



**Conservancies in the Maasai Mara**  
**Proof of Concept**  
**Research in the Ol Kinyei Conservancy**

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## **Preface**

I have, with my family, been visiting East Africa and its wild places since I was a child. The Maasai Mara, its teeming wildlife and the Maasai people hold a special place for me. As tourists who visited different reserves and saw different tourism models we recognised the importance of the Conservancy Concept. Whilst the importance and wider benefit of the Conservancy Concept was clear to me, I thought it would be useful to carry out a proof of concept research project. The aim was to establish whether Conservancies really lead to a win-win situation for both wildlife and local communities.

I would like to thank the pioneer of this concept Jake Grieves-Cook, the Managing Director, and Dr Mohanjeet Brar, the Commercial Director of Gamewatchers Safaris & Porini Camps for enabling me to carry out my research in the Ol Kinyei Conservancy. I am also grateful for the assistance of Ben Tongoyo, Stanley Sayielel and Sammy Lempusia, members of the local community who work in the Conservancy. They provided me with invaluable support with the survey work and acted as translators. Their humour and intimate knowledge and passion for their land and conservation made every long day something to look forward to.

Thanks are also due to Neville Cramer, who taught my father statistics - all of which he has forgotten - for his advice on statistical analysis.

I hope this research will be useful in demonstrating the importance of this vital environmental resource and the risks it faces. If it encourages, in any small way, more support for the Conservancy movement I will be very satisfied.

**Rustom Framjee**

London

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# Executive Summary and background

## The Conservancy Concept

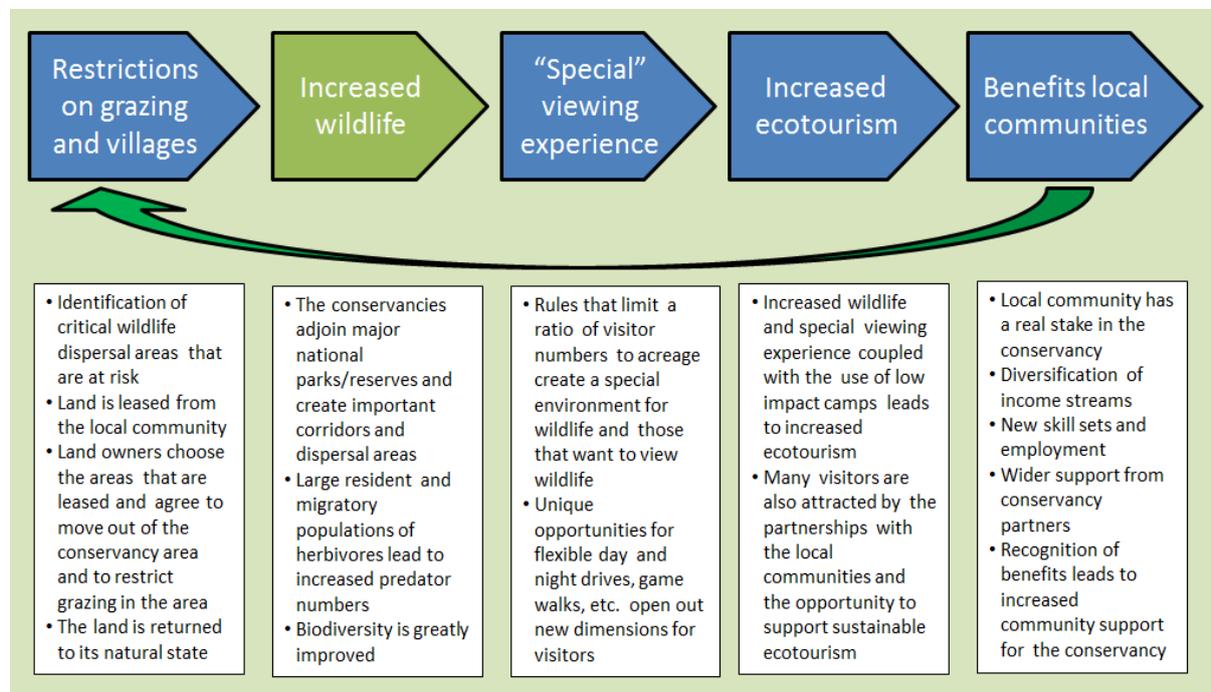
The Conservancy Concept is predicated on some simple dynamics. The aim is to create a win-win situation for both wildlife and local communities supported by sustainable ecotourism.

