MARA PREDATOR CONSERVATION PROGRAMME

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KENYA WILDLIFE TRUST

QUARTER 2 REPORT | 2022



KWT
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EXECUTIVE SUMMARY

The research team is adding a new component to the collaring objective which will include an element of real-time conservation. A couple of the collared lions gave us some valuable information on their movements and we were able to fully analyse the collar data from a retrieved collar.

We recorded nine new cheetah cubs, two dispersal events, and three deaths. Wild dog sightings have become few and far in between, and we only recorded three different individuals this quarter.

During this quarter, among the activities, the MPCP community team managed to implement include: poison response training, lion ambassador's reviews, patrons training, 15 community feedback barazas, organized a wildlife club open day interaction, facilitated the installation of 3 water tanks in schools, established live fences around recycled plastic pole bomas, Lion deterrent lights evaluation, an anti-poison campaign in 5 markets and a reading of the '**Ole Peenko**' books at schools.

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RESEARCH UPDATE



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Lion updates

Interesting Sighting

In April, we recorded an unusual sighting in Olare-Motorogi Conservancy, close to the airstrip. Two adult males born into the Oldikdik pride were challenging their three younger brothers, from the same pride. The adult males were born in November 2016 while the three younger lions were from a December 2018 litter. The older brothers seemed surprised when the younger lions did not flee but tried to hold their ground.

A few days later, we saw the young males hunting and roaming together within the same area. There is limited space within Mara's protected areas that is unoccupied by territorial male lions and so the competition for this space and females can be intense.



Two Oldikdik younger males are in the foreground and one Oldikdik older male is in the background.

Yaya family struggles - Marsh Pride

When Yaya's daughter Pamoja unexpectedly died, Yaya was left with no choice but to take care of her daughter's cubs as her name implies. We learned of scuffles from Narok County rangers in the Musiara area, and we later speculated that it may have been a struggle between Pamoja and the males who killed her while she was defending the cubs. Since then, no one has ever reported seeing her. It is fortunate that Yaya, the well-known hunter from the Marsh Pride, still can manage to do her job despite her advanced age. You will occasionally hear her call, and the cubs will always emerge from the tall Musiara grass and the Bila Shaka Lugga.

They currently occupy the area of the Marsh Manager's Crossing, where their territory is. The pride lacks stable males; on occasion, you may see dispersed males who appear for a brief period of time before disappearing again. The six-pack males that roam between the National Reserve and the Mara Triangle, as well as the Marsh main pride and the pride Males, Half Tail and Logol, constantly circle and threaten Yaya's family as a result of the same.

Over the course of a few months, the Marsh area has received a lot of rain, which has spurred grass to grow to greater heights. The lack of herbivores in the region as a result of this condition prompted the main pride of the Marsh to relocate to the nearby Mara North Conservancy. We hope that the migration crosses to Musiara and the Paradise Plains which will give Yaya an easier time to raise cubs, at least for some months. We were lucky to have seen them around the Musiara Airstrip, looking better in shape than before.



Yaya with her demise, daughter Pamoja's cubs

Collars, adding a new conservation strategy

MPCP uses collar information to see when lions leave protected areas, where they go, and what happens to them. If the collar stops transmitting for a few days, then either the collar GPS unit has failed or the collar has been tampered with. If this happens outside of the protected areas, our Lion Ambassadors (LAs) are asked to check the last transmitted location and investigate whether any conflicts have occurred and if retaliation has happened. We can also search for the collar via its VHF function. If the lion has been killed due to conflict, we document it, alert the relevant authorities, and conduct post-conflict conservation work.

In years past, our primary objectives for collaring lions have been to study the dispersal and mortality of male lions, how pride females overlap with unprotected areas, and to map conflict hotspots.

As we reported in this year's first quarterly report, we lost two collared adult pride females due to conflicts after leaving the protected areas. The death of two out of five collared females indicates that many more lions are being killed by people than we currently realize, and this has made us re-strategise our collaring objectives. Moving forwards, we tend to prioritize using the collars for real-time conservation action.

All LAs will have Earth Ranger apps installed on their smartphones that can access the collar data. All the protected area boundaries will be geo-fenced and linked to the respective collars. If a collared lion approaches a buffer zone, set to a chosen distance from the boundary, the LA responsible for that zone will be alerted via his phone so that he can quickly warn the community about the lion's presence and try to prevent any conflicts. Should a conflict occur, the LA will be able to respond and hopefully avoid potential retaliation.

This system will have the potential to decrease human-caused lion mortality significantly. However, to create a much more significant impact, we need to collar lions from every conservancy/reserve pride whose home range overlaps the community lands.



Collared adult female, Nenkorkor, from the Iseketa Pride

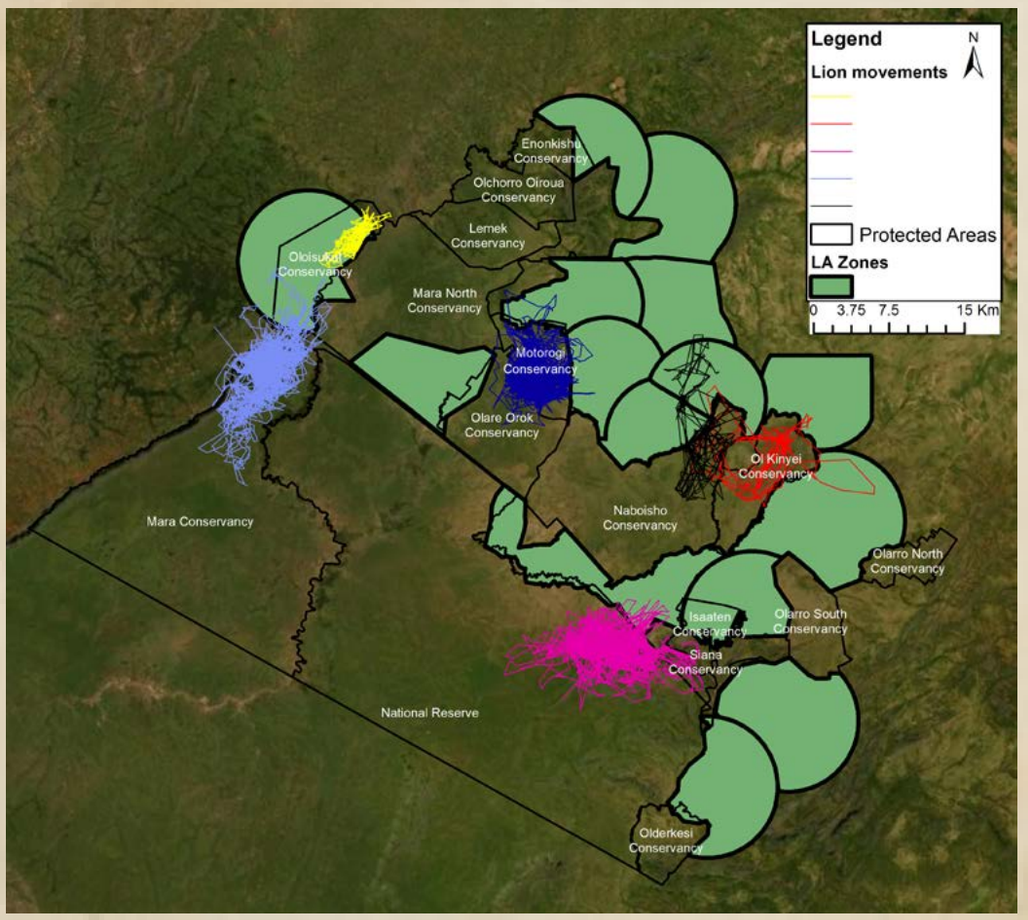


Figure 1. The map shows the protected areas and some of the current and previous collared lion movements and how they overlap with the LA zones. The LAs will be alerted when an overlap occurs and take the necessary actions.

