Elephant Partners

ElephantVoices' conservation project Maasai Mara

Quarterly Report (1)

April 2013

Petter relaxes with Shiinka, David, Samperu and Mepuki, at the "Viewpoint" after a two day walk through the Naimina Enkiyio Forest looking for signs of elephants, March 2013.

1. Elephant Partners - Background

In 2011, using web-based technology, ElephantVoices developed a unique way for citizens to monitor and help protect elephants. The *Mara Elephant Who's Who and Whereabouts Databases* and *Mara EleApp* went online in October of that year.

The *Mara EleApp* (http://elephantvoices.org/mara-eleapp.html freely available for download on the Android Market) permits any registered user to collect geospatial data on elephant group size and associations, on wounded elephants as well as on elephant mortalities, and upload these, via cell-phone, to the searchable *Mara Elephant Who's Who & Whereabouts Databases* (http://www.elephantvoices.org/maraelephants-whos-who.html; http://www.elephantvoices.org/maraelephants-whereabouts.html). Alternatively, a registered user can submit the same type of data directly online via "My Observations" available through the web interface.

The individual elephant register – or *Who's Who Database* - is fully searchable. Participants may identify an elephant by selecting the traits (sex, age, home area, ear, tusk, tail and body characteristics) that best describe it, making it possible to identify individuals rapidly even in a large population. These characteristics are defined and presented in a series of slideshows available through the Features Guide. Furthermore, a Mapping page allows the instantaneous access to the results of filtered searches on the sightings of groups of elephants, individual elephants, or on those wounded or killed (http://www.elephantvoices.org/maraelephants-mapping.html).

Using this system we are growing a dedicated, caring community of guides, scouts, rangers, researchers, photographers, and tourists who are collecting data on, sharing information about, and working together to monitor the Mara elephants, report on poaching incidents and to inform conservation management. ElephantVoices is mentoring and training these "citizen scientists" expanding their numbers via on-the-ground representation, word-of-mouth and social media. A presentation of the Mara elephant conservation initiative can be seen on "The Elephant Network" a talk Joyce Poole presented at the National Geographic Explorers' Symposium in June 2012 for the session, "Envisioning a Better Tomorrow".

Each day different contributors working across the Mara ecosystem upload sightings of elephants. These may be seen, instantaneously, from the backend of the database, and on the frontend after a security delay. All uploaded data are verified and corrected, where necessary, by Joyce Poole and Petter Granli via the databases' backend. Joyce and Petter mentor contributors by using the comment function on their upload, via the chat function on Facebook, by speaking on Skype or cellphone or in person, when in the field.

The online databases and the *Mara EleApp* were conceptualized and designed by ElephantVoices, and programmed by Verviant Consulting Services in Nairobi (http://verviant.com).

In September 2012, due to the ongoing poaching crisis, we made the database password protected. Anyone wishing to access the database must first register as a user. A statement regarding this aspect and our decision is attached as

Appendix I.

Amos Munai and Kashu Parit introduce us to the ancient elephant trail and the salt licks of Enkeju Arus near Naimina Enkyiyo Forest.

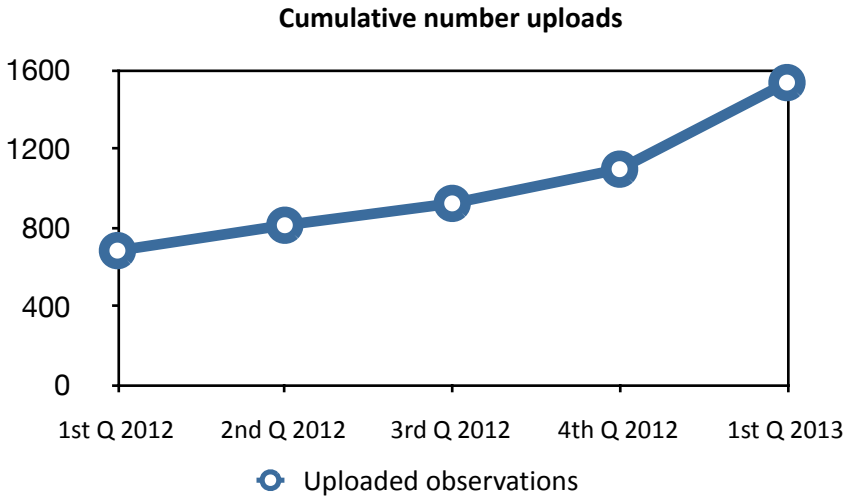
2. The sightings

Accessing the Mapping function reveals the number of elephant groups observed in the Mara. As of 26 March 2013, 1,535 observations had been uploaded to the Whereabouts Database (Table 1). These "observations" consisted of lone males, bull groups of greater than one individual, family groups with or without associating males, groups of unknown type and mortalities**.** The rate of observations uploaded increased in the first quarter of 2013 (see Figure 1) likely due to the addition of two active participants, Alfred Kiprotich Bett, a ranger in Mara Conservancy, and Saitoti Silantoi, a Warden at Motorogi and Olare Orok Conservancies.