By working closely with communities living alongside national parks and wildlife reserves, community land is set aside for wildlife so that it can be used for low impact sustainable ecotourism. Land that is often overgrazed is soon restored to its natural state and this leads to increased wildlife numbers and the creation of vital dispersal areas outside the national parks.

The land is leased to conservancy partners (safari organisers) who have self-imposed important rules. There is a maximum of 1 tent per 700 acres and no more than 12 tents per camp. This serves to limit any adverse impact of tourism and minimises the number of tourist vehicles, leading to an enhanced wildlife viewing experience. In addition to the income from land lease, the local communities become stakeholders and benefit from the success of the conservancies. They also work with the conservancy partners as game drivers, guides, camp staff, community workers and rangers. This allows them to diversify their income and benefit from conserving wildlife species and the indigenous habitat. They recognise the tangible benefits and see that eco-tourism can provide opportunities that exceed the returns they would otherwise gain from alternate use of their land.

The simple theory of change shown in Table 1 below has five critical imperatives and a number of strategic enablers that need to be in place to ensure the win-win situation for wildlife and people. These are shown as continuous linkage. The cycle is self-sustaining; as the benefits to the local community are recognised within the wider community more community members want to become part of the conservancy.

**Plate 1: Conservancy Concept Theory of Change**



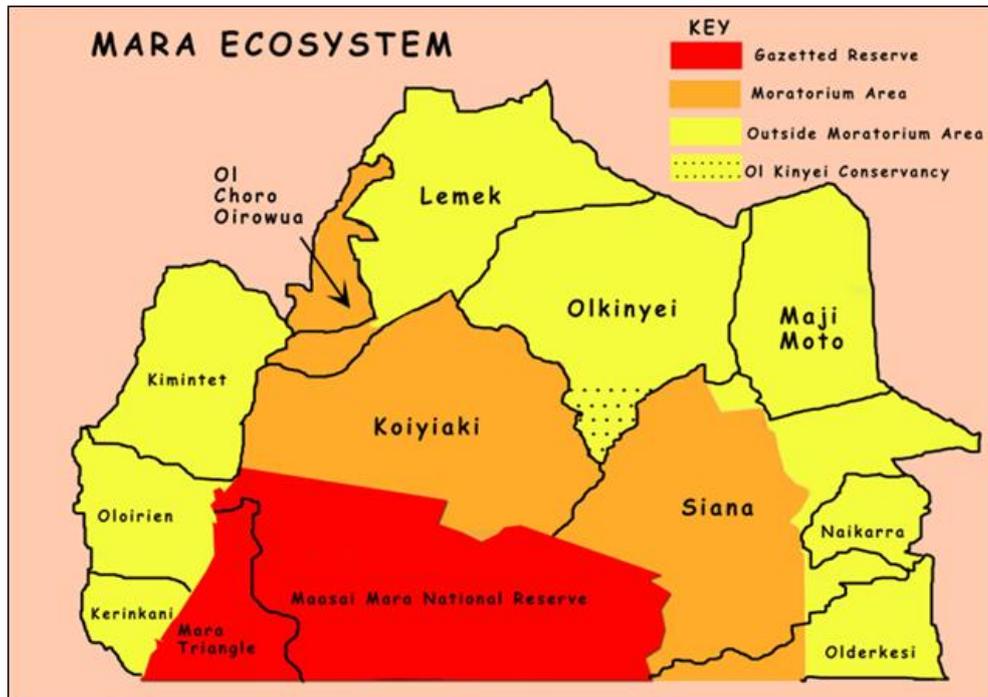
(A more detailed schematic of the Porini Conservancy Concept is reproduced at Appendix 1.)

There are also other important benefits. Usually, the National Parks that conservancies adjoin are under pressure and often cannot sustain visitor numbers or wildlife on their own. Wildlife patterns can be disrupted and the environment can become degraded. Wildlife numbers are depleted, the visitor experience is eroded and tourism and conservation as a whole suffers.

