

# MARA PREDATOR CONSERVATION PROGRAMME



QUARTER 1 REPORT

2019



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**Lead author and editor:** Niels Mogensen

**Contributors:** Michael Kaelo, Kosiom Keiwua, Kelvin Koinet, Dominic Sakat and Lydia Cornu

**Maps and graphics:** Niels Mogensen, Kosiom Keiwua and Lydia Cornu

**Photographs:** Niels Mogensen, Michael Kaelo, Dominic Sakat, Kosiom Keiwua, Kelvin Koinet

**Cover photo:** Kosiom Keiwua

**Design & Layout:** David Mbugua

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# EXECUTIVE SUMMARY

The field team spent most of this quarter in the office, identifying lions and uploading the sightings data from the second monitoring period of 2018, which ran from August 1st-October 31st. Highlights from the field include interesting male lion dispersing events, human-lion conflicts, cheetah territory shifts, and a cheetah hunting by Maasai homesteads. An updated lion density figure has been released and the wild dog social survey has been analysed. Two scientific papers have been published this quarter, one looking at interactions between male cheetahs in the Maasai Mara, while the second paper looks at the impact of people and livestock on cheetah movement and space use.

The community activities carried out this quarter include poison response training, recycled plastic pole bomas were put up in parts of the Mara, and registration of schools with Wildlife Clubs of Kenya and School patrons training. Poison response training was conducted with the main objective to equip participants with the requisite skills to be able to identify and respond to wildlife poisoning incidents out of which 81 people were trained. The aim main of putting up recycled plastic pole bomas is to help mitigate human-predator-conflict. For the school activities, the main aim is to engage young learners in conservation to nurture future conservationist.



## RESEARCH UPDATE

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## Lion updates

### Mortalities

#### Scar 2

Scar 2 was a male lion born into the Black Rock pride and together with his brother Brown, they formed the Rocky Boys Coalition. This impressive pair was well known in the southern part of the Reserve as they controlled the Salas and Salas Breakaway prides. Their territory bordered their natal territory. They had 14 cubs, six males and eight females, with the Salas and Salas Breakaway prides, who were born around mid-2017.

A number of dispersing male groups have been trying to take over the area. We sighted two young males from the Roan pride hanging around this area for some time. The Oloolaimutia dispersing group of six males also tried to claim the area, but they were too young to be of any threat. A reported group of four young males have been very active in the area since December. In the beginning of 2019, we found Scar 2 dead near the Salas area. According to different reports acquired by MPCP, they were fighting with the four young males which led to Scar 2's death. It will be very difficult for the remaining male Brown to hold on to the territory, but we hope that the females will be able to keep the cubs safe. Brown was still with the Salas Breakaway pride by the end of this quarter.

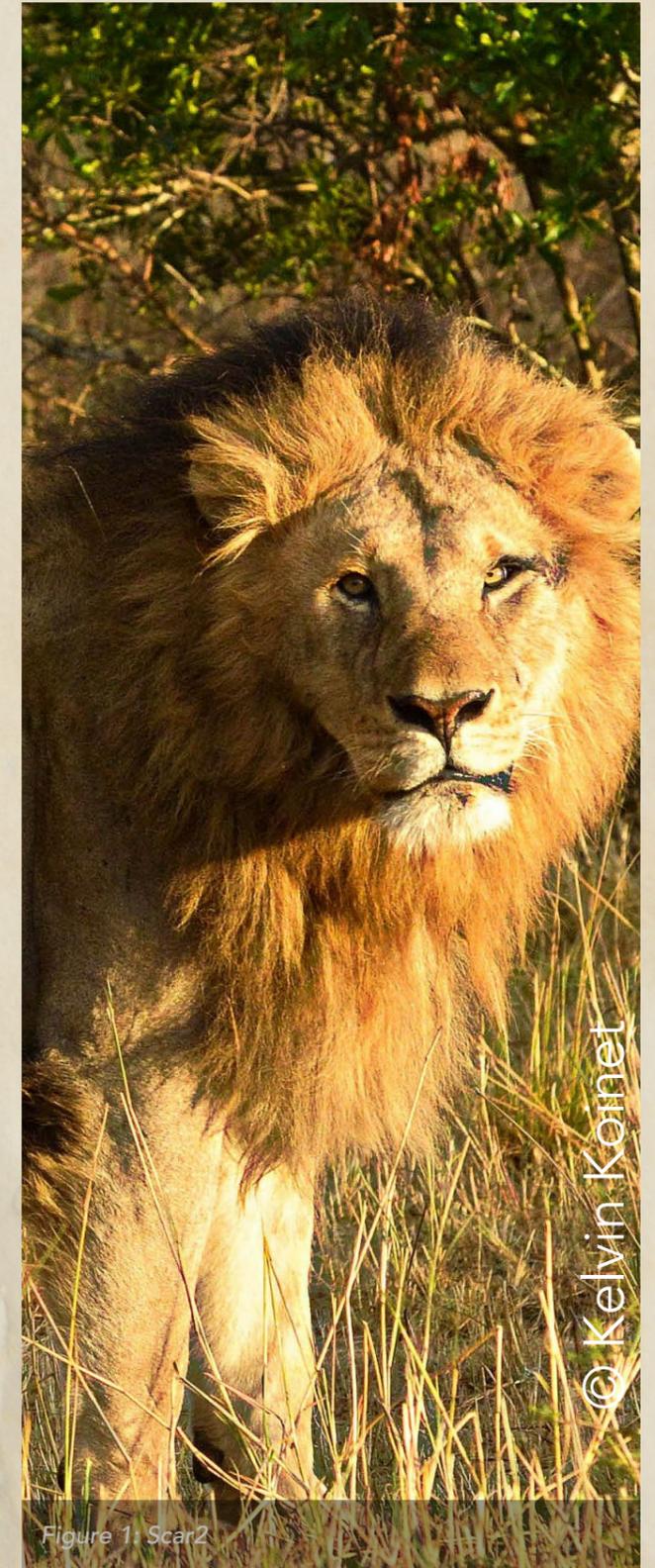


Figure 1: Scar2

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## Human-lion interaction

We have recorded quite a number of wildlife conflicts early this year. One of the cases happened close to our Predator Hub. Two females from the Sankai pride together with eight dispersing sub-adults killed and ate six cows. It appeared the livestock were out to graze early morning at about 5am on the border of the conservancy and the community area. We talked to the livestock owners and they understood that such incidences are bound to happen in such areas and there was no retaliation.



Figure 2: Herders retrieving their dead cow after chasing off the lions



Figure 3: Lions with their cow kill, photo Kelvin

© Kelvin Koinet

There are many dispersing sub-adult groups roaming around OMC which means we anticipate more human-lion conflicts in the areas bordering the community, similar to the case mentioned above. We have recorded Offbeat dispersing males (the ones who were previously in Naboisho Conservancy) with the Sankai pride who they are trying to take over. The remaining Purrungat male, after his brother died, is trying to take over the Iseketa pride from the two Rekeru Breakaway boys and this has resulted in several lions being displaced. For example, three females and five cubs from the Iseketa pride were pushed out of OMC and had spent most of their time in the Pardamat Conservation Area, which is an area with villages and livestock. These lions have killed cows in a number of cases. One of these cases happened at about midday, 500m from a boma. In another incident, a lioness lead its cubs close to a boma, where one of them entered the boma, injuring 26 sheep. The cub was killed inside the boma.

