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Mara Elephant Project

BACKGROUND

Mara Elephant Project (MEP) was established in 2011 with the mission of protecting elephants to conserve the greater Mara ecosystem. The Maasai Mara ecosystem, an extension of the vast Serengeti ecosystem, is Kenya's most important wildlife area and tourism asset. Although Kenya outlawed the hunting of elephants in 1973 and CITES established a total ban on the sale of ivory in 1989, human-elephant conflict (HEC) and poaching increased. The Mara elephant population numbers held relatively steady until 2010, when 3,162 were counted by World Wildlife Fund (WWF). The WWF total count in 2014 revealed a marked decline to 1,488, the lowest number in 30 years. In the Kenya portion of the ecosystem, people and wildlife peacefully co-existed when space for both did not overlap; however, as the human population has grown, the rangeland demand for livestock and farming has increased, pushing wild animals into smaller areas.

MEP was developed to fill a gap in protecting elephants outside of conservancies and protected areas in the Mara ecosystem. Elephants that are "safe" in the Mara have been in the formally protected Maasai Mara National Reserve and the informally protected conservancies. As a result, most of the illegal killing of elephants, and hence the work MEP does, is concentrated in an unprotected area of 11,500 km^2 outside these areas. MEP believes that by protecting elephants we are also protecting the greater Mara ecosystem. To better understand and address the poaching issue, where the elephant rangeland extends beyond protected areas, MEP's developed a three-part program called the MEP Method. The MEP Method to protecting elephants in the greater Mara ecosystem includes anti-poaching patrols and rapid response units, elephant collaring, monitoring and research and human-elephant conflict mitigation.

MEP has deployed a total of 57 rangers in partnership with the Kenya Wildlife Service. The Sheldrick Wildlife Trust in 2018 supported a permanent ranger unit in the Mau Forest, adding six new rangers to our formidable team, a far cry from the eight rangers we started with. MEP employs three intelligence officers who have been at the center of many arrests and seizures. Since 2011, MEP and the Kenya Wildlife Service have arrested 354 total poachers which has resulted in the seizure of 1,493 kilograms of ivory. MEP's presence in the Mara has resulted in less elephant deaths due to poaching. In 2012, 96 elephants were poached for their ivory in the Mara ecosystem, in 2017, that total fell to four and remained steady into 2018. This is a reduction in the percentage of illegally killed elephants (PIKE) in 2012 from 83% to 24% in 2018.

The most concerning trend in 2018 in regard to poaching in the Mara is bushmeat poaching. Snares are strands of wire usually strung up between two tree trunks low to the ground. They are often used to catch zebra and wildebeest, so they can be sold illegally for bushmeat. This is a very common form of poaching in the Mara and one MEP patrol units often run into. In 2018,

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MEP ranger units removed 324 snares in our area of operation, the most coming from the SWT Mau De-Snaring Unit operating in the threatened Mau Forest.

MEP has also established a strong working relationship with key partners and is on the cutting edge of deploying innovative techniques and technologies for anti-poaching and human-elephant conflict mitigation. One such technique is the building of chili fences using recycled motor oil and chili powder which upsets the elephant's sensitive sense of smell. Since 2011, MEP has built 38 km of chili fence and trained 540 farmers. MEP began our elephant collaring program in 2011 and in total have collared 48 elephants across the rangeland. These elephants enable us to not only monitor the movements of elephants and protect them, but also determine the extent of their range. Using the data collected from these collared elephants MEP is working on providing a number of indicators for informing and implementing the national Elephant Action Plan and future spatial ecosystem plans that protect the Mara's wildlife and the habitat upon which they depend.

In that last seven years (2011-2018), MEP has increased our presence on the ground, reduced poaching, expanded our partnership network, effectively used innovative techniques and technologies to mitigate conflict, increased our community activism and engagement and expanded our elephant research program. MEP's goals include focusing on the **protection** of elephants and the **conservation** of the Mara ecosystem by increasing our **research** efforts all while investing in the **education** of local communities who live alongside wildlife and the future generation of Kenyans who will inherit this complicated mission.

The Mara Elephant Project is a registered trust in Kenya and operates on a non-profit basis. The Sidekick Foundation does business as MEP in the USA and is a 501(c)3 registered charity. We are active on both Facebook and Instagram, @maraelephantproject, and continually update our blog and send out quarterly newsletters to promote transparency and engage supporters.