Collar updates

Ole Cook

The collared male in Ol Kinyei Conservancy has been ranging in both Naboisho and Ol Kinyei Conservancies during the past quarter but has also been spilling into the community areas as shown in figure 2.

The male has completely avoided an area between the two conservancies, called Emurra Dikirr, and this is due to massive fencing there, as can be seen in figure 3.

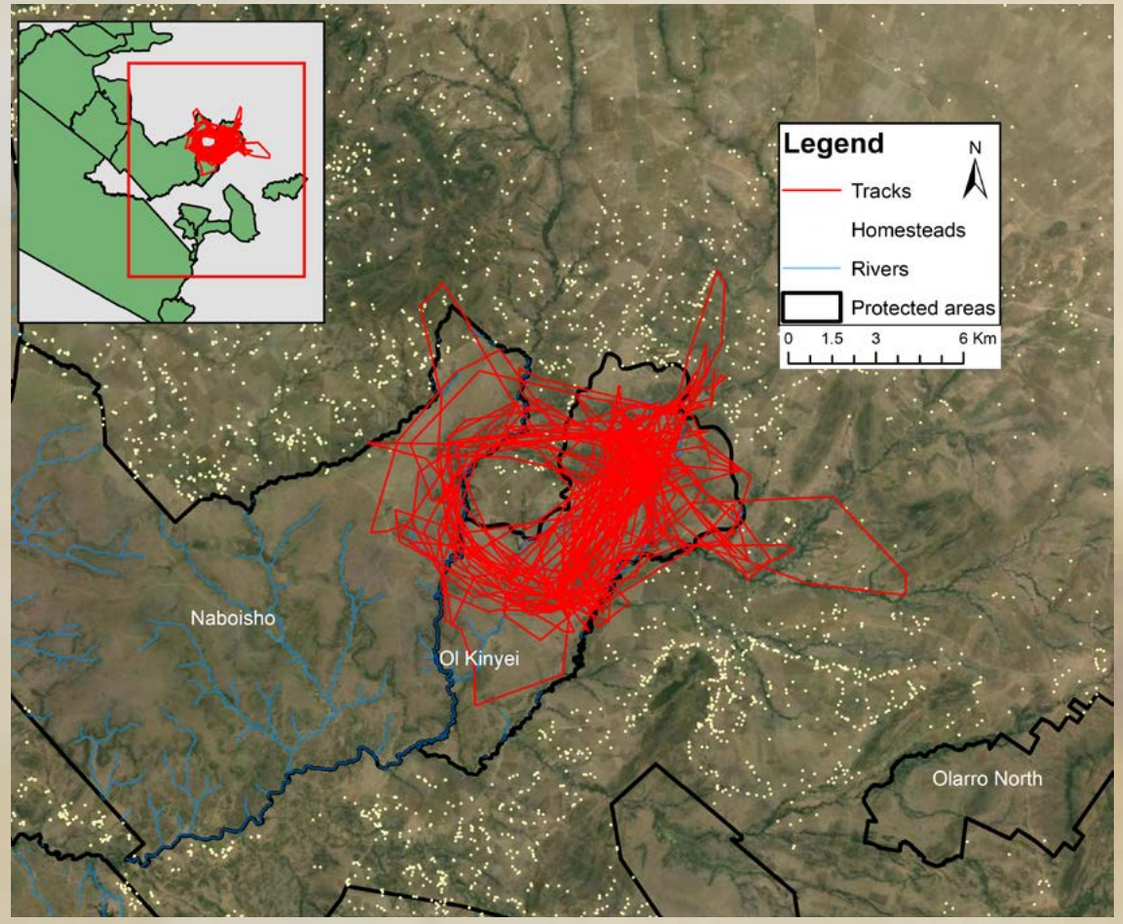


Figure 2. The collared male Ole Cook's movements are displayed by his actual tracks in red. Notice how he has avoided using the area between Naboisho and Ol Kinyei conservancies.

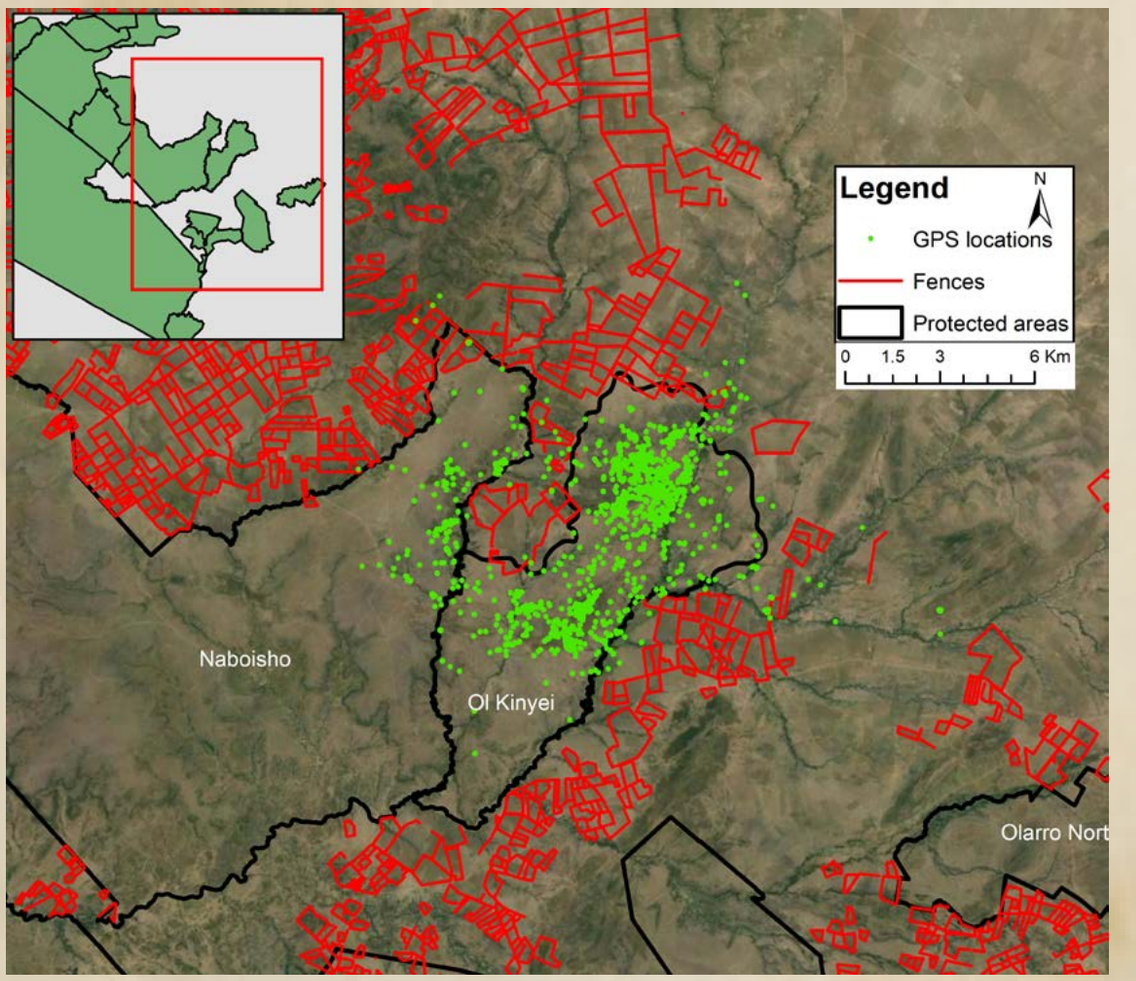


Figure 3. This map shows the current fencing situation around the conservancies, with Ole Cook's GPS location overlaid. There are close to zero locations in the massive fence between the two conservancies.

Oloisukut collared female

This female called Komeyian and her pride were utilising an area northeast of Oloisukut Conservancy quite frequently during this quarter, as a response to a higher prey abundance there, figure 4.

The pride home range was mostly avoiding areas with human settlements, concentrated on the land opposite the camps in Mara North Conservancy that has been least.