## Unusual lion mating event

It's always exciting to observe animal behaviour that falls out of the ordinary. In this specific case, we witnessed a lioness with a six month old cub mating a pride male. This took place over roughly a week. Under normal circumstances, a lioness will not come back into oestrus until her offspring are 18 months old on average, (this is usually when lions are old enough to become independent), or if the mother loses her litter prematurely. "False oestrus" can occur when mothers try to protect their young from intruding males. The female "tricks" the male into a mating session and thereby tries to keep the male occupied and drawing their attention away from the cubs, in hope of keeping the cubs alive. In the case we just witnessed, the mating male shares the same genes as the cub whose mother he was mating, by either being the father or a brother to the father, and so the cub is not in danger of facing infanticide. We therefore need to look for other plausible explanations as to why this mating event was taking place. On a closer look, it seemed as if the female was not producing a lot of milk, and the young cub was not suckling for longer periods of a time. This in turn, could be caused by a drop in the milk producing hormone called prolactine, which potentially can have induced the oestrus and a lack of interest in her cub. In such cases, a pride member, also with cubs, would likely adopt the cub, as we have witnessed before, but as her only pride mate does not have cubs, this will obviously not happen, and the cub will most likely not make it. The female has already lost the other cub she had.



Figure 4: A lioness with a six weeks old cub mates with the pride male

© Niels Mogensen

## Dispersing male news

### KWS males re-sighted

A group of two sub-adult male lions dispersed in early 2016 from the KWS pride in the National Reserve. They moved into Naboisho Conservancy and one of the males was fitted with a GPS collar in July 2016. The two males left Naboisho Conservancy a couple of months after collar deployment, spent a few weeks on community land before travelling back to the National Reserve. In June 2017, the collar satellite information informed us that the collar had stopped moving, either meaning that the lion was dead or the collar had dropped-off before schedule. We went to retrieve the collar and found it lying on the ground in the Olderkesi area of the National Reserve.



Figure 5: One of the two dispersing KWS males

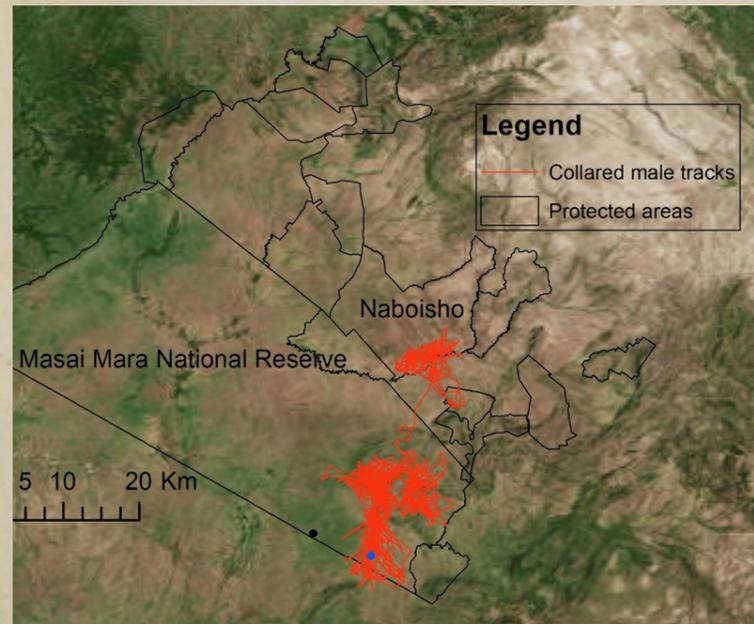


Figure 6: This map shows the tracks of the collared sub-adult male lion. The blue circle shows where the collar was retrieved and the black circle represents the current location of the KWS male.

The collar was partially damaged and the drop-off mechanism had come apart, resulting in the collar dropping off the lion. At the time, we assumed that the lion had been killed by people, as there was livestock grazing in the area. Furthermore, the two male lions were previously sighted feasting on a cow in the same area, strengthening our theory. In the beginning of this quarter, 1.5 years after the collar retrieval, we found the two males close to the Tanzanian border (see figure 6). They had taken over the Koka pride and the Olekule pride, having six cubs with the latter. We can therefore conclude that the collar drop-off mechanism had sprung early due to a fault in its mechanism and the lion was obviously not killed by people.

## Dispersing Topi males

In March we were notified about three young male lions roaming around Enoonkishu Conservancy. We were able to identify them as dispersing 2.5 year old sub-adults from the Topi pride in the National Reserve. A few weeks before they were seen in the area around Governors Camp, also in the Reserve. The three youngsters have sought refuge in an area not known to have adult male lions around and so they are safe for the time being. The Enoonkishu Conservancy management are keeping an eye on these lions as this demographic is shown to cause the most conflict with livestock.

We have still not been able to find resident pride females in Enoonkishu Conservancy and if the three dispersing Topi males are unsuccessful in finding females, they will be forced to move on. Our research has shown that many sub-adult males leave the protected areas after dispersing, often causing human-lion conflicts.



Figure 7: One of the three dispersing Topi males in Enoonkishu

## Updated lion figures

Kenya Wildlife Trust's scientific associate Dr Nic Elliot, has prepared a report on updated Mara lion numbers. Table 1 shows estimates for lions over the age of one year in the entire study area, while table 2 shows lion abundance and density in the different management units for all individuals over the age of 1 year. The density is given as lions/100km<sup>2</sup>.

	2014	2017
Lion Density	17.08	17.83
Lion Abundance	418	464
Sex ratio	2.2	2.02

Table 1: Lion abundance and density averaged for the entire study for 2014 vs 2017

Protected Area	Abundance		Density	
	2014	2017	2014	2017
Olare Motorogi	45	50	32.42	33.78
Ol Chorro	11	11	20.35	19.14
Ol Kinyei	12	10	19.46	15.21
Lemek	10	12	15.3	19.54
Mara North	61	54	17.57	18.18
Naboisho	33	29	15.45	13.75
Olarro	NA	11	NA	12.86
Olderkessi	NA	4	NA	9.22
MMNR	179	200	17.08	19.02
Mara Triangle	68	79	14.36	16.66
MMNR + Mara Triangle	248	279	16.23	18.29
All conservancies combined	171	179	19.56	18.74

Table 2: Lion abundance and density for the different management units for 2014 vs 2017

It is noted that the study area expanded in 2017 which partially accounts for the higher abundance estimate in 2017. However, the estimated density of lions between the two study periods is similar. While lion numbers in most management areas are estimated to be higher in 2017 as compared to 2014, this could represent a random fluctuation rather than an actual increase. Lion populations need to be measured consistently over long periods of time to explore population trends. The 2017 figures should therefore be viewed as an update rather than a population trend.

The fact that our estimates for 2014 and 2017 were very similar despite vastly different datasets (drive effort and lions sighted) highlights the robust nature of this survey technique. If we had simply assessed the number of lions we saw in each survey session, we would have wrongly come to the

conclusion that lion numbers had increased dramatically.

In the coming months, the team will continue to work on all existing data in order to prepare it for analysis. Once all sessions are analysed we may be able to make a more formal assessment of population change since 2014—both throughout the Mara and in individual management units.

