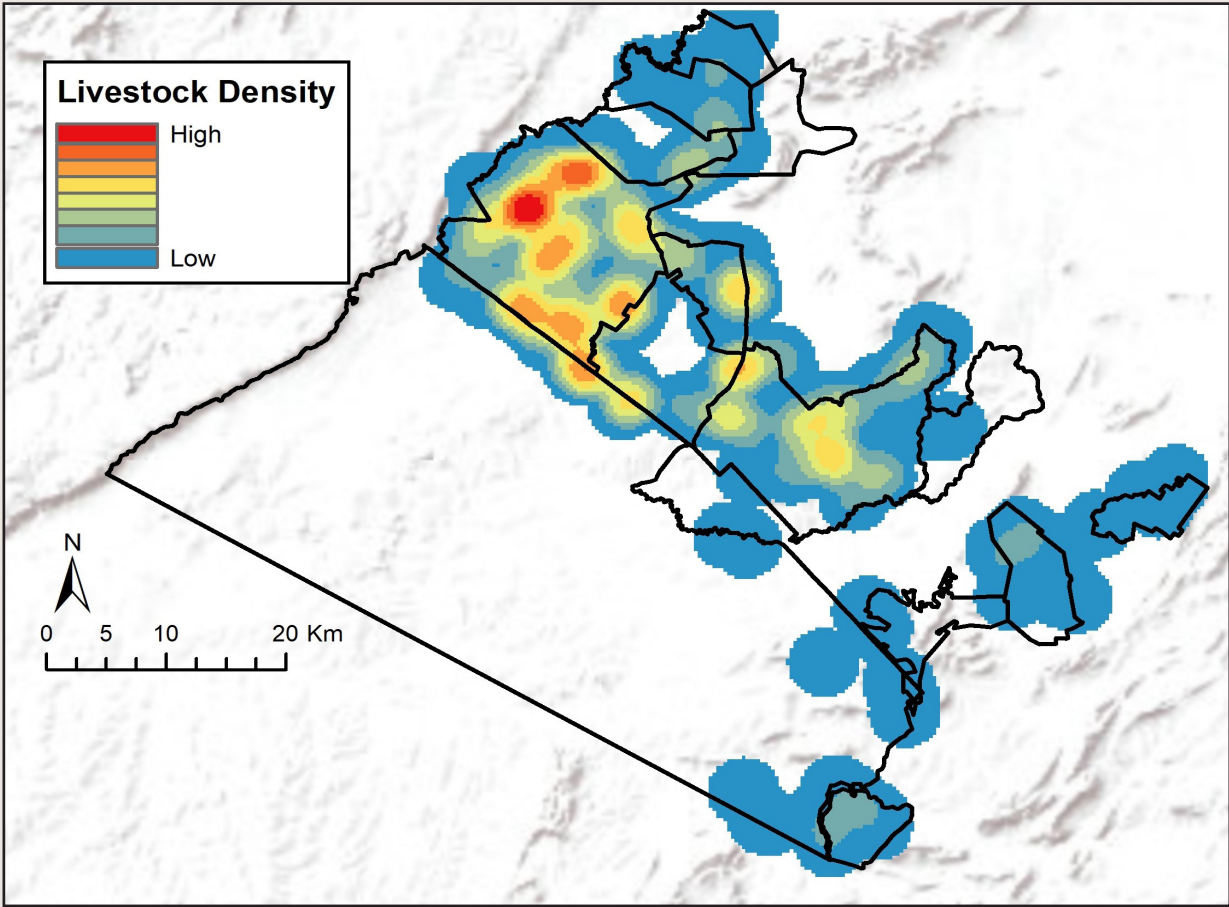


Figure 14. Livestock density map. The density is based on livestock sightings, correcting for distance driven (effort).



COMMUNITY UPDATE

DANGER OF
LITTERING THE
ENVIRONMENT

Community engagements through Awareness creation

MPCP believes that the first entry point in running community activities is through engaging people. This way, we identify the challenges that communities face and are able to come up with possible solutions. Our engagement is also aimed at improving communities' understanding and appreciation of the role and importance of predators.

The engagement is at 2 levels, we engage adults through community barazas and school children through wildlife clubs.

Community Barazas

Barazas are informal meetings that we hold with community members. They provide a platform where community members to discuss various conservation related issues and also give recommendations on possible solutions.

In 2019, we held 13 community barazas across the Mara ecosystem attended by 656 participants.