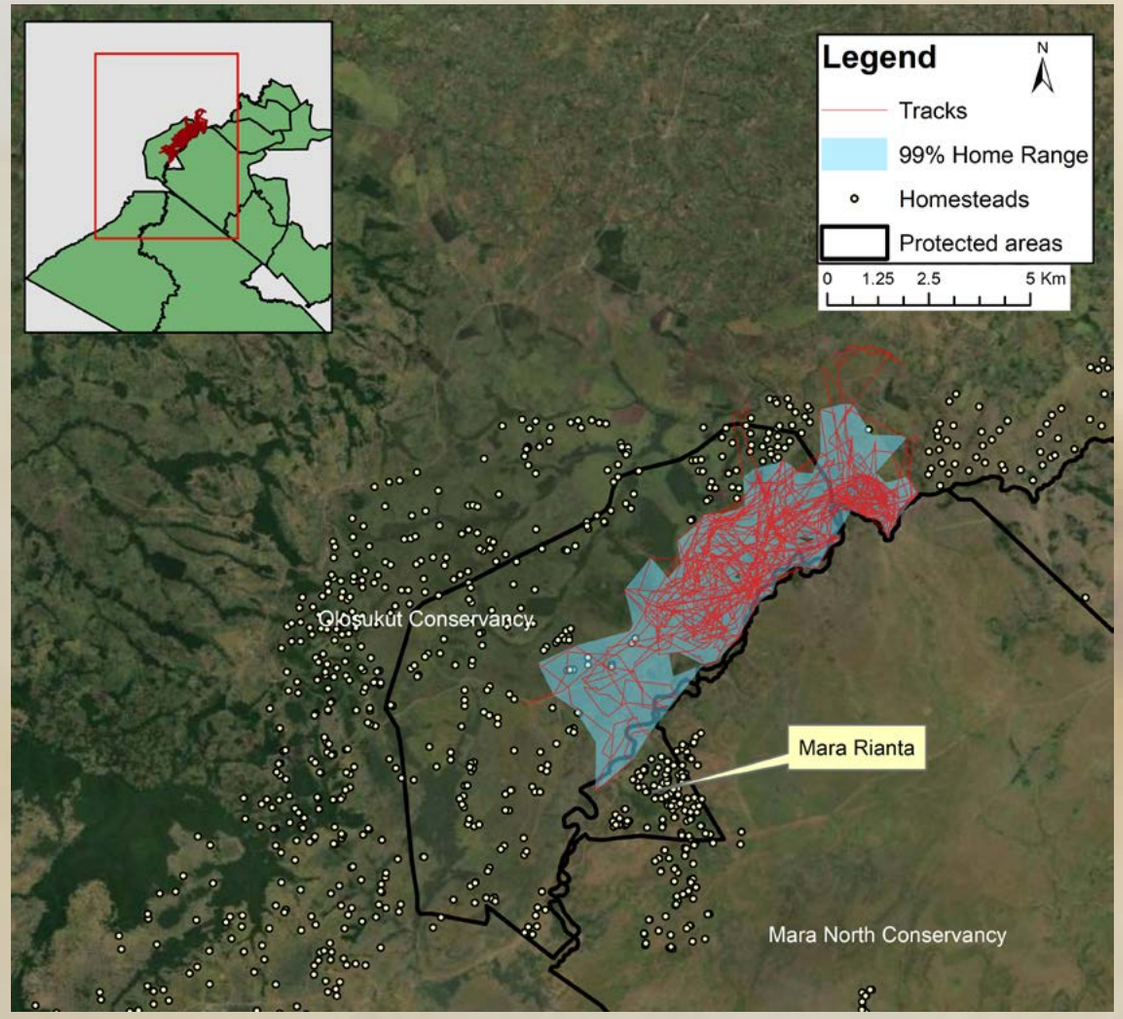


Figure 4. Komeyian's movements are displayed by her actual tracks in red, overlaid with her 99% home range.

Mama Kali

We were successful in retrieving all the data from the collar that was deployed on the Mara Triangle female Mama Kali from the Angama Pride that was killed in February. Below is a summary of the data.

Movements and home range

From September 18th to February 17th, the collared female's 95% home range was 52 km^2, while her 50% core area usage totaled 9 km^2.

She spent 94% of her time within the Mara Triangle and the remaining 6% outside, figures 5 and 6.

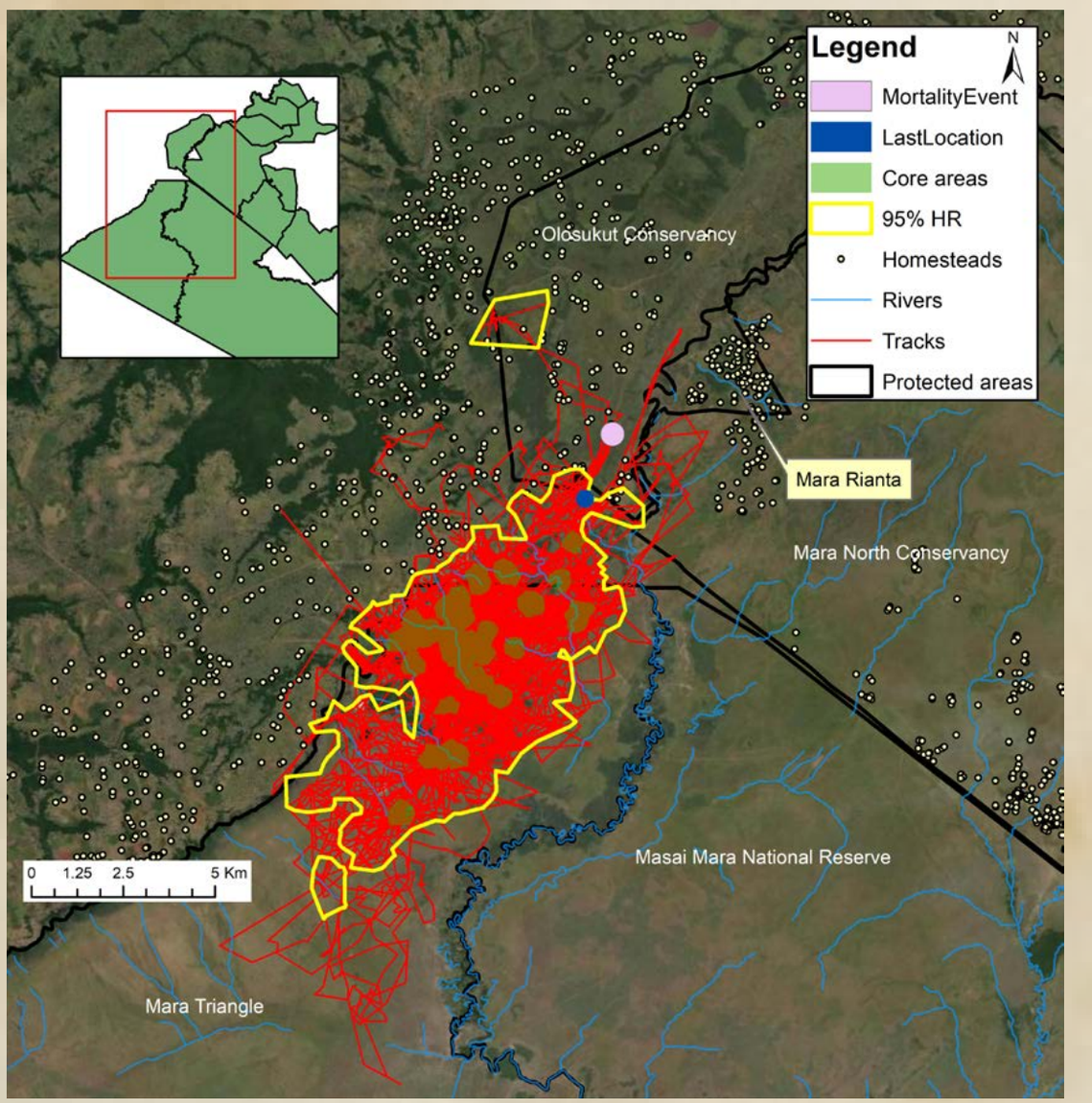


Figure 5. The map shows the complete set of tracks of the collared female overlaid with her 95% home range and core areas. The last transmitted collar location and where the collar and lion remains were found are also shown.