Successful conservancies can help address these issues and also create viable businesses for the conservancy partners and boost the economy both locally and nationally through increased ecotourism. A strong example of the conservancy concept has been developed in the Maasai Community Land to the north of the Maasai Mara National Reserve in the Mara Eco System.

The Greater Mara Ecosystem is one of the most game rich wildlife habitats in Africa. The Maasai Mara National Reserve is only a fraction of the Greater Mara Ecosystem, which includes the following Maasai Group Ranches<sup>1</sup>: Koiyaki, Lemek, Ol Choro Oirowua, Ol kinyei, Siana, Maji Moto, Naikara, Ol Derkesi, Kerinkani, Oloirien, and Kimintet. These are shown in Plate 2 below.

**Plate 2 Map showing the Group Ranches**



There was a self-imposed “moratorium” by the travel trade whereby there were no new camps to be opened in the area adjacent to the Mara Reserve. This was intended to stop over-development of tourism facilities and consequent over-crowding.

However, changes to land laws have meant that individual Maasai have secured title to parcels of land and they can now change the use of this land. Once the whole area was sub-divided into small parcels of land owned by individuals it was apparent that the moratorium was no longer going to work as the individual plots of land were bought and sold or leased for campsites. With sub-division there was also an imminent danger of land fragmentation because although there was a moratorium on tourist developments there was no freeze or barrier to any other type of land use such as cultivation, ranching, development of settlements, townships, fencing etc. This change is already happening and if it continues it will have a profound negative impact on wildlife and wildlife tourism that will reverberate beyond the Maasai Mara.

It was apparent that such land use would result in the total loss of wildlife habitat and that small-scale low-impact tourism was better for wildlife conservation than haphazard and unplanned land use for other developments. In 2005 Jake Grieve-Cook, the Managing Director of Gamewatchers Safaris Ltd developed the Ol Kinyei Conservancy outside the original moratorium area (see plate 2) with an initial land area of approximately 24km<sup>2</sup>. This was done using the community based Porini Conservancy Concept that he had pioneered near Amboseli in 1997.

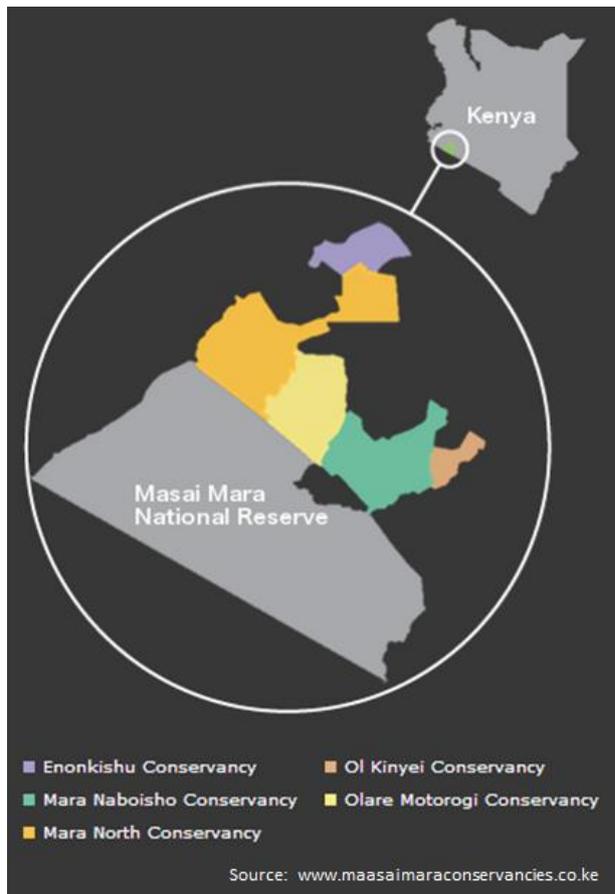
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<sup>1</sup> A group ranch is a livestock production system or enterprise where a group of people jointly own freehold title to land, maintain agreed stocking levels and herd their livestock collectively which they own individually (Ministry of Agriculture, 1968)

Currently 5 conservancies have been created as part of the Maasai Mara Conservancy initiative:

1. Enonkishu Conservancy
2. Mara Naboisho Conservancy
3. Mara North Conservancy
4. Ol Kinyei Conservancy
5. Olare Motorogi Conservancy

**Plate 3: Map of the Five Conservancies:**



More information on the Maasai Mara Conservancies can be found at:

[www.maasaimaraconservancies.co.ke/](http://www.maasaimaraconservancies.co.ke/)

Plates 2 and 3 and the table below show the size of the 5 existing conservancies, the Maasai Mara National Reserve and the unprotected area of the 12 Group Ranches.