The objectives of these barazas were:

- To understand people perceptions towards wildlife in different areas across the Mara
- To establish the presence/absence of wild dogs (*Lycaon Pictus*) in those areas and resulting human wildlife conflicts to enhance our recently initiated study on Wild dogs
- To create awareness on the dangers of wildlife poisoning
- To enhance ongoing efforts for human wildlife coexistence through knowledge sharing

The recommendations that we get from these barazas inform our interventions that are discussed in the following sections discussed in the next sections.



Schools Outreach Program

MPCP engages school children in conservation through Wildlife Clubs. We work with 9 schools across the Mara with a total membership of 347 children. Our main goal is to improve the children's understanding and appreciation of conservation as we nurture them to be future conservation leaders.

Annual art competition

One of the most effective ways to gauge children's understanding of wildlife and conservation is through the use of art. 2019's art competition which was carried out in Talek and Aitong, brought together ninety children from the nine schools that we support. Ten children from each school were selected by the clubs to represent them based on their drawing skills. With the help of a trainer the children drew amazing art on through "Crayon Etching". This is a type of Art-

making that exploits the properties of water-based ink or paint and waxy crayons. The resistance that happens between these two media allow the artist to create an interesting image that can be vibrant and rich with contrast and complexity.

The winner of the competition which was judged by staff members from MPCP & Maa Trust was awarded a bicycle. The rest got certificates of participation as recognition for their work.

Annual Holiday Kids Camp



Figure 15: Kids camp activity

In 2019, we held the annual holiday kids camp during the April holidays. We hosted 20 children (10 boys, 10 girls) from AdCAM Academy and St. John primary school both from Aitong area. They had an opportunity to learn what our work entails on a day to day basis. We invited The Maa Trust staff to give a talk during the stay and the children also got an opportunity to tour Maasai Mara National Reserve in addition to other exciting activities such as film screening.

Twende Porini

Twende Porini is Asilia's children's education project aimed at fostering an understanding of the need for conservation.

In 2019 collaboration with Asilia we held two "Twende Porini" camps at Rekero camp and Encounter Mara camp respectively. Thirty-two pupils from four local primary schools attended the camps where they stayed for four nights learning, and engaging in conservation and wildlife related activities. In remembrance of the event children and the mentors planted twenty indigenous trees at Mara Encounter Camp on the last day of the event.

Wildlife Clubs Open day

Our Wildlife Clubs have experienced immense growth over the last 5 years growing from 6 to 9 schools and from less than 200 members to 347 members. We organized our first ever Wildlife Clubs Open day to celebrate with other stakeholders (community, conservancies, county government and national government) these achievements and brought together all club members to celebrate this occasion and share experiences. This forum was attended by more than 500 participants who shared their desire to see such efforts spread to other schools in the Mara and expressed their support. This was a big encouragement not only to the club members but to us as an organization striving to enhance environmental education in schools.

Annual game drives

The annual game drives are aimed at giving children a chance to visit Protected Areas to see Wildlife in their natural habitats. This activity helps children appreciate the beauty of this ecosystem and reinforces positive attitudes which will translate into positive choices and decisions regarding conservation of our environment. This exercise also helps

the young learners gain in-depth knowledge about the wildlife found in this Ecosystem.

During the 2019's game drives, 347 club members visited Maasai Mara National Reserve, Mara North and Naboisho conservancies (depending on proximity from their schools).

Wildlife Clubs members Visit Lewa

As part of imparting conservation education beyond the classroom level, we organized a trip to Lewa Wildlife Conservancy for 45 members of the wildlife clubs from the 9 schools we work with. The children were accompanied by their club patrons and our Community Outreach Officer.

The trip gave the learners an opportunity to learn about how conservation works in the north of Kenya while at the same time seeing some of the wildlife species that are not found in Mara.

This was a first in a life-time experience for most of the learners who have never been out of Mara before. Plans are already under way for another trip this year with a different group of learners.



Human Wildlife Conflict Mitigation measures

Human-wildlife conflict has been identified as one of the major threats to the survival of wildlife and people. We have therefore worked with the communities to devise measures to mitigate against these threats. Together with the communities, we have worked to design and implement Human Wildlife Conflict (HWC) mitigation strategies to help reduce conflicts which directly affect the conservation of predators in the Mara.

Recycled plastic poles bomas

In 2019 we put up an additional four recycled plastic poles bomas in *Endoinyo Narasha*, *Nkoilale*, *Sekenani* and *Oloolaimutia* areas. These brought the total number of bomas constructed to 11 offering protection to more than 1,100 heads of cattle. The selected areas are prone to depredation due to their proximity to Protected Areas and have previously been identified as conflict hot-spots. The bomas have proved effective in preventing predation and therefore reducing human-wildlife conflict instances. We continue to work with community members and other stakeholders in order to put up more bomas. As part of our monitoring and evaluation this year, we are measuring the effectiveness of these bomas and will be sharing the results in our Q1 report of 2020.