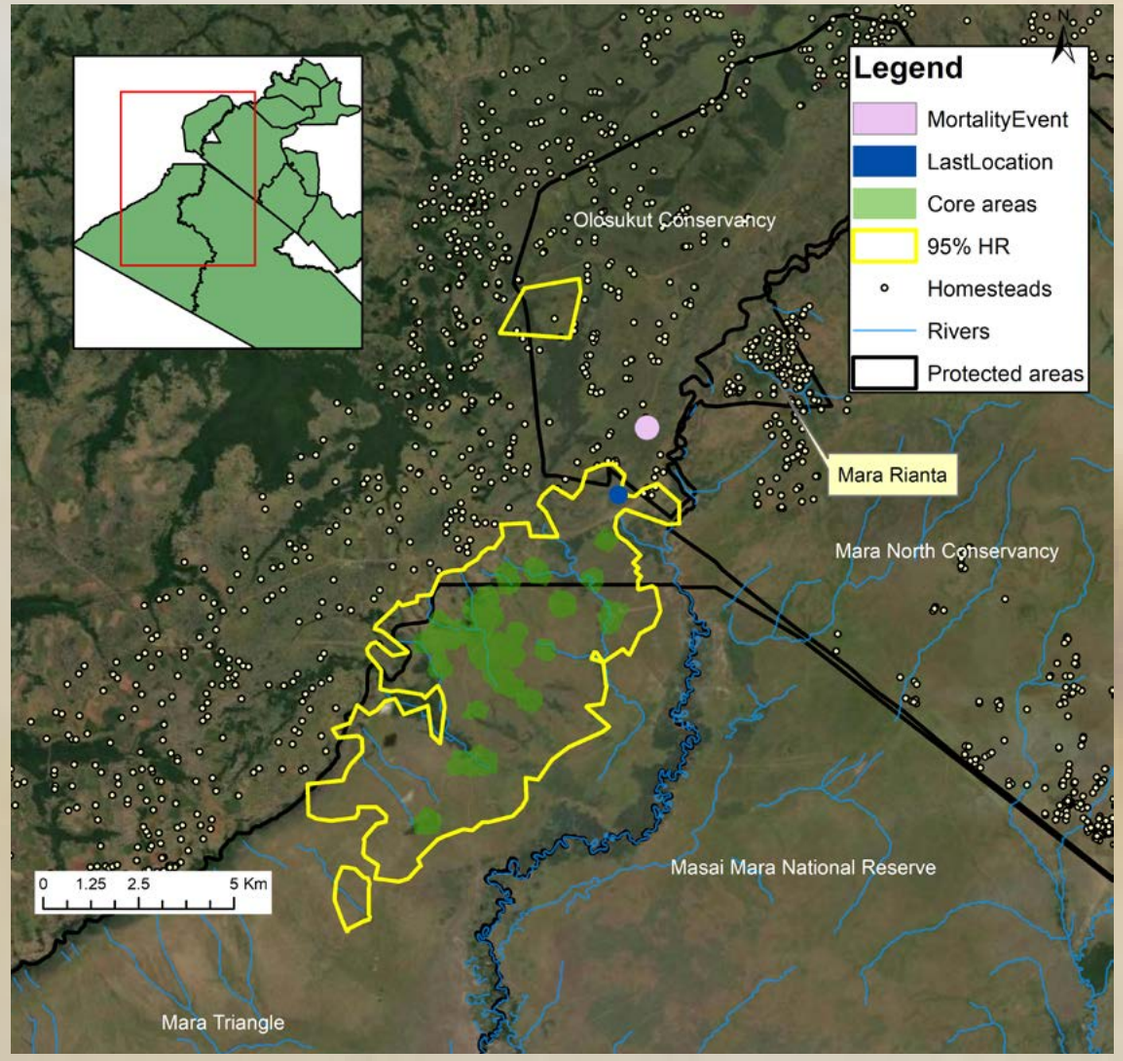


Figure 6. Same map as figure 5 but without the tracks.

Activity patterns

The collar constantly measured the lion's activity. Figure 7 shows that she was more active outside the Mara Triangle at night compared to inside at night, and more active inside during daytime vs outside during daytime. The difference for both cases was statistically significant ($p<0.01$).

In this context, the increased activity outside the Mara Triangle at night should be seen as time spent moving from A to B at a faster pace. Outside the protected areas, lions move in a landscape of fear and adjust their speeds accordingly. They spend more time hiding during the daytime outside, hence the higher inside daytime activity.

Figure 8 shows the mean activity pattern averaged over 24 hours. Most lions have a peak in their

activities twice during a 24-hour cycle, around dusk and dawn, but this lion seemed to have her highest activity peak during the evening hours.

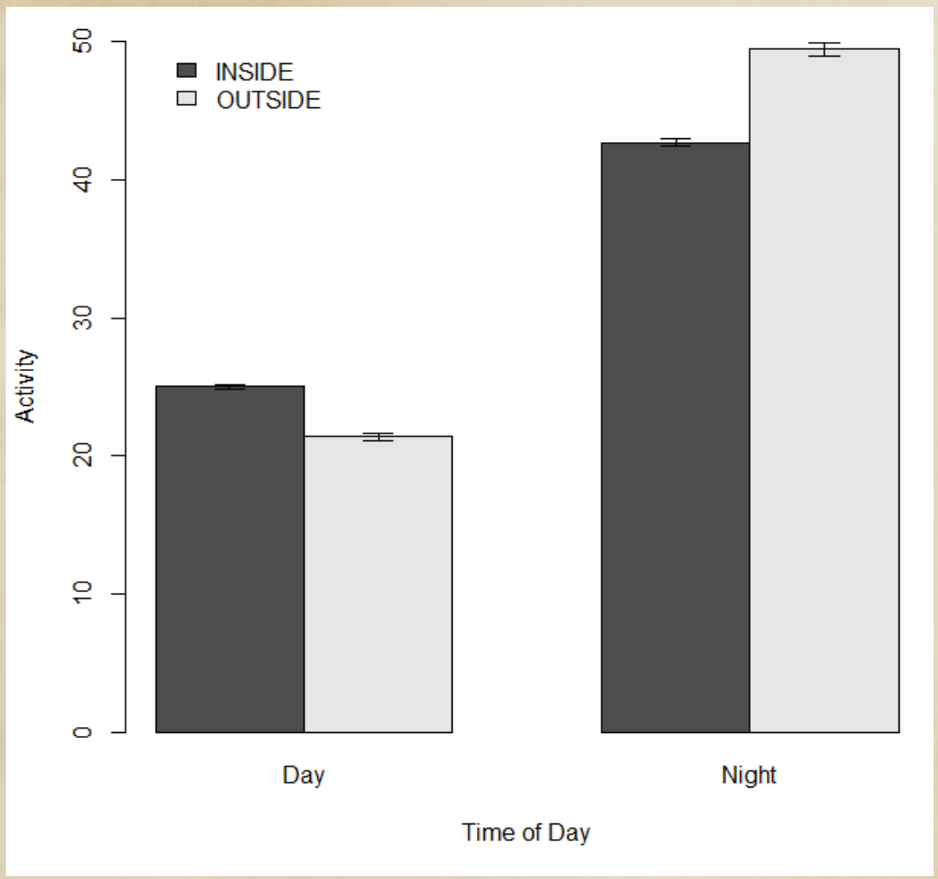


Figure 7. Daytime activity inside and outside the Mara Triangle and nighttime activity inside vs outside activity is shown, with error bars representing the upper and lower confidence intervals.