Table 1. Number of observations as of 26 March 2013

Group type	Number of observations
Overall	1535
Single males	218
Bull groups > 1 individual	170
Family groups with or without associating males	1020
Unknown group type	90
Mortalities	37

Figure 1. Cumulative number of observations uploaded to the Mara Elephant Who's Who and Whereabouts



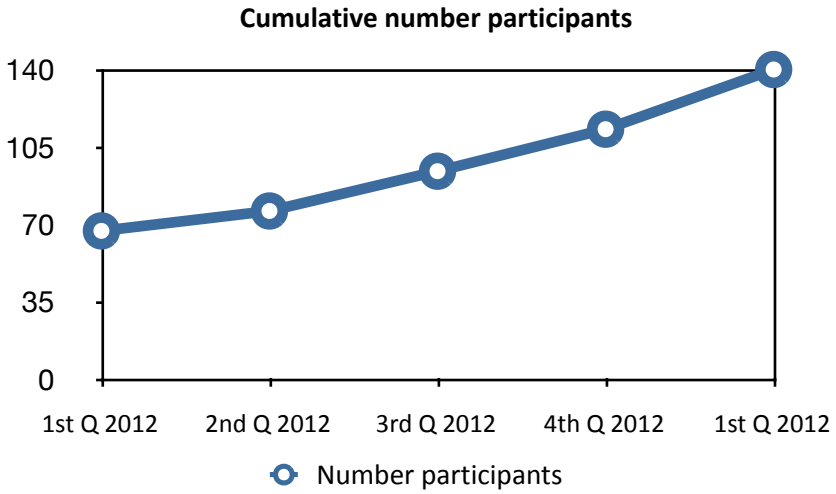
3. The participants

The cumulative number of people who have participated in the collection of data continues to rise (Figure 2). Since some of these individuals are volunteers visiting the Mara on a short term basis, we feel that it may be more valuable to look at the number of individuals participating during each quarter. As of 26 March 2013, a total of 40 different individuals had contributed data to the online database during the first quarter 2013. These included Mara residents, rangers, scouts, guides, African Impact volunteers and other volunteers, tourism operators, ElephantVoices, Mara Elephant Project and Elephant Aware, Conservancy Management and tourists. Some individuals collected only a few observations while others collected many. Of course, some places are easier to observe elephants than others and in the Naimina Enkiyo forest we are resorting to collecting elephant signs as "observations".

In the last few months we have begun to build up the number of observers from the local community and we are following up with them on the ground and through Facebook and Skype. Alfred Kiprotich Bett, a very keen observer from Mara Conservancy, who started collecting data in late 2012, has already uploaded 117 observations! Saitoti Silantoi, a warden on Olare Orok and Motorogi, also recently joined us and is uploading very useful observations from there.

Two individuals are now collecting data on elephant signs in the Naimina Enkiyo Forest and a third person, a diploma student from Maasai Mara University, hopes to start soon. We are also pleased that Krissie Clark and Wayne Lotter of the PAMS Foundation have begun to use the Mara EleApp for data collection in Loliondo, Tanzania. We have put them in touch with our collaborators working on the Kenya side of the border to discuss issues of mutual interest.

Figure 2. Cumulative number of participants to the Mara Elephants Who's Who and Whereabouts