They also show the potential for expansion of the conservancies that are a relatively small proportion of the group ranch area. Although, some of these areas are under extensive wheat cultivation there is scope for expansion of the conservancies so that they can become as large as or larger than the MMNR.

Area	Km <sup>2</sup>	%
Kenya portion of the Greater Mara Eco System	6,000	100%
5 Conservancies	746	13%
MMNR	1,510	25%
Total protected area	2,256	38%
Total Unprotected area	3,744	62%

### The Research Project

The Ol Kinyei Conservancy which was the first of the 5 existing conservancies was chosen to be the basis of this proof of concept research project. The field research stage was carried out in April 2012.

The proposition tested was that Conservancies lead to a “win-win” situation by making significant contributions towards wildlife conservation, preventing habitat destruction, increasing eco-tourism and economic activity. This in turn benefits local communities.

Certain factors were mostly taken as “given” being proved by other well established research. These were:

1. The need for the wildlife dispersal areas<sup>2</sup>
2. The real threat of loss of habitat and adverse impact on wildlife<sup>3</sup>
3. The fact that increased wildlife leads to increased tourism

<sup>2</sup> Wildlife and People: Conflict and Conservation in Maasai Mara, Kenya

<sup>3</sup>African Conservation Foundation- Kenya: Vegetation Loss Threatens to Push Wildlife Species Into Extinction.

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A critical imperative for the theory of change is increased wildlife numbers and this was the key focus of the field research. Notwithstanding this, the other aspects in the theory of change are also considered and are included in this report.

In order to assess the impact of the conservancy on wildlife viewing for tourists, a wildlife survey was planned. The aim was to count mammal numbers to check whether there were significant variances in wildlife sightings in conservancy and non-conservancy areas.

The Conservancy needs to attract visitors and they need to recognise and value the benefits of the conservancy for them, the wildlife and the local communities. Visitors to the Porini Mara and Porini Lion safari camps were interviewed to understand their reasons for choosing to visit a conservancy and their evaluation of it and their overall customer satisfaction. The visitor book was also reviewed to glean further insights from comments. This was supplemented by research on Trip Advisor and Fodor's Travel.

In addition, the effect of the conservancy on the local people was investigated through numerous interviews with conservancy staff and other community members. The community members who were interviewed also included a number who were not within the existing land lease arrangements with the conservancy partners.

### **Conclusions**

The research proved that wildlife numbers were significantly higher in the established conservancy areas when compared to inherently similar and adjacent habitats where the conservancy was not established. Habitat is restored and increased wildlife and a special visitor experience leads to increased ecotourism and the evidence of the research showed that the success of eco-tourism has tangible benefits to the local community.