Figure 8. The overall mean activity pattern over 24 hours.

Habitat selection

Collar data can also be used to gain insight into what habitat types the animal prefers and the most common method used to understand this is to compare the habitat available within their home range with the habitat used. Figures 9 and 10 show the percentage of habitat available vs habitat used inside and outside the Mara Triangle.

If the used habitat is higher than the habitat available, then the lion is selecting for that habitat type. The graphs show that inside the protection of the Mara Triangle, the lion was not selecting for anything in particular with the habitat use being similar to the habitat available.

Outside, on the community land, however, Mama Kali was selecting more closed habitat types and avoiding open areas, which is typical lion behaviour outside protected areas to avoid detection by people.

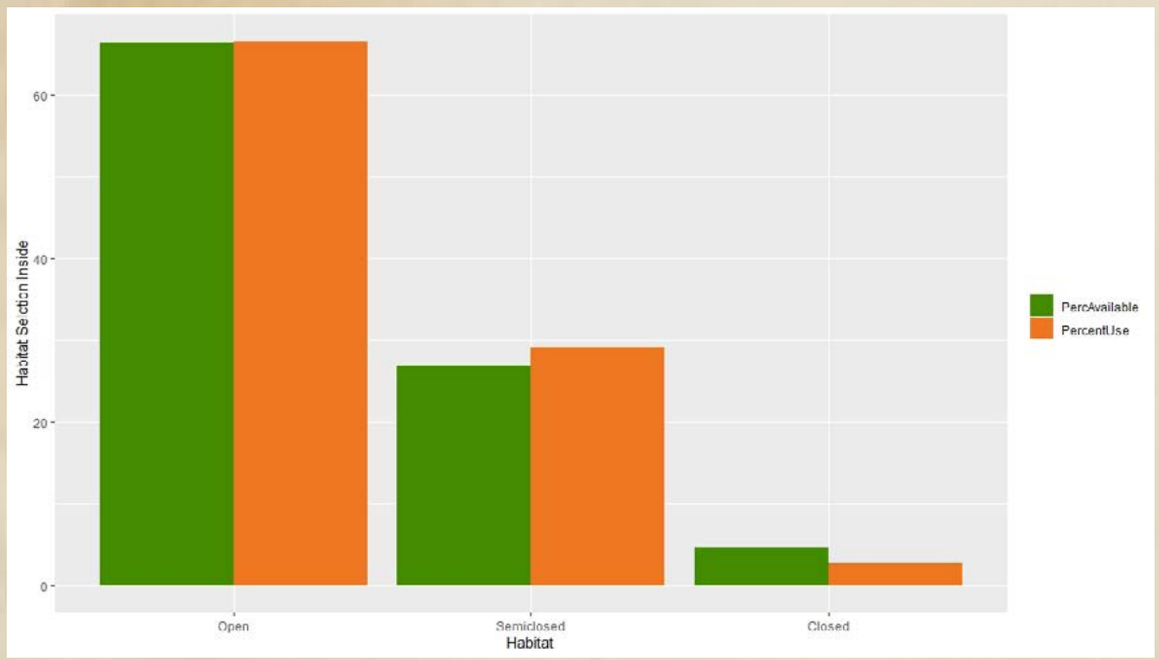


Figure 9. Habitat selection inside the Mara Triangle. The habitat used was very similar to what was available

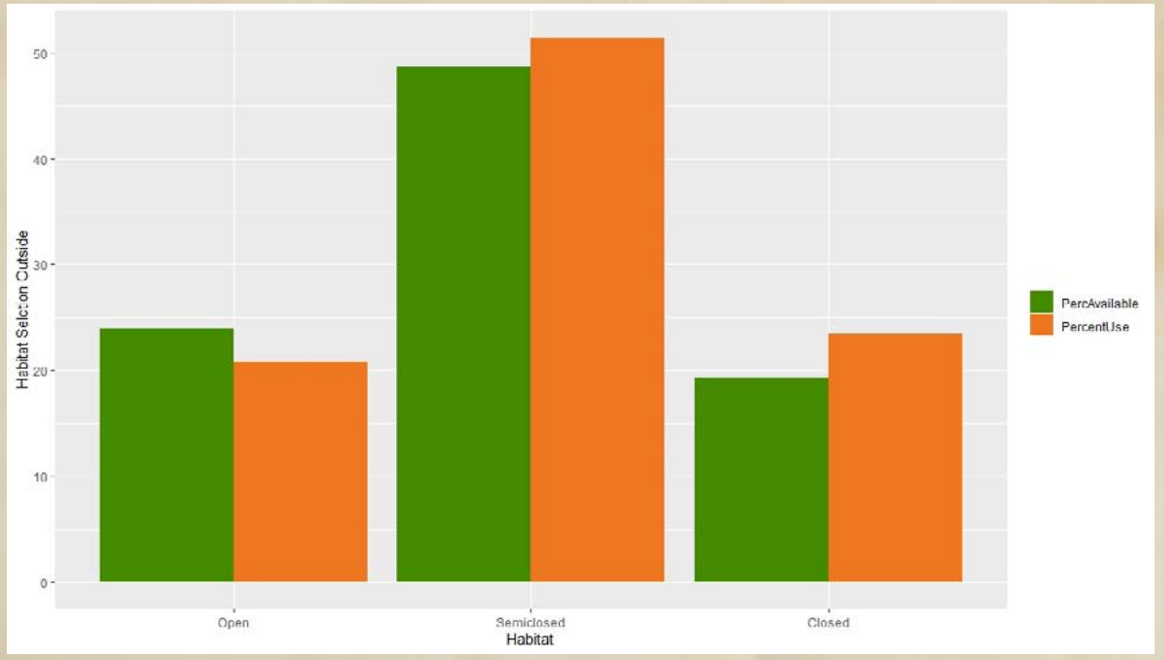
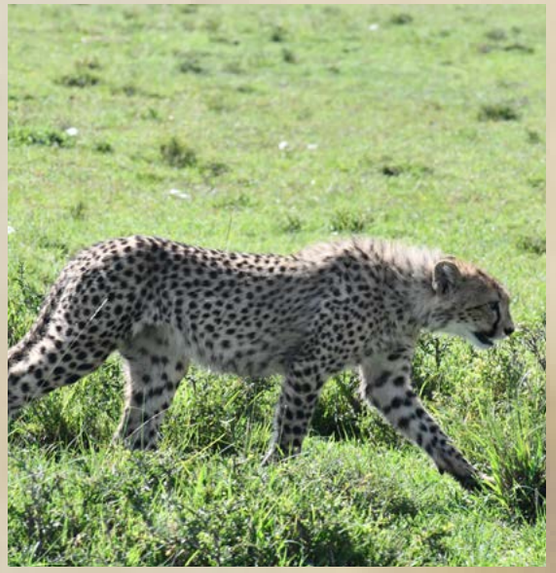


Figure 10. Habitat selection on the community lands. There was a selection toward more closed habitat

Cheetah updates

Births and Mortalities

Over the last quarter, we have recorded nine new cubs from three different cheetah mothers. Risasi, Sila, and Ntidai all brought cubs out of the lair almost at the same time. Ntidai brought three cubs out in Olarro North Conservancy, Sila brought two out in Olare Motorogi Conservancy, and finally, Risasi was recently seen with four in the Mara triangle.



Nadupoi's male cub

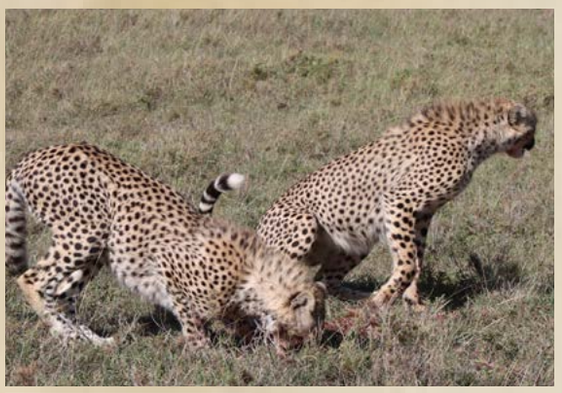
One of these females is a first-time mother, and we hope she will have luck raising the cubs. We also recorded two cases of cub mortality, where one was Kisaru's daughter Nadupoi, who lost her nine-month-old male cub to lions in Ol Chorro Conservancy.