If the population monitoring continues over a significant length of time, accurate estimates of vital rates (e.g. survival, recruitment, mortality) will become possible. Such a dataset will only grow in importance and stature the longer it is continued. Already this data represents some of the most in depth monitoring data of lions anywhere and it will become invaluable with time.

# Cheetah updates

## Cheetah hunts next to a boma

Over the years as human population continuously increased around wildlife areas, pressure for space and other important resources also increased. Naturally, cheetahs would use large home ranges and are servilely affected by habitat fragmentation. With conservancies in place and conservationists increasing their efforts to spread the conservation gospel to communities surrounding these wildlife areas, people have become more tolerant to the presence of wildlife around them. Predators especially, were previously perceived as a big threat to both humans and livestock. We have documented several close encounters of cheetahs and the community where they coexisted peacefully, which is what we thrive for. Overtime, cheetahs have learnt

that whenever people are encountered, they do not necessarily pose as a threat. However, cheetahs are more anxious when they have preyed on livestock, and will try to avoid people after such incidences. We have occasionally seen wild prey being killed by predators close to Maasai bomas. During this quarter, guests in Olare-Motorogi Conservancy were excited to spend some time with Selenkei, the mother of four large cubs, when she hunted a Thomson's gazelle in front of a Maasai boma, close to the conservancy border. Instinctively, cheetahs prefer natural prey and as long as they are in abundance, cheetahs will prioritise this prey from livestock. Selenkei was very confident and comfortable with her kill even though she was close to human settlements. We thank Paul Goldstein for the photos.

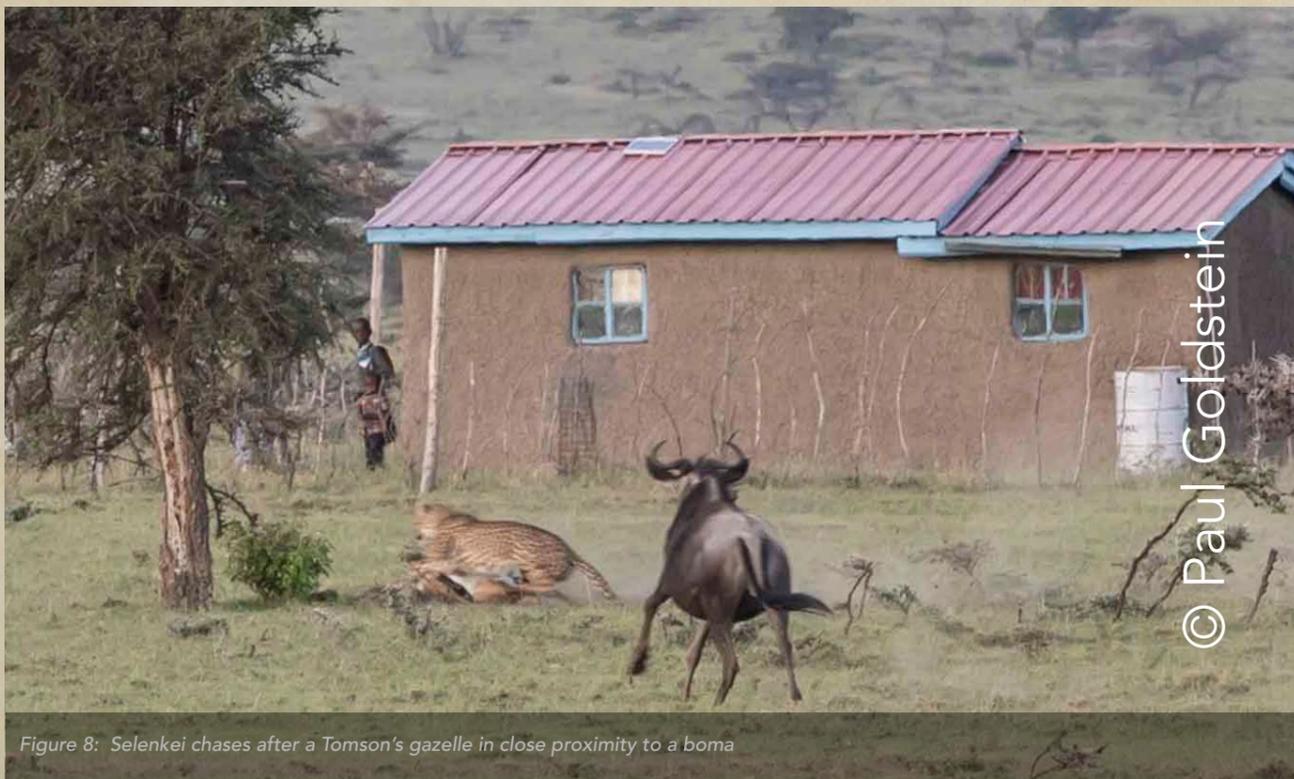


Figure 8: Selenkei chases after a Thomson's gazelle in close proximity to a boma

## Male cheetah territory establishment

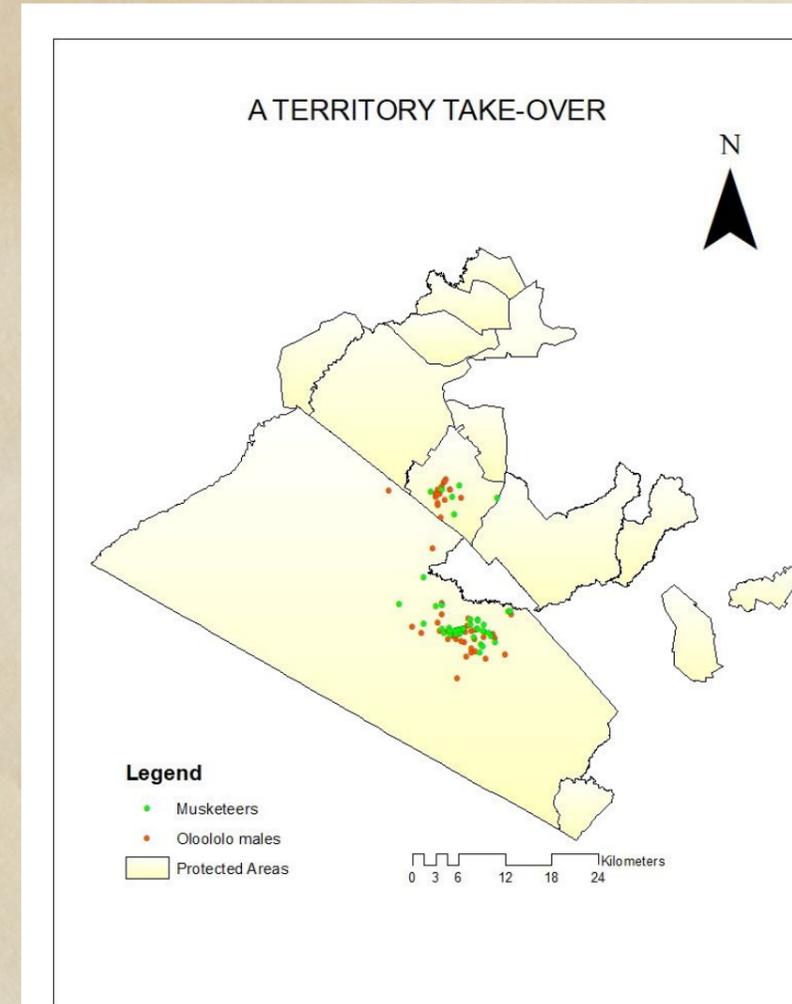


Figure 9: Showing sighting locations of the Musketeers and their predecessors the Oolololo males