4. The elephants

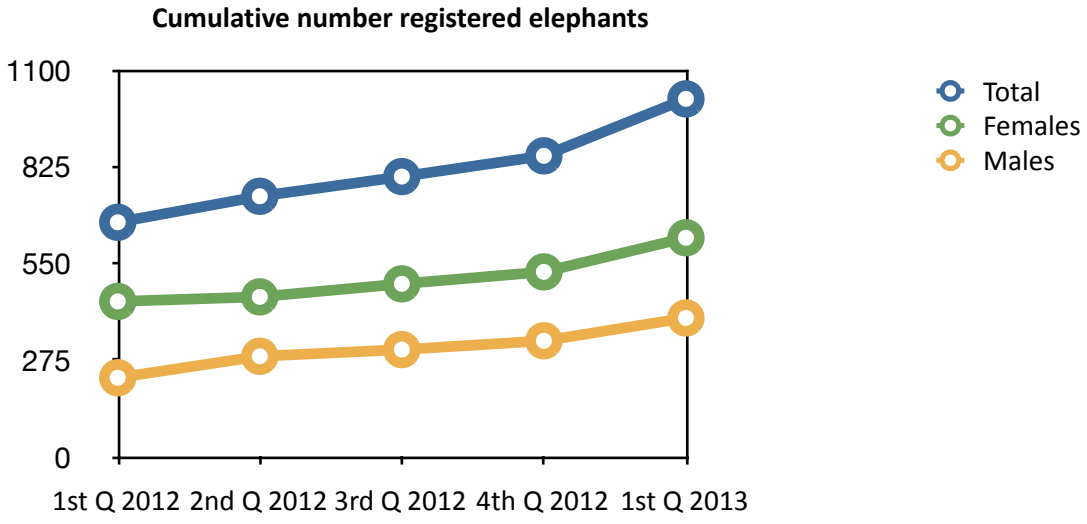
a. Registration of elephants

As of 30 March 2013 a total of 1,018 elephants had been identified, individually characterized, given an age estimation and been registered on the Mara Elephants Who's Who Database. Of these 945 are adults over the age of 15 years of age. Of these individuals 59 (%) are adult females and 41 % are adult males (Table 2). We had expected that the rate of new individuals would have begun to taper off by now, but it has, instead, increased, indicating that we are no where near to approaching the total adult population size (Figure 3).

Table 2. Number of elephants individually recognized

	Registered online	Adults	%	<15 years
Total	1018	945	100	73
Male	395	383	41	12
Female	623	562	59	61

Figure 3. The cumulative number of registered elephants



b. The elephant population size

We have been surprised by the number of new individuals we have recorded with each visit to the Mara, which has lead us to believe the number of elephants in the population is quite a bit larger than the 3000 estimated by KWS, (2010, aerial total count), which in itself represents an increase of 1000 elephants over the 2008 count. Since the observed increase between 2008 and 2010 can not be accounted for by natality, it is likely that some of it was caused by movement (temporary or otherwise) of elephants into the Mara from areas such as the Mau Forest, Serengeti, Loliondo or the Loita Hills, which lie outside the area normally covered by the count.

In order to estimate the total Mara ecosystem elephant population size we have attempted to use mark recapture methodology. Registered individuals on the database go back to 1998 and a good number of these are likely to have died since then. To reduce error due to mortality we limited the calculation to individuals observed since January 1 2012. We assigned those adult elephants (≥ 15 years) of each sex who were "marked" (recorded as having been observed by any participant, but identified by ElephantVoices) in 2012 as Sample One (S^1) and the number of elephants (≥15) that ElephantVoices "marked"(recorded as having been observed and identified by ElephantVoices) in the first quarter of 2013 as Sample Two (S^1). Of this second sample we noted how many were already known individuals from the 2012 sample (K). Of those recorded in 2012, four males and one female are known to have died and therefore could not be recaptured in 2013. The estimated population size of adults is calculated by the formula = $S^1 \times S^2/K$ and gives a result of 977 adult females and 834 adult males (Table 3).

To complete the population estimate we must estimate the number of calves per adult female. Since we are not attempting to gather that level of detail through individual recognition, we aged and sexed the calves and adults in a sample of 12 families including 112 individuals. Using 15 years as "adult", the ratio of adult females to calves/juveniles in this sample was 1.0:2.0. Thus, we can estimate some 1954 calves and a total population size of 3,765 elephants (Table 3), a number considerably larger than the 2010 count.

We wish to state that this calculation is our rough first estimate of the size of the Mara elephant population. At the same time we caution that:

a. *we do not know whether it includes any individuals who utilize the Naimina Enkiyo Forest;*
b. *we do not know how many of these individuals are infrequent visitors from the Serengeti;*
c. *we have not included any factor to adjust for losses in 2012 due to mortality, which was much higher for males than for females;*
d. *we have not included any factor to adjust for different levels of sampling in different areas.*

We will rerun this calculation based on a full year of data from all participants at the end of 2013 and, in the meantime, we welcome input from others that may help us to refine this technique and improve on the population estimate.

Based on the number of new elephants we encounter each time we are in the Mara we believe that the population is at least this size. Our educated guess for some time has been at least 4,000 elephants. We wish to point out, however, that while this *figure is well above the 3,000 estimated in 2010* ***it does not represent an increase in the population over the last three years, but rather a better representation of the population size***. Our reason for stating this is: a) the number of calves per adult female does NOT indicate a rapidly growing population - it is lower than the number calculated for Amboseli in 2010 (Lee, pers. comm.) which represented a period of lower than normal births following the drought of 2009; b) the high mortality caused by poaching in 2011 and 2012 (see below) means that the population will have decreased rather than increased.