2019 FUNDING NEEDS

PROTECTION

MEP Rangers

Mara Elephant Project employs 57 rangers in our patrol units who work tirelessly to protect elephants to conserve the greater Mara ecosystem, one of Kenya's most important ecosystems. MEP's rangers are at the forefront of our anti-poaching operations and human-elephant conflict mitigation efforts through boots on the ground initiatives, living out in the field for up to two-months at a time. MEP's rangers are the backbone of our organization and in the past year had many great successes. A significant achievement for Mara Elephant Project in 2017 is that we recovered more ivory from arrested suspects than was lost in the Mara ecosystem from poaching or conflict. Our intelligence department continues to confirm ivory is still being sought

after by poachers and brokers and we've recently discovered that the bulk of the ivory recovered is coming out of Tanzania with the Mara Conservancy reporting four bull carcasses in the Serengeti in 2017. The monthly running costs for **core intelligence operations** is $6,000 which includes investigator and informant payments, vehicle running costs and field operation costs for a total of $72,000 a year.

In 2018, MEP also increased our area of operation to include the Mau Forest and Loita Hills. These two areas are vastly under regulated and illegal logging, poaching and human-elephant conflict were all extremely high. The Sheldrick Wildlife Trust provided funding for the creation of the Mau Forest unit and MEP was able to expand into Loita by re-deploying rangers from the core rapid response units away from conflict hotspots during the low conflict seasons. In 2018, in the Mau and Loita area MEP made significant anti-poaching headway. Additionally, the rapid response unit started working with a self-help forest patrol unit based in the Emitik area near Olengururone, which allowed them to have local help while operating in the forest. The existing operations cost $46,000 a month for MEP **anti-poaching and rapid response units** to continue to make an impact in the field. This includes support for salaries for rangers, rations, the cost of running vehicles and stipends for attached rangers from KWS.

Key to the effectiveness, morale and retention of rangers is on-going training and development. MEP aims to provide ten days of **training** per annum per ranger (excluding the CEO) at a total cost of $21,000 for MEP ranger training and development in 2019. Finally, ranger retention and morale are of the upmost important to MEP. This is why in 2019 we introduced a program where each MEP ranger can have the **school fees** provided in full for up to two of their children and we'd love to find a patron for this initiative. This program costs $15,000 per year and MEP feels it's vitally important to recognize the central part the rangers play in our conservation operations and the need to ensure funding for ranger welfare is essential to recognize their dedicated efforts.

Loita Hills Permanent Ranger Unit

A survey of the Loita Forest in January and October of 2018 was conducted by the Wildlife Conservation Society (WCS) and World Wildlife Fund (WWF) with the help of MEP and other partners all funded by the Disney Conservation Fund. It found that the Loita Forest does not have a jurisdictional protected area status leaving it vulnerable to poaching, grazing and illegal logging. They found the forest being used by Maasai as their dry season grazing grounds, which is problematic as the Loita Forest is an important refuge for elephants and other wildlife species including leopard and African wild dog. Although the forest cover is just over 3% of Kenya's land area it contains 50% of the nation's tree species, 40% of the larger mammals and 30% of known bird species. Kenya's largest rivers originate in the Aberdares, Mt. Kenya and the Mau Forest complex, but also smaller forests such as Loita are key to the provision of water year-round for wildlife, people and industry. For example, springs and rivers originating from Loita Forest are the sole sources of fresh water for the Magadi Soda company.

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WCS's report found there were 539 elephant dung piles in January and 801 in October 2018 suggesting the Loita Forest is an important area for elephants. Additionally, elephant density was very similar in both wet and dry season, suggesting it's an important elephant habitat throughout the year**.** The report also found seven total elephant carcasses in the area surveyed (400 Km^2) as the result of ivory poaching. This rate was alarming compared to what was reported in other forested areas like the Mau Forest (four) and the Aberdares (five), when considered that the Loita Forest is five times smaller than either. In addition to the high poaching level, there were 1,466 signs in January and 1,526 signs in October 2018 of anthropogenic activity recorded as opposed to 623 signs in the Aberdares, 461 on Mt. Kenya and 3,830 in the Mau Forests Complex. These included 1,344 livestock in the wet season and 1,084 livestock in the dry season, suggesting the forest is under human pressure all year round. Additional alarming data states that some 112 logged trees were encountered in January 2018, and another 51 newly logged trees were encountered in October 2018.