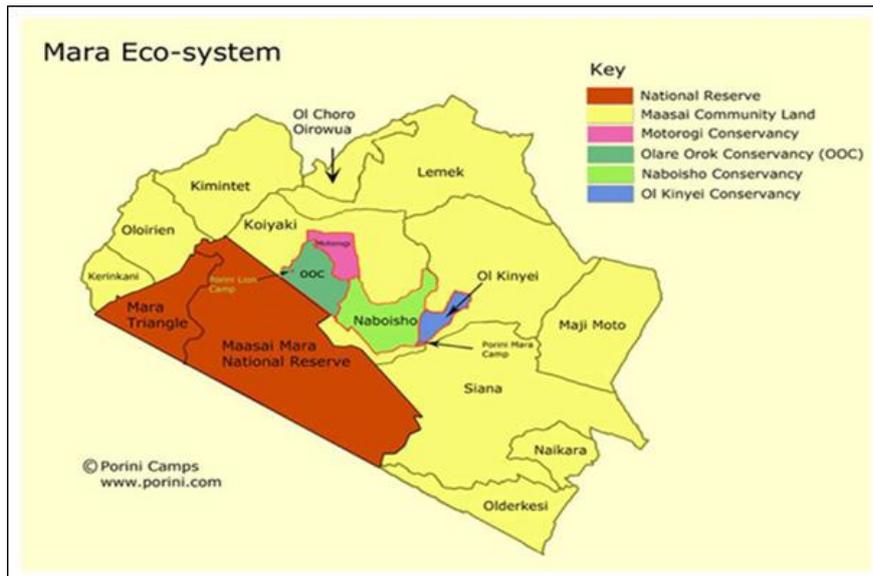
There has been concern that the word "conservancy" is seen as controversial by some who have associated it with land grabbing and not being of real benefit to local communities. As with most initiatives, there are good and bad examples and it is recognised that in some limited cases the models have not been well designed and implemented. In these cases, they have not delivered on the expected outcomes and some of the impact has been negative. However, it would be harmful if those who are concerned about the future of wildlife, wild places and local communities allow successful and proven models to be tarred with the same brush. In the case of the Mara Conservancies, habitat restoration, the increase in wildlife numbers and the return of species to areas that were abandoned by them; together with the increase in ecotourism and the demonstrable benefits to the local community has been critical in delivering the win-win situation discussed earlier.

It is important to emphasise that the land laws mean that individuals are empowered to decide whether they want their land to be part of the conservancy – they cannot be evicted. The Conservancy model discussed in this report relies on the active involvement of the local communities – they are involved in identifying the area that will be included in the conservancy and become real stakeholders. The fact that the communities themselves want to expand the areas of the conservancies is a testament to the fact that they see it as working for them.

## 1. Conservancies in the context of the Maasai Mara National Reserve

Kenya is considered to be one of the best locations for safaris in the world and as a result the Maasai Mara National Reserve (MMNR) has become a honey pot site for tourism. It is important to note that while the MMNR itself is 1,510km<sup>2</sup> this accounts for approximately only 25% of the Kenyan Portion (6,000km<sup>2</sup>) of the Greater Mara/Serengeti Ecosystem (25,000km<sup>2</sup>)<sup>4</sup>. Before the establishment of conservancies, the remaining 75% was simply unprotected land inhabited by the nomadic Maasai community. This is depicted in the map below

**PLATE 4 Map of Mara Eco System**



Since this map was produced the Motorogi and Olare Orok conservancies have been combined to form the Olare Motorogi Conservancy.

Only the conservancies used by the Porini Camps are highlighted in this map.

Plate 3 shows all the 5 conservancies.

The community land is geologically identical to the land of the MMNR and the conservancies. However, there is a visible difference in the surface status of the land. In particular, there are man-made settlements, signs of overgrazing and fencing in some areas.

In recent times there has been a decrease in wildlife populations in the MMNR. This is referenced in Volume 285 of the Journal of Zoology where it is stated that between 1977 and 2010, the Mara had lost more than two thirds of its wildlife. The article also notes that in the Maasai Mara Reserve, only eland, Grant's gazelle and ostrich showed signs of population recovery in the last decade since 2001.<sup>5</sup>

The key reasons for this decline, which the Conservancy Concept tries to address, have been identified as:

- Habitat loss on community land outside the MMNR from cultivation, intensive ranching, settlements, charcoal production and, forest clearance
- Poaching and killing of wildlife inside and in areas beyond the MMNR
- Over-grazing from too many cows, sheep and goats
- Over-development of high density tourism

If this wildlife loss continues there will be a negative impact on the tourist experience and as a result fewer tourists will travel to the MMNR and Kenya in general. Given that Kenya's service sector (which is dominated by tourism) accounts for 63% of Kenya's GDP<sup>6</sup> the preservation of wildlife is important to the economy as a whole.