Dispersal events

We recorded two dispersal events totalling five sub-adults. The first dispersal event was premature as Entito's then 12-month-old cubs were found alone in Naboisho Conservancy without their mother, and they seemed distressed and called out for her, but she was nowhere to be seen. They spent the next few days in that same area, calling and looking for Entito, but she had disappeared completely. We figured out something might have happened to her since she has always been a common sighting in Naboisho and Olkinyei conservancies but it seems she is gone and is assumed dead.



Neema's Subs



Kulete's Boys

The cubs have been sighted several times in Olkinyei Conservancy and recently one of the females from that litter has been sighted alone and so it seems they have separated, which would be early, or that one has died.

The other dispersal event we recorded was Kulete's two sub-adults, which have successfully dispersed at the age of 16 months and are currently hanging around Naboisho Conservancy.

Wild Dog updates

For this reporting quarter, two packs of three and two individuals, respectively, have been frequently seen by the community at dusk attacking sheep. Though they report seeing the dogs, they are elusive, never staying for long and quickly disappearing into thick bushes with hilly terrain.

A brother and a sister were sighted in Oloisukut Conservancy in April and later in early May in Lemek Conservancy, having passed through Olchorro Conservancy. The duo is of the 2019 litter of eleven pups from the Pardamat pack. The same two were with a brother feasting on an impala close to Mara Bush Houses in June.



A Pardamat wild dog

Conflicts

Sheep predation was on the rise in the northeastern rangelands of the Mara. The community lost thirteen sheep to wild dogs during this reporting period. The area has plenty of fences that hinder the free movement of natural prey, which often results in sheep predation.

SNI x KWT Hackathon

This October and November, the Sovereign Nature Initiative (SNI) will host an online hackathon featuring teams building tech in service to the balance and thriving of life on earth, with a specific focus on predator conservation efforts in the Greater Mara Ecosystem with MPCP.

During the SNI x Kenya Wildlife Trust Hackathon selected teams from the region as well as around the world will develop technology solutions to help KWT identify wildlife through computer vision models, and onboard these identities using web3 data and self-sovereign identity protocols such as KILT Protocol. SNI will encourage teams to use web3's distinct coordination-enabling abilities to tackle conservation challenges in communications and data integration.

Confirmed judges include Irene Amoke, Executive Director - KWT, Catherine Bischoff, CEO - SNI, Memo Some, Founder and CEO - Wildnow Foundation, and Craig Beech, Executive Director - Regenerative SPACE. This hackathon also offers a coin prize: 320 Kusama tokens and 15,000 Ocean tokens, plus a 5,000 euros bounty as a reward for winning teams' innovation and creativity.

Applications to participate will be accepted through September 12. Teams or individuals interested in the competition should complete this form. Accepted applicants will receive an invitation letter by September 16.




Photo ©2022 Felixe Kipng'etich

COMMUNITY UPDATE



Photo ©2022 Felixie Kipng'etich

The MPCP community team carried out activities geared at achieving the three core objectives: human-wildlife conflict mitigation, understanding and appreciating the roles of predators through community outreach, and engaging communities in conservation education through the wildlife clubs to achieve coexistence with predators as discussed in detail within the report below.

Human-Wildlife Conflict Mitigation

Poison Response Training

Wildlife poisoning threatens the existence of large carnivores due to its indiscriminate killing of both the target and non-target species. MPCP has been training community members and conservancy rangers on responding to poisoning incidents in a bid to establish a network of people to become first responders when poisoning occurs.

During this reporting period, MPCP conducted 5 trainings in Kikurrukurr, Ilpoorri, Embiti, Pardamat, and Oloisukut areas.

The training started with a brief questionnaire just to gather data on the number of participants with previous training and evaluate the training where community members/ rangers would be asked simple questions (Figure 14) in order to collect important data about the participants and site.



Figure 14: Dominic Sakat leads the questions sessions during the training at Kikurrukurr

Some of the topics covered during the training include; drivers of wildlife poisoning, the types of poisons commonly used in the Mara, signs/ symptoms of poisoned animals, steps to take to decontaminate a poisoning site, safety while responding to poisoning, crime scene investigation (Figure 15) and reporting of wildlife crimes to relevant authorities. During the training, 78 community members and 50 rangers were trained.



Figure 15: Michael Kaelo briefs Pardamat conservancy rangers before the practical session on crime scene investigation

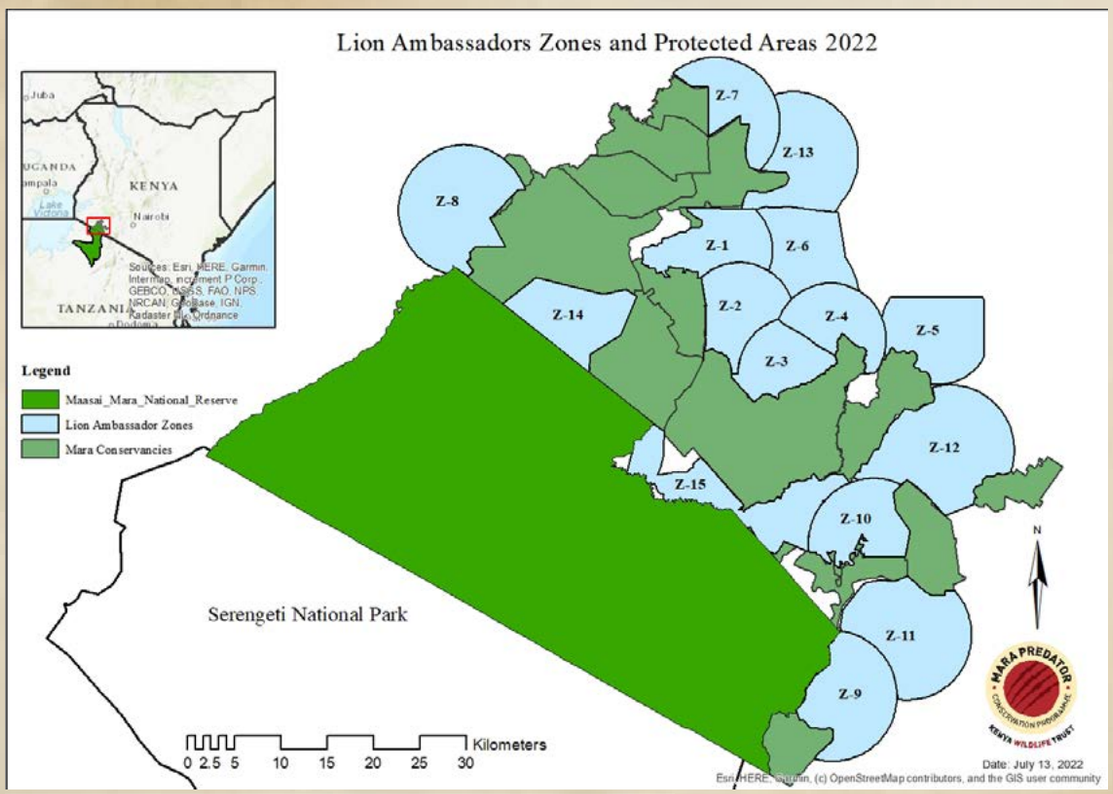


Figure 16: A map of the MPCP's lion ambassadors zones.

Community Feedback barazas

The Lion ambassadors have been engaging in various activities aimed at increasing tolerance towards lions and other predators in the Mara. Some of these activities include; carrying out daily monitoring in their zones (Figure 16) to collect data relevant for decision making, engaging communities through household outreach, working with herders to improve livestock husbandry, and responding to and mitigating human-wildlife conflicts as they occur.