Currently, MEP has been able to expand into the Loita area by re-deploying rangers from the core rapid response units away from conflict hotspots during the low conflict seasons and this response has already made an impact. In October 2018 our intelligence unit arrived in Mosiro and discovered an active poaching ring operating in the area. An elephant carcass estimated to be a month old was found without tusks. Additionally, the animals were all very skittish and though they found elephant tracks, there was no evidence of elephants stopping to eat or drink, meaning they were aware they were under threat. MEP CEO Marc Goss and Senior Warden James Ekiru deployed the helicopter to help find a reported large elephant herd and investigate the Loita area by air. What they found was very discouraging; lots of illegal logging was taking place in the forest, the community farms were encroaching on the forested land and they even found an active poachers camp. A herd of over 100 elephants was observed living in this portion of the forest, all of which would be at a high risk of poaching or being harmed while coming in contact with humans. In response, MEP deployed its rapid response team into this northern section of the Loita Forest to monitor the elephants, shutdown illegal logging sites, root our any poachers, and help mitigate human-elephant conflict and better relations for the bordering community. As a result, in October, four suspects were arrested for illegal logging with 500 posts confiscated. As recently as February 7, 2019, a two-month-old elephant carcass was found in the Loita area by MEP's rapid response unit with the cause of death as poaching. However, without a permanent team in the Loita Forest it is very difficult to effectively provide elephants protection and gather information on the ever-changing situation.

A permanent ranger presence is needed to really make an impact in this area. MEP needs support for two years to establish a **permanent ranger unit for the Loita Hills** at an operational cost of $52,000 a year plus a further $71,000 for ranger field equipment and a vehicle resulting in an overall cost over the two years of $174,500. An individual donor has already agreed to make a $50,000 contribution toward the establishment of this team in 2019; however, more is needed. Based on what we've just experienced with the establishment of a permanent Mau

Forest unit, a two-year timeline is necessary to ensure that the proper training and equipment is established within the first six months of the team before an impact can really be made. This team would be established as soon as funding is secured and consist of seven rangers, a driver and two KWS rangers that are well-equipped and trained to start making an impact in this area.

Elephants play a key role in structuring habitats and no habitats are more important to Kenya's well-being than its forests, which often act as the water tower for key rivers and lakes in Kenya. MEP's ability to protect elephants in the Loita Forest will directly help protect the forest and the communities living alongside.

CONSERVATION

Community Surveys

MEP operates in the unprotected areas of the Mara ecosystem and therefore collects constant data on areas that experience high human-elephant conflict. Our rangers in the field are seeing firsthand the impacts that a growing human population are having on the elephants in the ecosystem and there needs to be space set aside for both. One of the key needs for MEP in 2019 is a comprehensive community survey of areas that consistently experience high levels of human-elephant conflict. One such area is just down the road from MEP HQ right over the Mara River. This is a settlement area that is growing and is situated right next to Mara North Conservancy. MEP rangers are chasing elephants across the river almost daily and nothing is going to change unless we all work together to find a solution. That's why a survey and community liaison would be critical to understanding better what the community thinks a long-term solution would be. The MEP community liaison officer would be responsible for undertaking surveys, arranging meetings with the local community and implementing the agreed upon solutions. To support a full-time **community liaison officer** for MEP as well as their transportation, laptop, meeting and survey expenses would be $28,000 a year.

RESEARCH

Long-Term Monitoring & Research

The data collected from MEP's elephant collars is the single best indicator for identifying elephant density hotspots, defining critical habitat and corridors, and illustrating elephant movements to target audiences. Combined data from a sample number of elephant collars spread across the elephant population present an accurate extent of the current elephant range in the Mara-Serengeti ecosystem. The ongoing collection of data and further analysis must continue to provide the evidence underpinning the communications and advocacy efforts of the organization to protect this critical habitat into the future. Not only for elephants, but all wildlife that are represented by this umbrella species. To support MEP's **core elephant monitoring and data collection initiative** is $172,000 a year. This includes salaries, research permits, download, license and storage fees, telecommunications, travel, publications, research vehicle running costs and research and data analytics. Equipment costing $84,000 is also

required to support the new team in collecting and analyzing key data sets, including a dedicated research vehicle, laptop and weather stations.