<sup>4</sup> Wildlife and People: Conflict and Conservation in Masai Mara, Kenya

<sup>5</sup> Continuing wildlife population declines and range contraction in the Mara region of Kenya during 1977–2009, Journal of Zoology

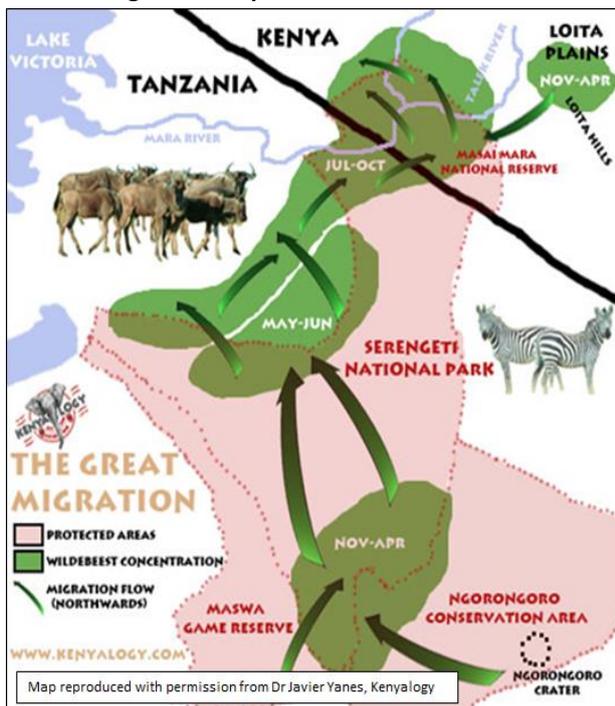
<sup>6</sup> Country Profile: Kenya, Federal Research Division

A key issue that is faced by the animals of the Greater Mara Ecosystem (GME) is that the area of land required for the total animal population of the GME to live in under 'normal' conditions is greater than the 1,510km<sup>2</sup> of the Maasai Mara National Reserve. In addition, most protected ecosystems, need buffer zones at the borders of the area to reduce the negative impacts of the environment outside of the ecosystem.

These buffer zones act almost as a thick membrane which is traversable by wildlife. This means that the wildlife is not forced to remain within a certain area when conditions within the protected ecosystem make this necessary, for example a lack of food supply.

Another important fact is that the total wildlife population of the GME changes dramatically in different regions through the year as a result of the Great Migration. This is the transit of approximately 1.2 million wildebeest and hundreds of thousands of other large plains game from the Serengeti National Park to the MMNR. This migration is driven by the food needs of the herbivores that are in constant need of food and as a result must keep moving to areas where fresh grass is available.

**Plate 5 Migration Map**



The catalyst for the Great Migration is the rains. The result is a circular route, as show in Plate 5. However due to the size difference between the Serengeti and the MMNR, the available land of the MMNR, although able to support the resident population of ungulates, is not of sufficient size to support the additional migration. As is shown in Plate 5 these animals disperse beyond the Northern boundaries of the reserve into the conservancies and community land area which is a vitally important dispersal zone. It is evident that during certain times of the year, the wildlife simply needs more grazing land than is available in the MMNR

There is also a less well known migration from The Loita Plains, northeast of the MMNR. This is an area of core breeding and calving ground and wet-season grazing land for the wildebeest. The historic human inhabitants of the Loita Plains are the Maasai that, with the wildebeest, traditionally migrated through the year to where the grasses provided adequate food for their cattle.

Over the past several decades, changes in land use in the Narok District have caused changes in ways of life for both the Maasai and the wildlife. In Kenya, large mechanized wheat farms in the area surrounding the Maasai Mara expanded roughly 1,000% between 1975 and 1995, most of them on the Loita Plains<sup>7</sup>. It is recognised that management of competing land uses for this vast grassland will require a careful balance if its value is to be preserved for future generations.

Much of the Greater Mara ecosystem is an interrupted eco-system, especially due to the influx of human beings. This refers to the state where the natural ecological succession of the area has been changed and the natural change in the species structure of the ecological community has been impacted.

The first strategic enabler to recovery is that the local community agree land lease arrangements with conservation partners where they restrict grazing and settlement in areas within the designated conservancy. Overgrazed areas soon return to their natural state and this change encourages grazing by large herbivores and the increase in large herbivores leads to a subsequent increase in the number of carnivores. As time passes, the ecological cycle of the land will recommence and the habitat improves very quickly – shrub and tree cover increases, savannah regenerates and waterholes that had previously been depleted by livestock begin to hold water.