Figure 16: Cows inside one of the recycled plastic bomas

Exploring new methods: Lion deterrent lights & the i-cow experiment

At MPCP, we continue to adopt tried and tested methods to reduce human-wildlife conflict. Some of the lessons we have learned from other organizations include the use of lion deterrent lights and the "i-cow" project.

Lion deterrent lights have been used by other organizations like the Wildlife Foundation to deter lion attacks in bomas around Kajiado county. During one of our community barazas, lion deterrent lights were proposed as a way of reducing HWC in parts of the Mara. We identified an area North East of Enoonkishu Conservancy (Laila-Ng'osuani area) where the community reported numerous conflicts with Leopards and Lions. Together with community leaders, we identified 15 bomas where the lights will be installed. We have received support from WWF in purchasing these lights and will install and test their efficacy at deterring such conflicts. We will share the progress of this project in our Q1 2020 report

The "i-cow" project is an experiment conducted by a team in Botswana to see if painting a pair of eyes on cow's rumps could deter lions from killing livestock. The idea is based on observations in the field by Niel Jordan where a lion avoided attacking an antelope whilst it was looking at the lion (eye contact and hence the name "i-cow" experiment). The team painted 23 cows out of a herd of 62 cows on a farm. The results showed that lions killed 3 of the 39 unpainted cows while none of the 23 painted cows were killed during the 10 weeks study period.

So far, all the equipment required for the experiment has been purchased with the team designing and building the boards as well as constructing a cattle crush which will hold the experimental herd. Various factors delayed the implementation of this exercise including a pro-longed rainy season and livestock moving hence preliminary results will be available in subsequent reports.



Figure 17: Lion "eyes" made on cut-out boards to be used for the experiment

Poison Response Trainings



Figure 18: A lion that died of poisoning in 2016

Wildlife poisoning is one of the major threats to predators, scavengers and birds of prey in the Mara Ecosystem. Poison has become a weapon of choice for retaliatory killings of predators because of its effectiveness, difficulty of detecting the person responsible and ease of access. MPCP has been at the forefront combating this vice through training rangers and community members on responding to poisoning incidents since 2018 and more than 65 rangers and 340 community members have been trained.

We carried out 5 training sessions at Maji Moto, Kikurukurr, Olpalagilagi, Kawai and Mararianda and 100 people were trained. The training equips participants with knowledge on; identifying the signs of a poisoned animal, the common types of poisons used, reporting poisoning incidents (who to report to) and decontamination of the poisoning site.

Anti-poison Campaigns

Closely related to the above, we carry out anti-poison campaigns across key public areas in the Mara to sensitize people on the dangers of wildlife poisoning. We do this by engaging a group of dancers called the Maasai Mara Wildlife Ambassadors. They compose songs in Maa themed around anti-poisoning.

In 2019, we held the campaigns in 14 different markets across the Mara reaching over 12,000 people. These markets include; Sekenani, Mararianda,Ngosuani,Naikarra, Ewuaso ngiro, Endoinyio Narasha, Nkoilale, Olpusimoru, Oloolaimutia, Talek, Aitong, Pusanki, Lolgorian and Emanyatta Olkinyei and were selected based on their proximity to areas where poisoning was reported in the previous years. We also distibuted t-shirts with anti-poison message in every market.

We are evaluating the effectiveness of these campaigns in our ongoing Monitoring & Evaluation exercise and this will inform our interventions going forward.



APPENDIX

Weather

We recorded a total of 1,019.4 mm of rain from our weather station at the Predator Hub