Since late 2016 when the group of five dispersing young males, that we believe are from three different females were sighted, we thought the males would eventually split up and form smaller coalitions of between two and three males. This is the common number of individuals usually observed in a coalition and so the group of five males is very interesting. A coalition of five males has never been recorded before. The males have been together for over two years now and are still going strong. They have settled around the Hammerkop area in the the National Reserve, just south of Talek Gate , but they also make brief visits to Olare-Motorogi Conservancy, mostly using the Kananga-Olkiombo route. They have taken over a territory that was previously occupied by the coalition of the two Oolololo males, in which one died in 2015. Most territorial males in

a coalition would normally have larger territories as compared to territorial singletons, and therefore it was expected that the Musketeers, being five in number, would have one of the largest territories, but interestingly, they have only stayed within the original territory that the Oolololo male coalition once called theirs. There could be chances in the future for them to expand their territory, only time will tell. Figure 9 shows the sightings of both coalitions. The location of the Oolololo males (red circles) is shown between February 2015 and October 2017, and the Musketeers (green circles) is shown between October 2017 to March 2019.

## Cheetah treatment

Based on our earlier observations of the Musketeers coalition, we concluded that the male called Dartonian was the leader, and we chose to collar him in early 2017. This is the male that was seen alone before he joined the group and he appeared to be slightly bigger in size than the other males, perhaps the reason for his earlier dominance. Over the two year period the males have been together, Dartonian's coalition partners have fully grown and some seem to even look bigger than him. Over the same period, Dartonian's leadership seems to have come to an end. Male cheetahs are known to fight other males over territory. Although with less aggressiveness, this is also the case within a coalition in settling disputes such as mating rights. In instances when the coalition comes across a female in oestrus, a fight will normally ensue to determine who amongst them will mate

with the female. In mid-March the males were suspected to have fought each other, which resulted in Dartonian injuring his genitalia. We decided to investigate closely, and found out that one of his testicles was dangling. Dartonian was lagging behind when the other males embarked on longer walks. After Dartonian was injured, the five males left the Reserve shortly after and ventured to OMC on their routine territory marking rounds. After discussing the condition with the KWS vet unit, we agreed that an intervention was necessary and so our team, together with OMC rangers kept an eye on them until the KWS Vet Unit arrived. Dartonian was operated on and the damaged testicle was successfully removed. He thereafter joined his coalition mates. He was continuously monitored after the treatment and has been doing fine, reunited with his coalition mates. He has resumed his territory marking activities, which were temporarily halted as a result of the injury.



Figure 10: Dartonian after treatment

## Cheetah births and cub deaths

During this quarter we recorded three females that gave birth. Two of these females (Nolari and Musiara) were recorded in the Reserve with a cub each. However, it is unlikely that only one cub was born by each female. Most cheetahs tend to give birth to a litter of between four and six cubs. Nebaati, who has given birth in Naboisho Conservancy, was recorded with five tiny cubs, of which one had died.

## Publications on cheetahs

Two scientific papers have been published this quarter by KWT staff members and a management report has been produced.

The first paper investigates the interactions between male cheetahs in the Maasai Mara. Below is the paper's abstract.

Intraspecific interactions between individuals or groups of individuals of the same species are an important component of population dynamics. Interactions can be static, such as spatial overlap, or dynamic based on the interactions of movements, and can be mediated through communication, such as the deployment of scent marks. Interactions and their behavioural outcomes can be difficult to determine, especially for species that live at low densities. With the use of GPS collars we quantify both static and dynamic interactions between male cheetahs (*Acinonyx jubatus*) and the behavioural outcomes. The 99% homeranges of males overlapped significantly while there was little overlap of the 50% homeranges. Despite this overlap, male cheetahs rarely came into close proximity of one another, possibly because

presence was communicated through frequent visits to marking posts. The minimum distance between individuals in a dyad ranged from 89m to 196m but the average proximity between individuals ranged from  $17,145 \pm 6,865\text{m}$  to  $26,367 \pm 11,288\text{m}$ . Possible interactions took place more frequently at night than by day and occurred mostly in the 50% home-range of one individual of a dyad or where cores of both individuals overlapped. After a possible encounter male cheetahs stayed in close proximity to each other for up to 6 hours, which could be the result of a territory defence strategy or the presence of a receptive female. We believe that one of the encounters between a singleton and a 5-male coalition resulted in the death of the singleton. Our results give new insights into cheetah interactions, which could help our understanding of ecological processes such as disease transmission.

The second paper looks at the impact of people and livestock on cheetah movement and space use.

## Background

Cheetahs *Acinonyx jubatus* require vast amounts of space and rely on areas that provide protection for their persistence. While protected areas are believed to be an antidote to increasing human pressures, even they are not immune to the impact of anthropogenic activities. As human populations continue to grow, so does the pressure on protected lands and in some cases these pressures can be exacerbated when protected areas contain important natural resources, such as water and grazing, that can sustain both wildlife and livestock. Such is the case in the Maasai Mara where the number of people, and concomitantly

livestock, have increased at a rapid rate, increasing the pressure on resources. This effect is being exacerbated because the Maasai, whose historical transhumance was dictated by the availability of pasture, are now largely sedentary partly due to the subdivision of communally owned land surrounding the Maasai Mara National Reserve. The Maasai Mara is believed to hold one of Kenya's main cheetah populations so in order for conservation actions to be effective it is important to understand how the presence of people and livestock within the wildlife areas influence the space that cheetahs use.

## Key findings

Cheetahs strongly avoided areas with high levels of human disturbance, both when they were moving and when they were resting. That these areas were not, or rarely, used by cheetahs suggests that high human disturbance is resulting in habitat loss and fragmentation, possibly restricting movement between wildlife areas, including those that border each other such as Mara North and Olare-Motorogi Conservancies. This could, in part, explain why there are so few cheetahs in Mara North Conservancy (see previous quarterly and annual reports from the Mara Cheetah Project and the Mara Predator Conservation Programme). The map below illustrates which areas are avoided by cheetahs (dark red).

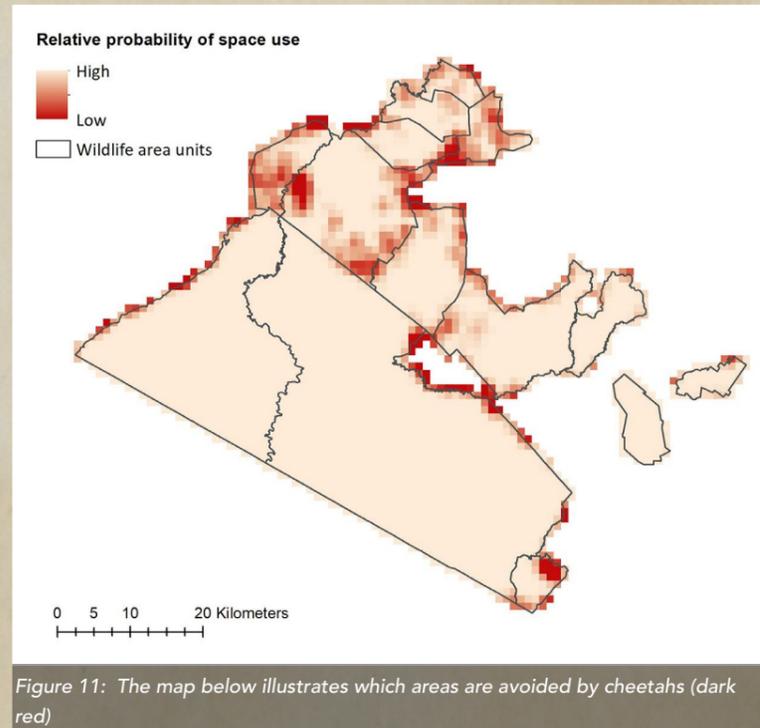


Figure 11: The map below illustrates which areas are avoided by cheetahs (dark red)