Dr. Jake Wall joined MEP as the director of research and conservation on a full-time basis in January 2019. MEP's research goal for 2019 is to significantly invest time and resources in developing its applied research agenda aimed at enhancing the protection of elephants and the habitat upon which they and other wildlife depend. Dr. Wall spent the first part of 2019 refining MEP's research objectives by scoping the extent of past, current and future elephant research and conservation activities in the Mara and identified those areas where MEP can best focus its efforts. He finished MEP's *Individual Collared Elephant Report 2011-2018* that documents in detail the movement patterns of the 48 elephants that MEP has tracked since 2011 up until the end of 2018. The 98-page report contains a biography, photo ID, wet and dry season home-range maps and statistics plus a movement map and statistics for each elephant. It also provides an estimation of the extent to which each elephant has been crop raiding and how they distribute their time across the landscape, both inside and outside of protected areas. The report generation is almost fully automated using the Python coding language and MEP plans to repeat it every year.

MEP will continue to monitor the movements of elephants using high-resolution GPS tracking. GPS tracking provides a fine-grained view of how elephants partition their time across the landscape and to their movement ecology. MEP will start to monitor each collared elephant in the field more closely to record its life history which helps inform tracking data analyses and provide biological insight. MEP would also like to **monitor the overall distribution of the greater Mara elephant population**, not just collared elephants, to better understand elephant space use in relation to protected areas, unprotected areas and seasonality beyond that available from GPS tracking alone. A fixed-wing aircraft would be a great way to fulfill these objectives and MEP has access to a pilot and fixed wing aircraft costing $15,000 for a total of 50 hours a year. The key datasets needed to fulfill our research objectives include: high-resolution GPS tracking data collected by current and future GPS collars; distribution data as recorded by fixed-wing aerial census; high-resolution satellite imagery to map landcover; ground-truth information and spatial layer collection by a research assistant using a research vehicle.

In 2019, MEP would like to increase the amount of demographic data it is collecting on the Mara elephant population. We would like to continue with the work started by Dr. Joyce Poole and extend the Elephant Voices individual ID database by establishing a long-term elephant monitoring program. Individual ID studies can provide critical insight into population structure (e.g., total population numbers, sex ratios and age structure), social behavior, and act as an early warning system for increased levels of poaching or HWC. The employment of two Maasai women would be critical to ensuring the monitoring and data collection continues to grow for MEP in 2019 in the Mara. This long-term monitoring team would report directly to Jake and would initially focus on the continued monitoring of MEP's collared elephants and the

identification of other elephants in the greater population. The **long-term monitoring team** would need a vehicle to traverse MEP's area of operation ($25,000), vehicle running costs ($18,000), two cameras with a long-lenses for high resolution photos ($3,000), rations ($1,500), a set of binoculars ($1,000), mobile phones for data collection ($3,000), uniforms ($1,200), and a tracking device for their vehicle ($500) in addition to the salaries of the two staff members ($24,000) for a total of $77,200 for 2019.

MEP will continue the MIKE program and play an active role in MIKE harmonization exercises led by KWS every quarter. Key data sets would include: 1.) population census using a MEP fixed-wing, and by ground collection by a MEP research assistant in a research vehicle, 2.) carcass monitoring (MIKE program) by MEP helicopter patrols, by patrols in a fixed-wing aircraft and by MEP ground patrols.

Map Printer

One of the key visuals that MEP's research team can use when speaking to operational partners, government, conservation organizations and supporters is maps. We have many key maps that the research team develops using Geographic Information System (GIS) software. A map is a very clear visual of the data we're collecting in the Mara on elephant movements, vegetation, settlements, fences, roads and more. The maps are used online and in papers but to have a large print out that everyone can gather around to see where MEP's collared elephants move in the ecosystem really makes an impact. The MEP office is a safe environment for MEP to now have a map printer installed and having our own printer is more cost effective than paying for them to be printed in Nairobi where we pay $60 a map. We'd need to use the **MEP map printer** only 65 times to break even on the cost of the printer and supplies of $4,000.

EDUCATION

Electric Fences Around HEC Hotspot Schools

Rekero Primary School is situated in a high human-elephant conflict area near Aitong. The 300 children who attend school daily on this 10-acre school ground need protection from wildlife and the school grounds need protection from encroaching livestock. The school has cultivated 100 seedlings into a sustainable woodlot and livestock from neighboring communities are venturing onto school property and eating the trees. These trees provide charcoal for the school and shade for the children in the school yard. Additionally, wildlife roam undeterred from walking across the school yard when at any given time a number of the 300 children can be found. Rekero Primary School needs an **electric fence** at $5,000 that will help keep wildlife and livestock out of their school grounds. This includes building the fence and installing the solar panel and battery keep it electrified.