During this period, the MPCP organized 15 community barazas to give and receive feedback on the Lion ambassadors Programme's findings over the past year. A total of 430 community members attended the barazas that were held in Oloolaimutia, Meguarra, Ilturisho, Kishermoruak, Enooronkon, and Ereyiet oltome, Pardamat, Enkeju enkoirien, Rekero and Oltorotua, Iltolish, Irbaan, Oiti, Enchorro o sidan, and Olare Orok.

During the feedback barazas, Dominic, and Michael (Figure 17) took the opportunity to create awareness of MPCP's work in the Mara and the steps taken to engage communities in conservation.

The lion ambassadors got an opportunity to interact with community members and explain their roles and findings to them. They also discussed the challenges they face in the field, highlighted key lessons they learned, and shared advice on ways to improve livestock husbandry in their zones.





Figure 17: Michael Kaelo addressing community members from the Enooronkon area during the feedback barazas.

The community members also got an opportunity (Figure 18) to interrogate the information shared by the ambassadors and other MPCP staff present and give recommendations to improve the Programme.



Figure 18: Mama Kijiji from Kishermoruak addressing the gathering during one of the barazas

Live Fences (Pilot)

Livestock enclosures act as a first line of defense against predators and protect livestock at night. MPCP has been putting up Recycled Plastic Poles bomas (RPPBs) in the Mara Ecosystem in an attempt to mitigate HWC incidents. The bomas have been effective at keeping predators at bay and livestock safe at night.

However, the visibility element where predators can see livestock through the chain links fence sometimes led to stampeding of livestock at night which may lead to breakages of the bomas. To counter this, MPCP piloted the use of live fences (euphorbia cuttings) to provide cover in 4 bomas in the Meguarra area (Figure 19) bordering Siana Conservancy. The cuttings will grow and cover the boma adding another layer of protection and also acting as a windbreaker to protect livestock from cold at night.



Figure 19: live fence (Euphorbia cuttings) planted outside one of the recycled plastic poles bomas at Meguarra area to provide cover.

Lion Ambassadors Reviews

The Lion Ambassador programme has been growing steadily and contributing significantly to achieving MPCP's objectives. The Ambassadors have played a critical role in conflict mitigation, response, and community outreach to promote the conservation of predators. During this period, the team participated in its 3rd and 4th ambassadors review aimed at improving performance, identifying challenges facing the Programme, and charting the way forward.

During the reviews, each ambassador gets a chance to fill out a self-evaluation form which gives more information specific to his zones, and the difficulties he encounters in delivering set objectives, a refresher course was offered on poison response training to ensure the ambassadors are well informed and ready to tackle any incident they might come across during their patrols in the field.

The ambassadors were engaged in training on EarthRanger (ER) Platforms (Figure 20) which helps in monitoring collared lions when they move out of protected areas to action quick response aimed at preventing retaliatory killings of lions. The idea is to have more periphery lions collared and ambassadors monitoring their movements through ER on their smartphones and a geo-fence established all along the Protected Areas (PA) boundaries and if a lion gets out an alert is sent to the ambassador via their smartphone to action quick response. This information will be fed into future plans to improve the Programme.



Figure 20: Lion ambassadors keenly following the training on the EarthRanger platform

During the review meeting, the lion ambassadors were also introduced to the 'Ole Peenko' book series and its role in conservation. The ambassadors were each issued with Ole Peenko 1 & 2 books (Figure 21) for them to use when visiting schools in their zones to read with learners and share the messages widely.



Figure 21: Lion ambassadors posing for a photograph holding their copies of Ole Peenko's books.

Lion deterrent lights evaluation

Predation of livestock still remains a major challenge to pastoralists in the Mara ecosystem. This is more pronounced in areas in close proximity to protected areas characterized by dense vegetation and hills as they provide good cover for predators during the day.

Mara Predator Conservation Programme installed 300 predator deterrent lights in two conflict hotspot areas around the Mara (Laila-Ng'osuani and Pardamat hills in 2021). MPCP used the opportunity to identify bomas near those with lights (Controls) (Figure 22) which were also monitored to measure the effectiveness of lights as a conflict mitigation tool.

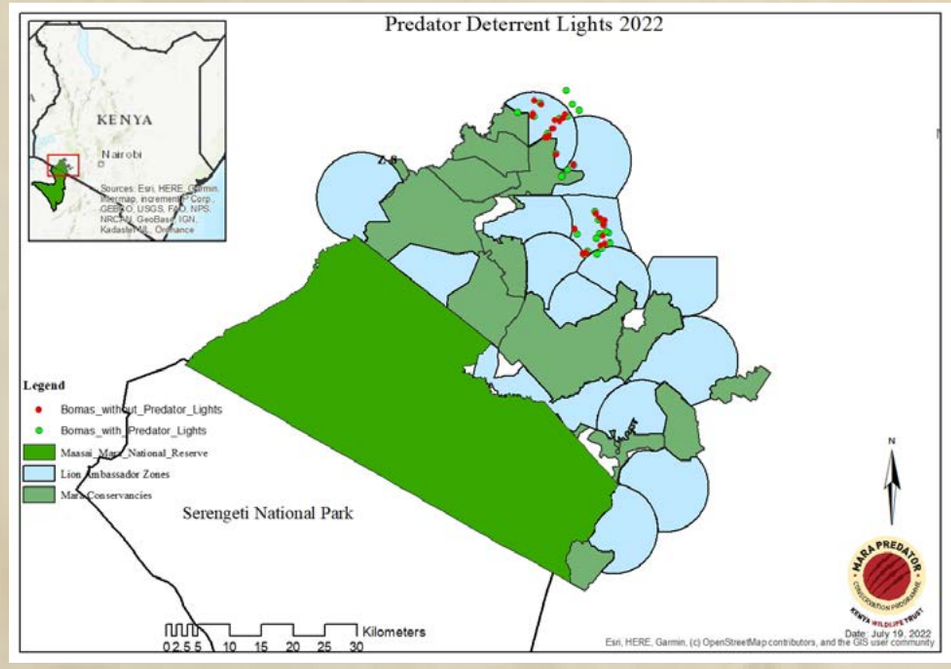


Figure 22: Map of randomly selected households for the questionnaire survey.

The survey explored whether the predator deterrent lights helped to reduce livestock attacks inside bomas at night and whether the lights helped to contribute to positive perceptions towards predators. Questionnaires used provided informative data from the sample population. Below are some of the results from the survey;

- In households with lights, the number of cattle increased by 5 % while sheep and goat numbers decreased.
- As for the households without lights, more livestock was lost (Figure 23) in comparison to the zero livestock loss experienced in households with lights.