Livestock abundance and site use did not influence cheetah space use when they were moving but the number of livestock present did influence whether a cheetah stopped to rest or not. Cheetahs were unlikely to rest in areas where livestock abundance was high probably because high numbers of livestock can cause disturbance which either directly causes displacement of cheetahs or indirectly by displacing prey species. On the other hand, cheetahs preferred

resting in areas that were frequently used by livestock. Areas that are frequently used by livestock, but not necessarily at high numbers, can attract large numbers of herbivores as livestock can produce nutrient hotspots resulting in high quality grazing consequently attracting carnivores to these areas too. These findings suggest that livestock could indirectly be providing an important resource, but we suggest this needs further investigation.

## Recommendations

Cheetahs are sensitive to anthropogenic pressures, with concerns that this could lead to local extirpation where pressures are high. If movement between adjacent wildlife areas is the goal then it is crucial that the level of human disturbance on the boundaries of the wildlife areas are reduced to such a level so that cheetahs do not avoid these areas.

At high numbers livestock had a negative impact on cheetahs which is concerning as recent research has shown that cheetahs raise fewer cubs to independence in areas with high tourism compared to low tourism. It is possible that disturbance caused by high livestock numbers could have a similar impact. At low numbers however, livestock could indirectly have a positive impact on cheetahs. Because of their sensitivity to disturbance, cheetahs could be a good indicator of the impact of anthropogenic pressures on other carnivore species. We therefore suggest that these findings are incorporated into management and livestock grazing plans.

For original articles, please go to the links here:

Broekhuis F, Madsen EK, Keiwua K, Macdonald DW (2019) Using GPS collars to investigate the frequency and behavioural outcomes of intraspecific interactions among carnivores: A case study of male cheetahs in the Maasai Mara, Kenya. PLoS ONE 14(4): e0213910. <https://doi.org/10.1371/journal.pone.0213910>

Broekhuis, F., Madsen, E. K. and Klaassen, B. (2019), Predators and pastoralists: how anthropogenic pressures inside wildlife areas influence carnivore space use and movement behaviour. Anim Conserv. doi:10.1111/acv.12483

# Wild dog updates

## Social Survey

As mentioned in previous reports, we conducted a survey in the fourth quarter of 2018, to understand community perceptions and attitudes towards wild dogs in a human dominated landscape. It comprised of two main sections: the first related to demographics and socio-economic characteristics of respondents, while the second pertained to attitudes, perceptions and a conflict assessment. A total of 60 individuals were surveyed.

We have now analysed the survey and a full report has been produced on the findings. Listed here are some key findings.

## Perceptions, Attitude and Conflict Assessment

Out of 60 respondents, 57 stated that Wild Dogs have returned to the Greater Mara Ecosystem. Two individuals responded that they had not returned, while the remaining one was unsure.

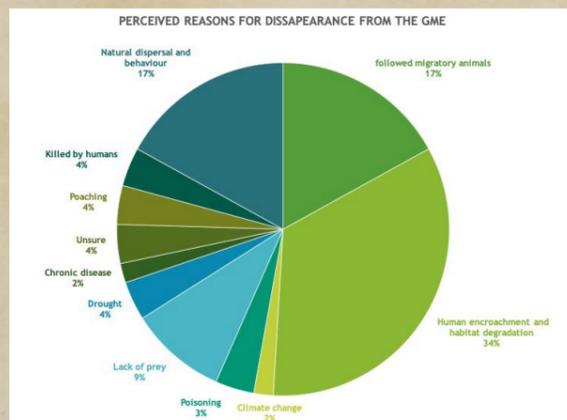


Figure 12: Listed reasons for local extinction of Wild Dogs and percentage of times mentioned by respondents.

The majority of respondents felt that human encroachment and habitat degradation were the key reasons behind population decline (34%). An additional 11% of answers related more specifically to illegal human activity: poaching (4%), killing (unspecified) (4%) and poisoning (3%).

The second most commonly perceived reason was to do with natural behaviour, dispersal and following wild prey migrations (both 17%).

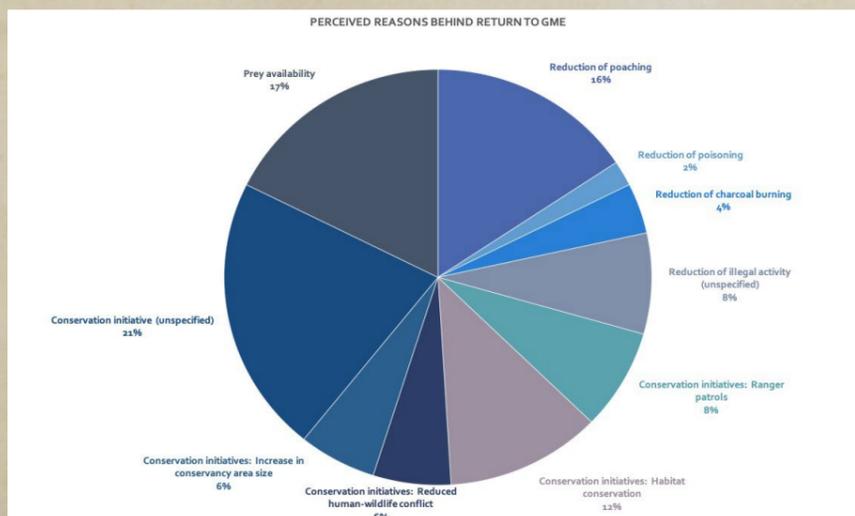


Figure 13: Listed factors enabling the return of Wild Dogs and percentage of times mentioned by respondents

Climate accounted for 6% of answers (climate change and drought), with another 9% attributed to low prey availability; the latter could theoretically also be a result of unfavourable climatic conditions. Lastly, only one respondent mentioned chronic disease (2%) as a possible cause for local extinction.

There were only three categories of responses explaining the return of Wild Dogs to the Greater Mara Ecosystem: conservation initiatives (53%), a reduction of illegal human activity (30%) and an increase in prey availability (17%).