HELICOPTER

One tool for our organization that simply cannot be classified in a category is the MEP helicopter. This vital tool covers every single aspect of our organization's operations and

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supporting flying hours for the helicopter ensures we continue to operate the only helicopter dedicated to wildlife in the Mara.

Since MEP has the only operating helicopter dedicated to wildlife in the Mara, this tool has become essential not only for us, but for our partners, like Kenya Wildlife Service (KWS). KWS Vet Dr. Limo from the Sheldrick Wildlife Trust Mara Mobile Vet Unit performs most elephant treatments in the Mara and MEP provides both aerial and ground support to Dr. Limo's team ensuring the elephant treatment is safe for personnel and the animal being treated. Additionally, locating an injured elephant from the air improves response time to treat the injured elephant and can often spot an injury in otherwise impossible circumstances like thick vegetation. The MEP helicopter ensures that we are saving more elephants faster. The MEP helicopter flew 38.20 hours in 2018 in support of these operations.

As an essential part of the HEC toolkit, the helicopter enables us to respond rapidly to human-elephant conflict. It works extremely well when used alongside our rangers on the ground, who are our first line of defense. It also has the advantage of increasing the rapid response time, when the terrain is difficult, and expanding our operational area thanks to the helicopter's ability to traverse a large area in a short period of time. Since 2015, over 145 hours of the helicopter flying time has been used in mitigation efforts. In 2018, of the 201 human-elephant conflict incidents MEP responded to, we flew the helicopter 23.70 hours to mitigate HEC situations. One such incident in October found a herd of elephants trying to cross the Mara River into Mara North Conservancy as an angry mob was attacking them with spears and arrows. The helicopter was instrumental in protecting the herd from the crowd and guiding them to safety. We can confidently say that the helicopter directly saved this herd from being killed by the community. After safely bringing them back across the river the KWS veterinarian pulled 20 arrows out of three elephants. In 2018, HEC elephant deaths remained steady at 12 despite the 201 HEC incidents we responded to and the helicopter played an essential part in keeping this number low.

MEP's helicopter is not only used for human-elephant conflict mitigation, but also for assistance with other wildlife living in the Mara. The helicopter has been used to gather information on the critically endangered mountain bongo antelope living in the Mau Forest, it's been used to assist with treatments of lions, giraffes, buffalo and rhino as well as to investigate the cause of death of various other wildlife and to complete well-being checks in the endangered black rhino. The MEP helicopter flew 7.9 hours in support of other wildlife in 2018.

It is also an essential element to the MEP elephant collaring operations ensuring both our personnel and the elephant are safe while deploying the collar. MEP monitors elephants in real-time by deploying satellite-enabled GPS tracking collars onto elephants. Collared elephants provide data that is being used daily to mitigate human-elephant conflict, inform ranger deployment and anti-poaching work, and promote transboundary cooperation within the wider

ecosystem. MEP has adopted the advanced EarthRanger tracking platform to collate and visualize the data streams from elephants. The software runs real-time monitoring algorithms that can detect when an elephant becomes immobile, breaches a geofence, or starts to move slowly that could indicate an injury or illness and which MEP reacts to at a moment's notice. Using these tracking data, MEP generates monthly tracking reports and density and movement maps to better understand the patterns and behavior of these tracked animals. Each day coordinates are sent to ground patrols who use these to check on the elephants. Depending on the satellite image quality, it is possible to see settlements near the collared elephant. This information is used to anticipate possible human-elephant conflict incidents and intervene before they occur. Through the aerial monitoring program, we have identified the collared elephants represent between 400 and 600 elephants. The tracking collars, the monthly monitoring and the analytics and database system are critical components of MEP's operations. The continued aerial monitoring of collared elephants is also critical for their well-being and in 2018, the helicopter flew 14.60 hours to monitor elephants.

The MEP helicopter ensures that we are saving more elephants faster. The helicopter continues to be an invaluable tool in supporting ranger units on the ground and increasing our area of operation while decreasing our rapid response time. In 2018, the MEP helicopter flew for 249.40 total hours. The helicopter has been used in both the Mau Forest and Loita Hills to ensure ranger safety, root out poachers, reconnaissance, mitigate human-elephant conflict and ensure safe collaring operations in densely forested conditions. It costs $400 an hour to keep the helicopter in the air, including fuel and maintenance, and we need to fly, on average, 30 hours a month. A critical need for MEP is supplementing a year's worth of flying time for the **MEP helicopter** at $144,000. This support would ensure that a vital part of our operations is funded to protect elephants, other wildlife and local communities across the Mara ecosystem in 2019.