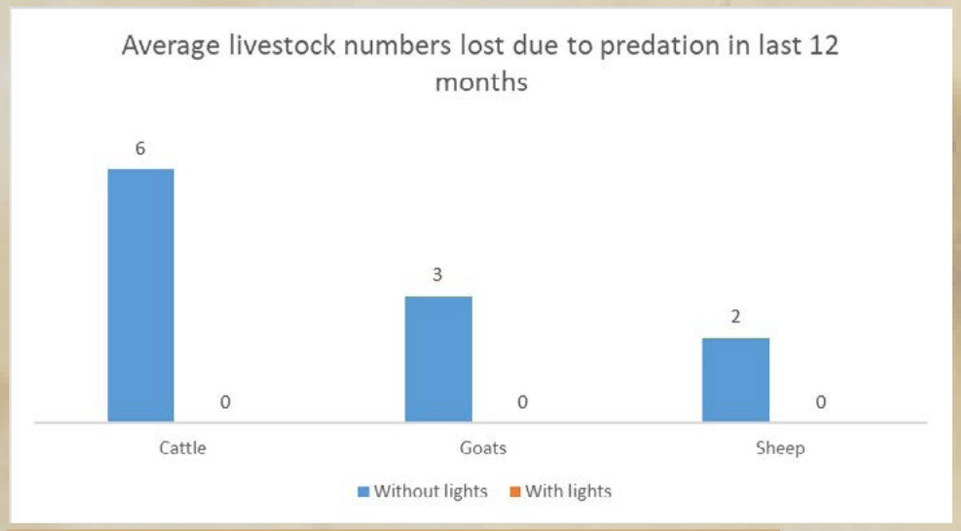


Figure 23: Livestock depredation in bomas with & without lights

- 50% of both types of households who lost their livestock at night due to predation received compensation after an average of 6 months of reporting incidents.
- 8% more households with lights were happy to interact with wildlife as compared to 10% more households without lights who were unhappy with the same interaction.
- 3% more households with lights had a more positive outlook on wildlife living in their areas as compared to households without.
- Households with lights were more agreeable to wildlife having rights at 37% as compared to households without lights at 23%. However, more than half of both types of households expressed wildlife having no rights.
- Despite this, more households (71%) disagreed with wildlife poisoning as a form of retaliation to livestock loss from predation.
- An average of 5 lights were installed per control household where only 70% are still working to date. An average of 2 lights were reported to stop working after an average of 2.5 months after installation.
- 100% of households without lights expressed an interest in having their livestock enclosures installed with lights. This is so they too can benefit from reduced predator attacks at night. This will allow them to move from old habits such as using dogs to guard at night.

Anti-poison campaign

The fight against Wildlife poisoning is one of the top priorities for MPCP as it threatens not only the survival of predators in the Mara but also affects the existence of other carnivores and birds of prey. During the reporting period, MPCP teamed up with the Maasai Mara Wildlife Ambassadors (MMWA) to conduct campaigns in 5 markets: Endoinyo narasha, Oloolaimutia, Nkineji, Ngosuani, and Naikarra.



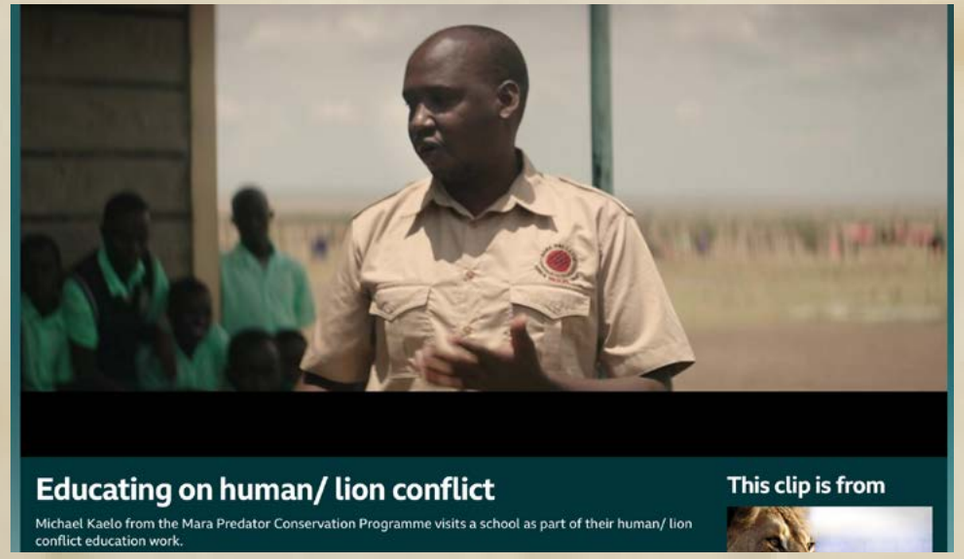
Figure 24: MMWA team performing during the anti-poison campaign held at Oloolaimutia market. Photo © Felixie Kip

The team from Maasai Mara Wildlife Ambassadors (MMWA) (Figure 24) used traditional songs (infused with anti-poison messages), coral chants, drama, and talks to discourage people from using poison to kill predators rather than adopt proper mitigation measures that prevent livestock attacks and support coexistence efforts.

The campaigns reached more than 5000 market attendees and even more, will be reached by the message as a majority of the observers recorded the songs using their smartphones to watch later at home. T-shirts with an anti-poison message were given to a few men and women in the markets which will ensure the message stays on.

BBC Two - Lion: The Rise and Fall of the Marsh Pride

A new film directed by Pamela Gordon premiered on BBC Two recently and it highlights the plight of the Marsh Pride in the Greater Mara Ecosystem. Their captivating story from forty years of footage showcases the pride's resilience. It also gives insight into our community outreach and conservation education work towards mititgating human–conflict. You can stream the film here.



WILDLIFE CLUBS

Wildlife Clubs Open Day

The Mara Predator Conservation Programme organized and facilitated the 2nd wildlife club's open day on 21st May for all nine wildlife clubs from nine primary schools that it works within the Mara.

The objective of the event was to celebrate the milestones and achievements of the Clubs since 2015. This event was also to help communities understand the role MPCP plays in support of the clubs.

The Open day also provided an opportunity for the children to interact, learn, and share conservation messages in form of poems, songs, dance, drama, and role play to others and community members, and other stakeholders in the Mara.



Figure 25: Pardamat Conservation Area manager (Jackson Taki) gives a talk during the Open Day.

Loigero's primary school "friends of environment" wildlife club presented a drama on Human Carnivores Conflict (Figure 26) that was a key highlight of the day and painted a picture of how conflict emerges, the reactions that follow including wildlife poisoning, and in the end providing guidelines for preventative action to the audience.



Figure 26: Loigero primary school presents a drama on human-carnivore conflicts

The children received words of encouragement through speeches from invited guests. Some of the stakeholders who managed to attend the event include; Olare Motorogi Conservancy representative (OMC), Mara North Conservancy (MNC), Naboisho Conservancy, Pardamat Conservation Area (PCA) (Figure 25), representatives of the National Government (Area chief), Nature Kenya (NK), village elders and community members.

Wildlife clubs' patrons' training

Conservation education in the nine wildlife clubs' schools that MPCP supports remains a vital role in their work plan. To better equip the club's patrons with knowledge on how to run the club successfully, MPCP organized a two-day training whose theme was "***Conservation Education for Patrons***" which was facilitated by Dr. George a conservation Programmes manager from Wildlife clubs of Kenya.

18 patrons from the 9 schools (Figure 27) MPCP works within the Mara attended the training in Talek where environmental projects resource mobilization, role of teachers in Education for Sustainable Development (ESD) implementation in Kenya, a whole School Approach in Micro Project Planning and Management, ESD and the school curriculum and proposal writing were among the topics covered during the training. After the training, the patrons were privileged to go for a game drive at the Maasai Mara national reserve where they saw lions, elephants, buffaloes and other herbivores.



Figure 21: Lion ambassadors posing for a photograph holding their copies of Ole Peenko's books.

Installation of Water Tanks

In efforts to support rainwater harvesting for tree planting and use in schools, MPCP purchased and installed three water tanks in three wildlife club schools (Mbitin, Molibany, and Ngosuani).

MPCP'S wildlife club officer noticed water scarcity in the three schools during a tree planting exercise where members were forced to walk long distances to fetch water for the seedlings.

The 5000 liters water tanks will provide enough water for seedlings during droughts in the three schools and also provide safe drinking water for the pupils.



Figure 28: Molibany wildlife club members posing for a photo next to the tank.

Reading Ole Peenko's book series

MPCP's community outreach officers met fifty Mazigira club members at Kishermoruak primary school (Figure 29) where learners read together 1st and 2nd editions of ole peenkos books courtesy of Maarifa Foundation.

The aim of reading together was to help the learners to understand the stories in the books and get the correct information and appreciate the importance of conservation in the Mara ecosystem.



Figure 29: MPCP's community outreach officer reading together with Ole Peenko 2nd edition with Mazingira club members at Kishiermoruak primary school.





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