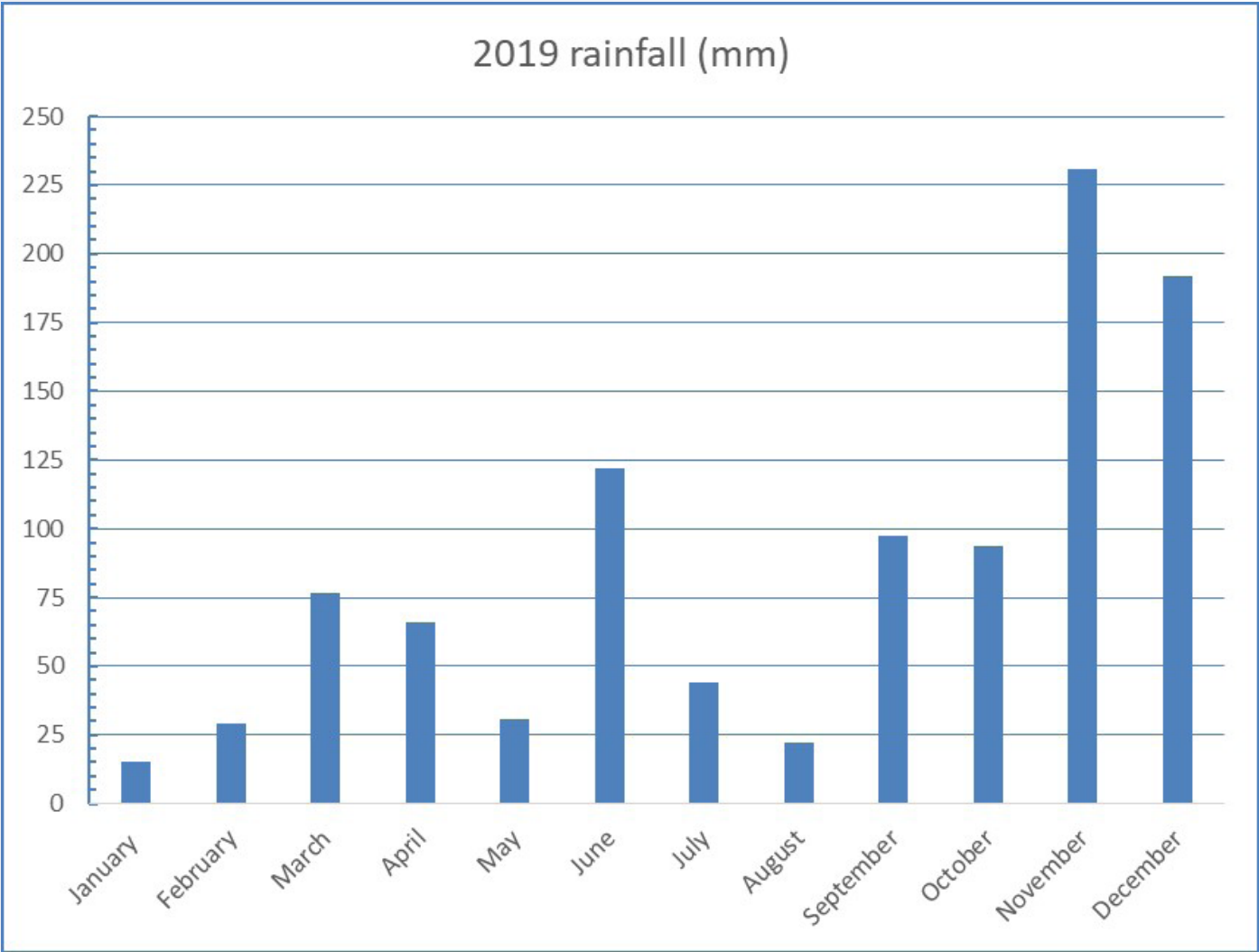


Figure 19: 2019 monthly rainfall

Looking into 2020

2019 has started on a challenging note following the global crisis occasioned by the COVID-19 outbreak. At MPCP most of our activities have been suspended but we remain committed to our mission. While we wait for things to go back to normal, we are focusing on office work and activities that don't involve people congregating. We are exploring new partnerships, redefining our organizational strategy as well as implementing new interventions to deter human-predator conflict.

Niels, our Senior Programme Scientist has recently returned from a Photographic Safari with renowned photographer, Trai Anfield of Trai Anfield Photographic Safaris. This is one of our new strategic partnerships which has seen part of the proceeds from this safari committed to our conservation efforts.

Following generous donations from supporters including Angama Foundation, Beatrice Karanja, Margot Raggot (Remembering Wildlife), Daphne Pungartnik, Safina Lion Conservation, Serian Camps, Kicheche Camps, John Loveland and Neil Anthony we have been able to order lion and wild dog collars. Once deployed later this year, these collars will help us continuously and intensively monitor selected individuals to inform on their use of space, behaviour and threats.

We will be conducting the "i-cow" experiment (described in the report) as well as using lion lights to mitigate human-predator conflict. These new efforts will complement ongoing mitigation measures currently in place including installation of recycled plastic bomas and anti-poison campaigns.

Following an internal evaluation of our conservation activities, we look forward to testing out new innovative interventions informed by this consultative exercise. These will be shared in subsequent reports in the course of the year.

Acknowledgments

Our 2019 achievements were only possible through collaborations and support from our dedicated partners. We would like to extend our sincere gratitude to everyone who supported us.

In particular, we are extremely grateful to the following organizations for their support.





Mara Predator Conservation Programme

info@marapredatorconservation.org | www.marapredatorconservation.org



@MaraPredator



@marapredatorconservation



MaraPredatorConservation