Table 3. "Mark Recapture" methodology used to estimate the Mara elephant population size

	Sample 1	Sample 2	Known	Estimated total
Adult females	181	108	20	**977**
Adult males	178	75	16	**834**
Calves	na	na	na	**1954**
Total				**3,765**

c. The number and distribution of group sightings

The distribution of elephant groups continues to follow a trend set early in the project. Family groups with or without associating males and lone males are found both inside the Maasai Mara National Reserve (MMNR) as well as in the conservancies and community land, while all-male groups are predominantly restricted to areas of higher browse biomass outside the MMNR. Lone males include both sexually inactive and active individuals. Those who are sexually active are in search of females and their distribution, therefore, overlaps with that of family groups. By contrast, bull groups are typically composed of sexually inactive males. During this phase of their cycle males occupy areas of high browse biomass in order to bulk up for their next sexually active period. Areas of bushland include Mara Naboisho, Siana, Motorogi, as well as the Loita Hills, Oldonyo Erinka, the Bardamat Hills or, in the case of Mara North, areas providing easy access to crops.

d. The distribution of large groups

The location of aggregations of 50 or more elephants continues to be unevenly distributed across the ecosystem (Table 4) although the proportions are shifting a bit as sample sizes increase. Very few large groups have so far been recorded in Mara North, Olare Orok, Maasai Mara NR Central (between Sekenani and Musiara) and Mara Conservancy, while a relatively high percentage of groups observed on Naboisho, Siana/Maji Moto and the South Eastern part of the National Reserve have been large (Table 4).

Table 4. Location of large groups

Location	No. groups >50	Total No. groups (excluding all-male)	% groups >50 individuals
Overall	**63**	**1026**	**6.1%**
Mara North Conservancy	1	99	1.0%
Olare Orok Conservancy	0	70	0%
Maasai Mara NR Central	1	124	0.8%
Mara Conservancy	5	176	2.8%
Mara Naboisho Conservancy	27	378	7.1%
Siana Group Ranch & Conservancy	12	71	16.9%
Maasai Mara NR SE & Olderkesi Cons	8	81	9.9%
Maji Moto Group Ranch	2	2	100%

e. The distribution of wounded elephants

Observers have made note of wounded individuals in some 74 (4.9%) of the 1,508 sightings of groups. Of these wounded individuals, 45 were adult males and 15 were adult females, the remaining 14 were subadults, juveniles or calves. Examining just our own (ElephantVoices) observations indicates that at least 11.1% of the groups sighted (N=171) contained wounded individuals. Overall there appeared to be a higher wounding rate among elephants observed outside the national reserve than inside. Of the 477 group sightings recorded inside the Maasai Mara NR or Mara Triangle, 14 (2.9%) contained wounded individuals, while 60 (5.8%) of the 1031 groups seen in the surrounding conservancies or group ranches contained wounded individuals.

f. Elephant mortality

Several different entities are collecting data on elephant mortality in the Mara ecosystem. In an endeavor to synchronize the different efforts, to avoid double counting and to come up with an agreed total we have collectively agreed with Kenya Wildlife Service to a process of "harmonization" of elephant mortalities. This exercise is to take place every quarter after which KWS agreed it would release the figures for the purpose of collaborative work, reporting or galvanizing efforts to reduce the poaching. The first meeting took place in April 2012, but no information was released by KWS thereafter as the organization was not able to complete the verification process. A second meeting took place in late January 2013, but as of end March we are still awaiting the release of data from KWS.

Since we were present at the meeting in late January we are able to report some basic information. In 2012, 149 geo-referenced elephant carcasses were reported in the Mara ecosystem. Of these 139 (93%) were determined to have been illegally killed. The large majority of these were adult and male.

During the same period, 25 mortalities of known sex were uploaded to Elephant Partners (included in the above figures) of which 19 (76%) were male and six (24%) were female. During the first quarter of 2013 12 mortalities have been uploaded to the database of which nine are male and three are female (four of the males were found in Loliondo, Tanzania).

It is of concern to note that of the 53 elephants who have thus far been given names through the Elephant Partners naming program, six (11.3%) have been killed. Goodness, Lekuta, and Tenebo were killed in 2012 and Little Fellow, Lenana and Heritage (a collared male) have been killed so far in 2013. If our estimate of approximately 1,811 adults in the population is correct, and 11.3 % human-induced mortality is also close to accurate, we would expect approximately 205 elephants to have been killed in the Mara population last year. Considering that not all carcasses would be found, it is likely that this is quite close to what the Mara is experiencing (Table 5). On top of this comes calf and juvenile mortality which we can estimate to be about 4% per year (these carcasses are rarely found as they are eaten by predators).