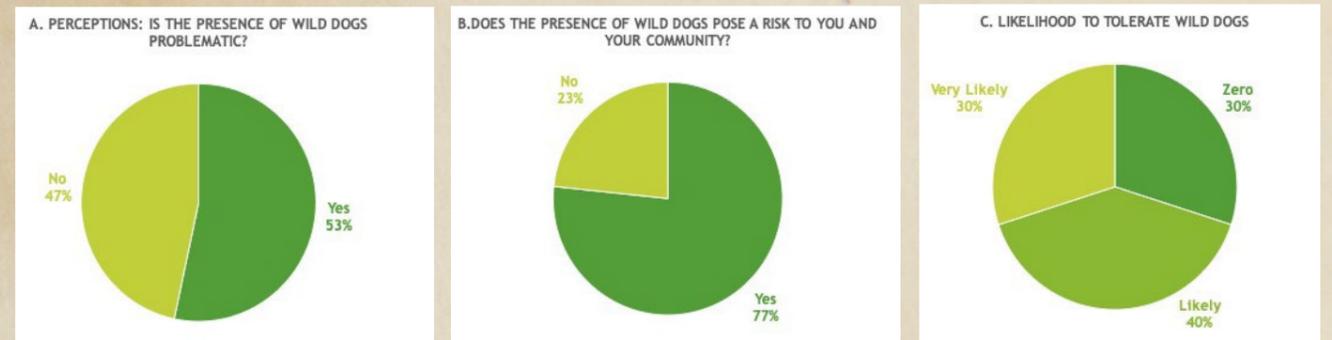


Figure 14a-c: Attitude, risk perception and likelihood to tolerate the presence of Wild Dogs

While 77% of people acknowledged that the return of Wild Dogs posed a risk to the community (figure 14B), only 53% felt that it was problematic (figure 14A). The two biggest risk factors, according to respondents, were the likelihood of livestock predation and the threat to humans: this encompassed instilling fear, human attacks and the increased probability of conflict. When respondents were asked about their likelihood to tolerate the presence of Wild Dogs in the area, 30% declared a zero tolerance policy, listing livestock predation as the primary cause. The other 70% conceded varying degrees of tolerance for their presence. The main underlying reason is attributed to a potential increase to the amount of tourism in the area and subsequently job creation and increased revenues.

## Collaboration for conservation

The high number of human wildlife conflicts recorded in the first quarter also came with some retaliations. This called for cooperation with conservancies, the KWS vet unit, the Peregrine Fund Raptor Project, and the community to reduce further retaliation events. There were two incidences of suspected poisoning on spotted hyenas close to villages. In the first case, vultures had started feeding on the poisoned hyena carcass. With the help of the KWS vet team, we rescued five of the vultures that were showing signs of poisoning, but unfortunately, 23 had already died. We cleaned the scene

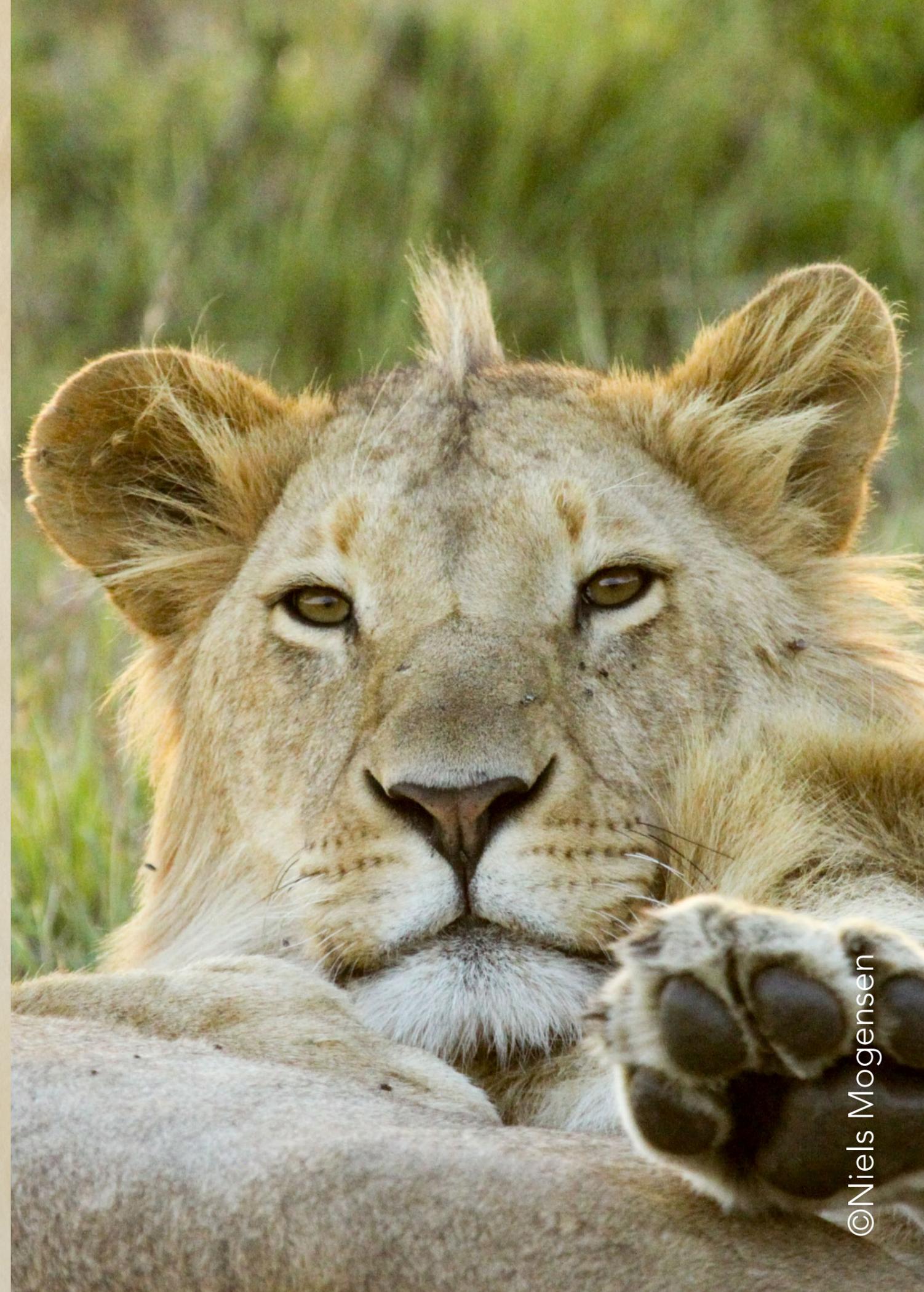
to prevent the risk of other animals being affected by the poison.

In the second case, the OMC rangers reported a hyena showing signs of poisoning in OMC and called us to examine the affected hyena, so that we could provide the KWS vet team with an informative report before their response to the scene. Unfortunately, the hyena was dead upon the arrival of the KWS vet team. We cleaned the scene by burning the carcass and made sure there were no further carnivores got affected.



© Photo OMC ranger

Figure 15: Burning of a poisoned hyena



©Niels Mogensen



## COMMUNITY UPDATE

### Poison Response Trainings

Human Wildlife Conflicts is one of the major threats facing large carnivores conservation in the Mara ecosystem. Predators, prey and livestock share an open ecosystem with close interactions which could potentially lead to conflicts. When the wild prey numbers decline, or their movements shift in response to changes in weather patterns or grass distribution, predators find livestock an easy target while out there grazing or at night in bomas.

Livestock depredation leads to losses for the pastoralists which in turn leads to anger and frustrations towards predators. These anger could lead to retaliatory killings and persecution of predators. In the past Maasai used to kill predators with clubs and spears, which was dangerous but ensured that only the target predator gets killed. That has

changed now and people adopt the use of poison which leads to indiscriminate killing of target and non-target predators including birds of prey.