Table 5. Elephants known and estimated to have been killed

Elephants Known and Estimated	Total	Males	Females
Individually known & named elephants (of 1,018 registered)	**53**	24	29
Known & named elephants known to have been illegally killed since 1/1/2012	**6**	5	1
% known & named elephants known to have been illegally killed since 1/1/2012	**11.3%**	20.8%	3.4%
Estimated adult population	**1811**	834	977
Estimated illegally killed since 1/1/2012 using above percentages	**205**	173	33
Minimum number of Mara ecosystem elephants known to have been illegally killed in 2012 (KWS)	**139**	?	?

g. Elephant occupancy, corridors and threats to their persistence

In areas where elephants are infrequent visitors or where the vegetation is too thick to see them, we have attempted to establish the extent of elephant occupancy by speaking with people and by collecting geo-referenced data on elephants signs. There is much more work to be done in this regard, but here we report on our observations thus far in the Loita Hills, Maji Moto, Naikarra and Olderkesi Group Ranches, and in the Naimina Enkiyo Forest. We have spoken to many people including from Tiamnangen (Olorte) sub-location/*Walking with Maasai* (Amos Munai, Kashu Parit, David Ngoet, Andre Brink), From *Jan's Camp*/Entesekera (Shiinka ole Karrapu, Lekopien Parletto, Samperu Liati, David Ntiani, Daniel Mepuki), From Ngarua sublocation/Nanyorri Pooki: Chief Mepukori, Alfred Mepukori, David Ntiani; Naikarra & Olderkesi/Olpua: Stephen Kisotu, Calvin Cottar, Sombe Mbirikani, Tuani Elijah; Maji Moto/Olarro: Junior Kosen, Nick Cowell, Justin Heath, Salaton Ole Ntutu.

Throughout our travels we have used an iPhone App, GPS-TRK2, to map the route we followed and to collect geospatial data. Figures 4 and 5 are snapshots from Google Earth illustrating the area to the east and north east of the MMNR and the signs of elephants we have captured in the field (in green - foraging sign, dung, footprints), the extent of human occupancy (in red - traditional "bomas", farms, settlement and villages) thus far captured from Google Earth and geo referenced in the field, and the elephant trails and corridors (in white) based on areas we walked, drove and/ or discussions with people. From these maps it is clear that unplanned settlement poses a major and imminent threat to the continued movement of elephants - especially movement to and from the Naimina Enkiyo Forest - and leads to increased human-elephant conflict. Indeed, as we write an ancient elephant trail is being settled near Tiamenangen and the forest near it is being cut down.

5. Implications of the data for elephant conservation and management

a. Bulls and bull areas

The data continue to suggest that adult males primarily visit the Maasai Mara National Reserve when they are sexually active and in search of females and that otherwise they depend on the surrounding bushland for foraging and socializing. Males, therefore, are dependent upon habitat that is less well protected than those frequented by the majority of family groups, putting them at special risk.

If we are to ensure the long-term conservation of the Mara's adult males and the elephant population as a whole we must, therefore, find ways to protect the bushland surrounding the national reserve. Some of these areas, such as Mara Naboisho are now affording males better protection, but other areas such as Ol Donyo Erinka, Ol Kinyei and Siana require greater conservation effort if we are to prevent the continuing attrition of males as indicated by the skewed sex ratio, by the relatively high levels of wounded males and by the male dominated mortality data.

Figure 4. Elephant signs (green), human settlement (red) and known and/or putative migration routes (white) in Olderkesi and Naikarra Group Ranches and Naimina Enkiyo Forest

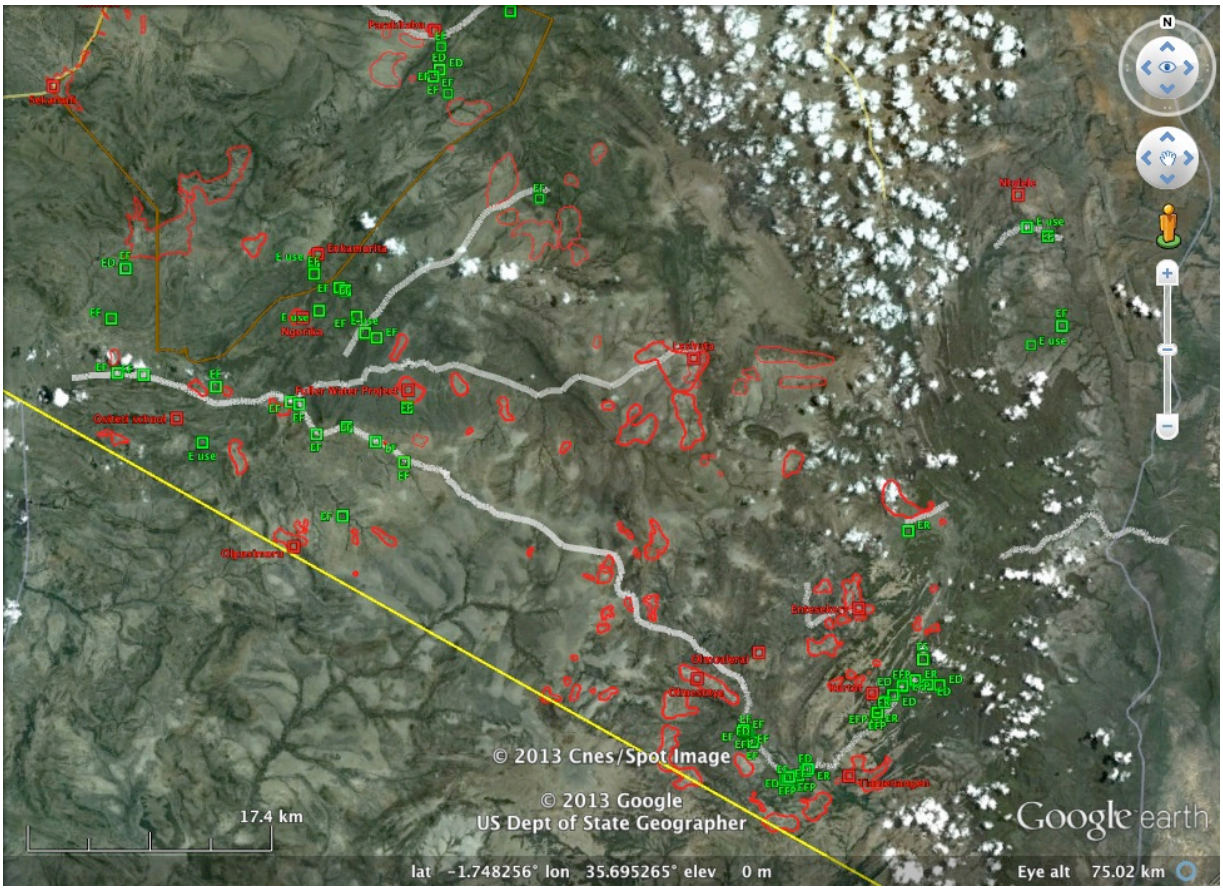
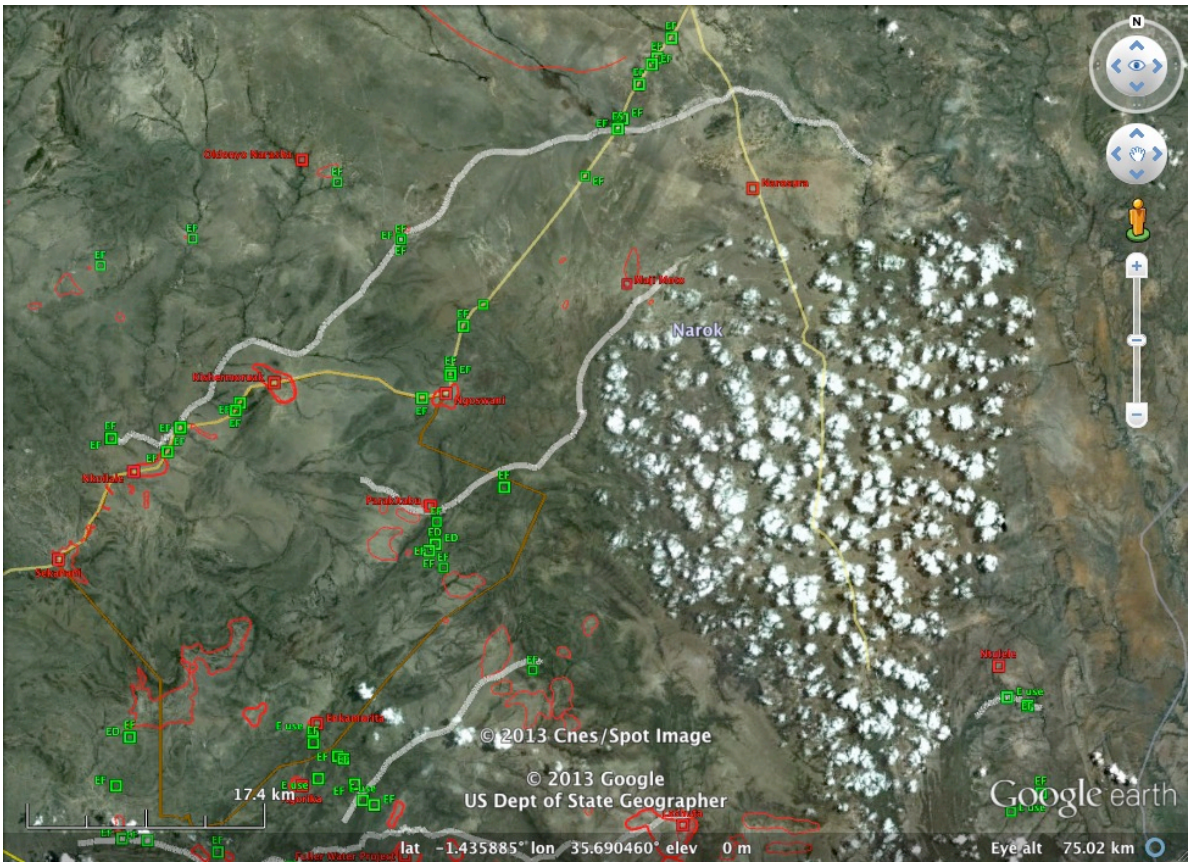