We took initiative to train people poison response to help communities appreciate the role of predators in the ecosystem and the dangers of wildlife poisoning through building capacities of rangers and community members to identify and respond to poisoning incidences in the ecosystem.

In 2018, a number of people were trained including; 45 rangers from 15 conservancies, 20 rangers from Narok County Government, 20 Community trainers of trainees (ToTs) and 45 community representatives.



Figure 16: Daniel Korio (one of the trained ToT) trains participants on responding to poisoning incidences at Enkeju enkoirien area

© Michael Kaelo

During this quarter, we supported five training sessions in the areas shown on the table below. These training sessions were geared towards attaining MPCP's long-term goal of establishing a network of trained community personnel capable of responding to poisoning incidents in a timely manner to save predators, both mammals and raptors which are mainly affected.

Date	No. of people trained	Location
8th February 2019	16	Enooronkon
9th February 2019	17	Enkeju enkorien
12th February 2019	17	Olare Orok
13th February 2019	16	Oloolaimuitia
14th February 2019	15	Ripoi

Table 3: Number of people trained in each site

The training sites border wildlife conservation areas, in this case the Mara National Reserve and community conservancies, and have previously reported cases of human wildlife conflict, the locations of the training sites are illustrated in the map below.

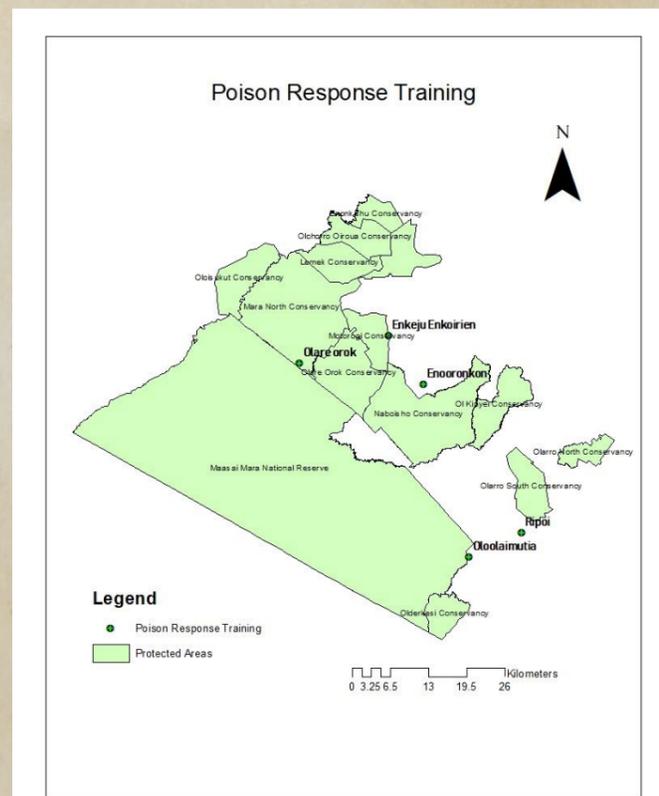


Figure 17: This map shows the poison response training sites

Output	Outcomes	Impact
5 trainings conducted in Enooronkon, Enkeju orient, Olare orok, Oloolaimutia and Ripoi areas, as shown on the map above, enhancing the network for poison response. These areas were selected based on their proximity to Conservancies and have previously reported poisoning incidents.	81 community members equipped with skills on rapid response to wildlife poisoning  A growing network of personnel established to enhance the flow of information to and from MPCP and other conservation agencies such as Kenya Wildlife service (KWS), Narok County Government and Community Conservancies. The network already consists of 60 rangers (45 from all conservancies and 15 from Maasai Mara National Reserve), 20 community trainers and 126 community representatives.	An increase in the awareness and appreciation of the need for closer collaboration between communities and conservation agencies, especially Kenya Wildlife Service (KWS), to address fears through capacity building. For example, one of the common fear of community members was that of reporting a poisoning incidence for fear of victimization of the reporter. MPCP is determined to address these through two initiatives: a training will be organized which will bring together the grassroot leadership (wazee wa vijiji) and the local administration (Chiefs and sub chiefs) from various areas to address the issue of reporting poisoning incidences among other issues. Representatives from KWS will be invited to the discussion around creating a safe space for reporting these incidences. Secondly, the trained leaders will, through community barazas, be facilitated to engage the community in a bid encourage them to share information in a manner agreed upon at the training.

Table 4: Outputs, outcomes and Impacts from the poison response training

## Embracing innovation in livestock protection

Climate change adaptation requires that people reduce the number of trees cut down in addition to other strategies for maintaining a healthy environment. Pastoralist in the Mara ecosystem heavily rely on forest based resources (Poles, branches and shrubs) to make livestock enclosures (bomas) to protect them from predators at night. The more traditional bomas made of thorn branches and other shrubs are not very effective at protecting livestock from predator attacks at night, as they easily decompose leaving gaps where predators can penetrate or the structures are too short, allowing predators to jump in and kill livestock.



Figure 18: A traditional Maasai boma made of thorn branches

Because of the defects of the traditional boma, community members largely adopted the use of cedar poles to construct bomas. The demand for cedar poles increased leading to the destruction of major forests e.g the Mau and Loita forests, which are the catchment areas for most of the rivers feeding into the Mara River. In 2016, MPCP conducted a study on the boma materials used in the Mara within our study area. Of the 508 households that were included in the study, 50% had bomas made of cedar poles. From the same study, 64% of the respondents said that they would re-build their bomas in the next four years. Without any intervention, a massive demand for cedar poles would lead to increased destruction of river catchments in the Mau and other forests, hence there is a need for urgent intervention. The study introduced the idea of using recycled plastic poles for constructing bomas to the community, and 83% of those interviewed said that they would prefer a more sustainable option and would adopt the use of these poles.

## Recycled Plastic Bomas

In 2017, we initiated an innovative approach on the use of recycled plastic poles to build stronger, eco-friendly and more durable bomas. By end of 2018, the programme had put up three pilot recycled plastic pole bomas (RPPB) in Aitong, Endoinyo erinka and Enchorro o sidan. Since putting up these bomas, no livestock has been killed by predators in the bomas. Previously, these bomas were attacked by predators on a monthly basis. This created a demand for more RPPBs in these areas. Unfortunately, building bomas with RPP are costly but MPCP's aim is to put up more pilot RPP bomas in other areas to encourage community members to adopt the idea.

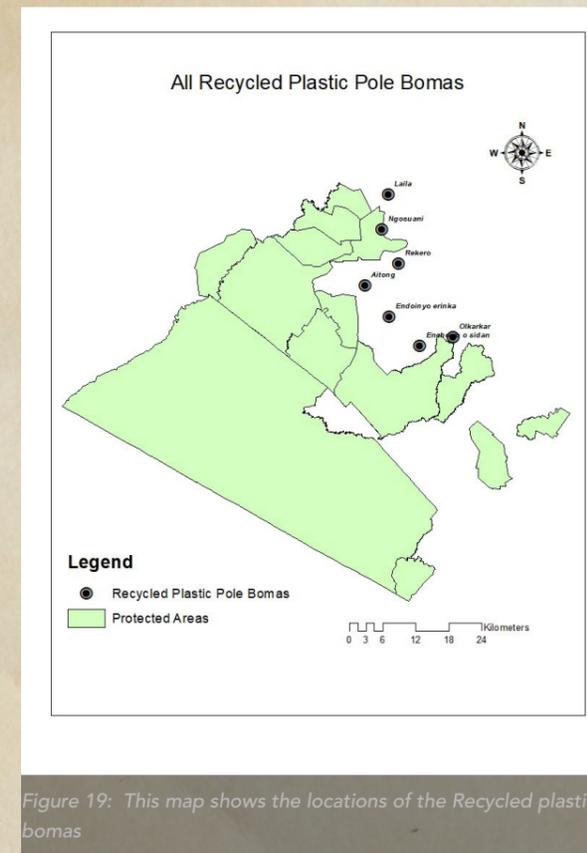


Figure 19: This map shows the locations of the Recycled plastic bomas

During this quarter, we have established another four RPPBs in four other areas; Laila, Ng'osuni, Rekero and Olkarkar (as seen in the figure 6 above). The location for these four bomas were selected as part of MPCP's human wildlife conflict hotspot areas and their proximity to conservation areas. The four bomas are also located in areas where many people can access to see them in our efforts to have more people adopt the use of plastic poles for boma construction.