Figure 5. Elephant signs (green), human settlement (red) and known and/or putative migration routes (white) in Naikarra, Maji Moto, Olkinyei and Siana Group Ranches.



b. The distribution of large groups - what can they tell us?

The data collected thus far on elephant group size indicates a significant discrepancy in the proportion of large groups (those over 50 individuals) between different areas. We now have enough data collected to conclude that these differences are real rather than a result of sampling error. The tendency for elephants to aggregate can be influenced by social, reproductive, ecological and security factors, and families may aggregate for different reasons in different populations, in different habitats and at different times of the year. It is likely that a combination of ecological differences and level of threat experienced by elephants influences group size in the different areas.

Large groups of elephants are a relatively common sight on Mara Naboisho, Siana, and the south eastern corner of the Mara/ Olderikesi Conservancy. In the latter area elephants cross back and forth from Loliondo, Tanzania where there has been heavy poaching. In addition, the heavy use of this part of the national reserve by livestock and the recent poaching incidents all indicate that lack of security is a likely contributor to the aggregations. We have also been informed that larger groups tend to be seen when elephants are moving into and out of the area. Elephants often aggregate prior to migrating and Olderkesi Conservancy appears to be where elephants gather prior to moving along the Sand River to Olpua, Naikarra, and onwards, perhaps to Naimina Enkiyo Forest. Likewise, when they return from these areas we are told that they do so in large groups only splitting up once they have entered the safety of the National Reserve. The behavior of elephants on Siana, too, suggests to us that elephants may be in large groups for protection. There have been very high levels of poaching in and around Siana and the elephants there are particularly agitated by the presence of people, seeking the security of the thick bush when approached. Reports of large groups of elephants seen moving from Siana onto Maji Moto - crossing the main road - also suggest that these aggregations may be influenced by defensive behavior.

Mara Naboisho, too, has a relatively high proportion of large groups. While Naboisho itself offers elephants considerable protection, the areas around it to the north and east do not. The biggest groups we have observed in Naboisho have all been largely composed of non-resident elephants, meaning, again, that they may be in these aggregations because they feel more secure. That said there is an enormous amount of social and reproductive activity

in these groups, too! Thus far it appears that these individuals are moving in from the Oldonyo Erinka area, to the north, though this has yet to be confirmed.

c. Elephant corridors and hubs

Elephant Partners data show that while many elephants appear to have made Mara Naboisho "home" others pass through the conservancy coming to and from Siana and Ol Kinyei, to the east, Olare Orok, Motorogi, Mara North to the west and Maasai Mara National Reserve to the south. Many elephants arrive in Naboisho with fresh and infected arrow/spear wounds suggesting that some of them are coming in from less protected areas such as Ol Donyo Erinka, the Bardamats to the north and Maji Moto, and the Loita Hills, to the northeast. Olderkesi and the southeastern corner of the National Reserve appears to be another hub as elephants move into and out of the safety of the reserve from Olpua in the east and from Loliondo (Tanzania) in the south in response to changing forage and the movement of wildebeest. A further hub appears to be Siana-Olarro, though we have more work to do to understand the movement patterns of the elephants here. How these movements relate to the reported migration of elephants into and out of the Naimina Enkiyo Forest is yet to be determined, though the Maasai certainly believe that elephants are moving back and forth and the departure of elephants from Olderkesi Conservancy seems to fit well with the stated arrival of elephants in the forest. More recent reports indicate, however, that movement patterns have changed in response to the upsurge of poaching.

The extensive and apparently "unplanned" nature of settlement combined with increased poaching constitute major threats to the continued movement of elephants in Narok County - particularly the movement of elephants between the Mara and the Naimina Enkiyo Forest. Increased anti-poaching efforts and better land-use planning are both required if we are to sustain this elephant landscape.

d. Wounded elephants

The data we collected indicate that as much as 11% of the groups sighted contain at least one wounded individual and that outside the National Reserve the proportion of groups with wounded elephants is twice that inside it. Additionally, three times as many wounded male elephants as females were observed. Since there are many more females than males in the population, wounding is clearly disproportionately skewed toward males. Though some of these wounds may be received in the course of crop raiding, it is likely that many may represent attempts at ivory poaching.

Since elephants have enormous capacity for memory, are capable of distinguishing between different types of people and are able to retaliate, this level of wounding is a cause for concern. We reiterate the we feel that the stationing of a permanent vet in the Mara to assist Dominic Mijele is a matter of urgency.

e. Illegal killing of elephants

The mortality data collected by all parties (N=149 of which 139 were illegally killed) represents a proportion of the 2012 elephant deaths, since not all carcasses were found. In natural, unpoached populations, subadults comprise the majority of deaths, though, due to predation, they are rarely found. In addition, much of the area over which the Mara elephants roam is covered by thick vegetation where carcasses cannot easily be seen. In areas outside the national reserve and conservancies, where there are no regular patrols, and in Naimina Enkiyo Forest people do not necessarily share information on the carcasses they find. Based on the habitat, the search effort and the stories emerging from the Maimina Enkiyo Forest, the total figure for illegally killed adult elephants is likely to be significantly higher than the 139 mentioned. Our data suggest that some 11.3% of the adult population was killed last year. If our estimate of 1,811 adults is correct, then 205 illegally killed elephants in the Mara ecosystem would be the expected loss. An attrition of 11.3% of the adult population *in addition to natural mortality* is unsustainable.

All accounts are that poaching in the Naimina Enkiyo Forest is out of control. We were told that people feel that since the government does little to compensate them their losses due to human wildlife conflict, they don't feel particularly inspired to report elephant mortalities or poaching activities. Some of those with farms may even consider that poachers are doing them a favor by reducing the number of elephants. Indeed, it seems that poachers, suppliers of arms and traders are well known in the area, but no one dares, or cares, to do anything about them. We were told that just in the last six months elephants have been reduced to such an extent that "only the footprints of small elephants are seen" and "gunshots can be heard in broad daylight" as poachers kill elephants without fear of being caught. We

were also told that there is little hope of stopping the poaching in the forest because of poachers colluding with government officials. While the majority of elephant deaths in the conservancies are caused by spear and arrows, bullets are the primary cause of death in the Naimina Enkiyo Forest. The free flow of arms in the area is threatening security of people as well as elephants and we were warned not to drive along certain roads on market days as we could risk being held up at gunpoint.

Appendix I - The sharing of elephant data

Reports in the media have raised concerns that poachers may be using social media to track down and kill elephants. Members of the public have echoed these concerns. Since our project involves participation by the public and the sharing of data on elephants we wish to contribute our perspective on this serious and important topic.

There are many online sources where relatively precise information about elephant locations can be found, and it is impossible to keep such information out of the public domain. Visitors to elephant habitats inside and outside protected areas use their GPS-enabled cameras and phones, and they post on Facebook, blogs, Flickr, Google Earth and elsewhere. The sharing of information in our digital age is increasing and is without boundaries or limits, and this we cannot control.

In the Mara ecosystem elephants are being killed with spears, arrows and guns as well as through other methods. These killings are mostly carried out by individuals from the local community who don't need the help of social media to find elephants. In the real and gruesome world of poaching, the whole chain of buyers, smugglers and middlemen including crime syndicates involved, rely on the knowledge and willingness of local people to track down elephants. Middlemen could, in principle, ask these individuals to source ivory from specific areas that they feel might be lucrative. The possibility that these traders might use social media is obviously of concern.

Our perspective is that unless we are going to keep elephants behind secure fences, the sharing of knowledge and the engagement of people in conservation is the only way we will be able to protect elephants in the long term. Social media, such as Facebook, can be instrumental in creating awareness globally and for engaging members of local communities in conservation. Information shared can include news, the exchange of ideas and views, solutions to problems, poaching incidents and the movements of wildlife. Such information sharing, and the compassion, knowledge and understanding it leads to, is the key to wildlife sustainability and protection.

Unfortunately elephants cannot hide anymore, and we shouldn't try to hide them - we need to know them, share their stories and protect them where they are. That said ElephantVoices will not in any way risk that the data we collect might be used by criminals to source elephants. Since our databases were launched in 2011 we have had in place a time delay on locational data. However, in 2012, with poaching escalating and the Mara seeing increasing numbers of elephants being killed, we implemented password-protection of the databases. Those wishing to use them must register by providing some personal information, and be approved.

ElephantVoices, September 2012