### Challenges

We continue to receive many requests to construct more RPPB in a wider area from members of the community. The lack of sufficient funds curtails the efforts to construct more of these boma types on a larger scale. MPCP will continue to work closely with community members to encourage adoption of these bomas and in the long term establish a cost sharing mechanism with community members.



Figure 20: A completed recycled plastic poles boma at Laila with community members observing

## Schools Outreach Program

MPCP firmly believes that engaging school going children in environmental education can result in positive and sustainable conservation outcomes in the long term. Awareness on the various environmental challenges has been found to elicit a sense of responsibility in the children and give them a chance to shape a future they want by addressing some of these challenges. The Program works closely with the Wildlife Clubs of Kenya (WCK) to implement conservation education through wildlife clubs in schools around the Mara Ecosystem.

MPCP's wildlife clubs are spread across nine schools in the Mara (see figure 4 below), with three new schools signed up in January 2019. This growth is attributed to the popularity of the clubs and impact felt in the community from the schools involved in the program. The three new schools are: Ng'osuari, Mbitin and Olkurroto Primary schools. The other six schools are located around Talek and Aitong and are adjacent to wildlife conservation areas depicted in the map below.

Our outreach officer together with the schools' wildlife clubs patrons have developed a program to guide them on clubs activities for the year. This last quarter, MPCP worked with the schools to implement the following activities:

### a) Membership registration

In order for a school to become a wildlife club member in Kenya, they are required to register with the Wildlife Club of Kenya (WCK). This is an umbrella body that oversees these clubs across the entire country. The membership provides benefits which include: a curriculum for running successful wildlife clubs, reduced entrance fees to National Parks for members and reduced rates for stay at WCK hostels around the country. In January 2019, WCK renewed annual membership for 250 student members and recruited a further 130 members from the three new schools. Registered members were issued with membership cards and each school, a certificate of membership.

### b) Wildlife clubs' patrons training

To better equip teachers with environmental knowledge, MPCP and Wildlife Clubs of Kenya personnel organized and ran a training session for 34 teachers from the nine schools. The objectives of the training were to:

- 1) equip the patrons with skills for running a successful wildlife club
- 2) familiarise the patrons with the year's curriculum developed
- 3) highlight MPCP's objectives and how the wildlife club programme complements them
- 4) develop an annual program of activities for the schools.

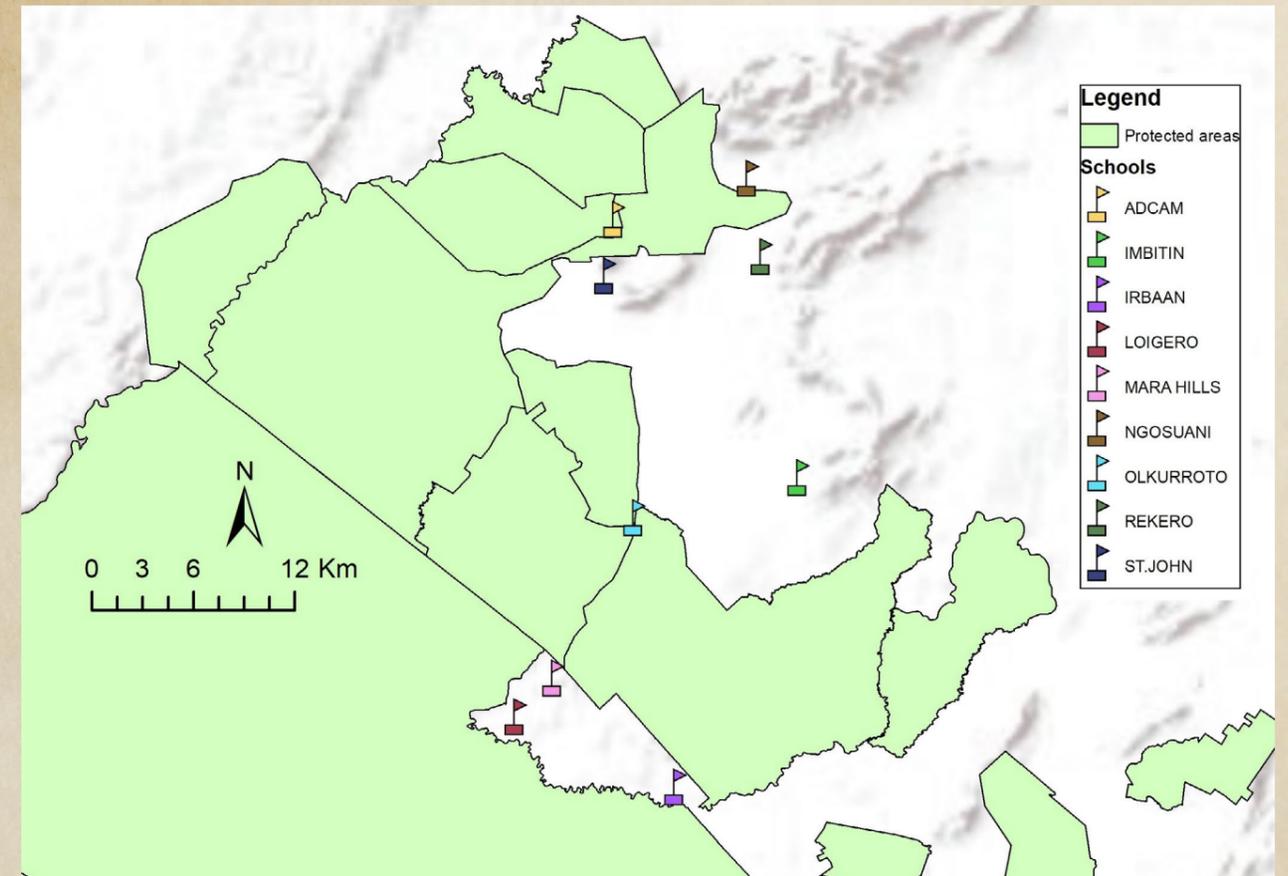


Figure 21: Map of the 9 schools that MPCP works with through wildlife Clubs



Figure 22: Patrons from the 9 schools MPCP collaborates with during a training session held in Talek

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**Mara Predator Conservation Programme**

[info@marapredatorconservation.org](mailto:info@marapredatorconservation.org) | [www.marapredatorconservation.org](http://www.marapredatorconservation.org)



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