<sup>7</sup> United Nations Environment Plan

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Originally, the land that now forms the Ol Kinyei conservancy was part of the Ol Kinyei Group Ranch in the Narok District. The Narok district is 18,513km<sup>2</sup> of which 5,420km<sup>2</sup> was separated into 33 ranches. Group Ranches are a communal system that was intended to allow the Maasai to enhance their livestock numbers through the joint provision of water facilities and livestock management. Most importantly land could not be bought or sold and non Maasai could not be part of a group ranch. As a result of legislative change it became possible to sub divide a group ranch. Members of the group ranch obtained individual title deeds to plots of land. The group ranches were subdivided into 100 – 375 acre plots.

As a result of the new individual ownership of specific plots of land, a mind-set of grazing cattle solely on an individual's own land began to become embedded within the Maasai community. Consequently, where previously families would travel with cattle over the land, not overgrazing and depleting water resources in any single area, a more sedentary lifestyle was adopted with more permanent settlements being built and fences erected on boundaries.

This practice has various negative impacts on the wildlife population of the ecosystem.

- i) Areas of grassland are degraded by cattle leaving little behind for wild herbivores
- ii) Fences block access to land for wild animals.
- iii) As a result of this increased density of cattle and smaller buffer areas between people and animals, predators are more likely to prey on domestic animals which causes immediate wildlife-human conflict.
- iv) Access to streams and rivers during the dry season is reduced, putting a strain on the remaining accessible water stores.

The Conservancy Concept is designed to remove or reduce these negative aspects.

It is relevant to mention that at particular times the Conservancy partners allow restricted grazing and access to water. In some cases this is to enhance habitat management as grazing the long grass encourages new growth which is attractive to some wild herbivores. In other cases, when conditions require it, limited access for cattle is allowed on land that can temporarily support both cattle and wildlife

These Conservancy initiatives have the backing of the government and The Kenya Wildlife Services (KWS) web site explains:

*"KWS undertakes conservation and management of wildlife resources outside protected areas in collaboration with stakeholders. It is our goal to work with others to conserve, protect and sustainably manage wildlife resources. The community wildlife program of KWS in collaboration with others encourages biodiversity conservation by communities living on land essential to wildlife, such as wildlife corridors and dispersal lands outside parks and reserves. The premise is that "if people benefit from wildlife and other natural resources, then they will take care of these resources."*

### **Conclusion**

The conservancies are vitally important to the success of the MMNR and the wildlife in it. Without their existence there is a real risk that this important dispersal zone will be lost. This will be a disaster for wildlife and the existing problems of overcrowding, poaching and wildlife loss in the MMNR will be greatly exacerbated. The wider implications on tourism and tourism revenues will impact further than the Maasai Mara ecosystem.

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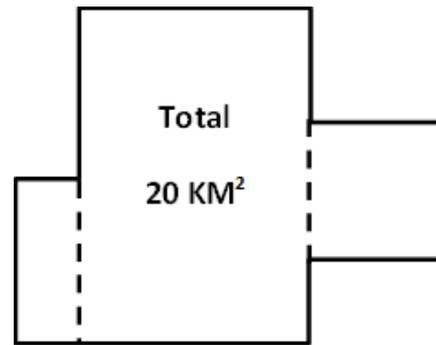
## 2. The mammal survey

The primary research into mammal numbers focused on three zones:

1. Area outside the conservancies where villages exist and there is active livestock grazing and herding
2. Area where the conservancy has been recently established (1 year)
3. Area where the conservancy has been long established (5+years)

In each zone GPS was used to mark out a 20km<sup>2</sup> area. Care was taken to avoid habitat bias between the survey areas which was extraneous to the evaluation objective. The choice and demarcation of survey areas was made to maintain similar relief of the land in all three zones and hence a similar tree, shrub and grass cover. This resulted in the chosen areas containing approximately 20% of sloped land and one water course.

A 20 square kilometre rectangular area that met these requirements could not be found. Consequently, a survey area was marked out as one single straight sided compound shape made from a series of rectangles as depicted in the diagram alongside.



The survey team included the author of this report, Ben Tongoyo (wildlife guide), Sammy Lempusia (local community liaison officer) and Stanley Sayielel (game driver). The survey areas were covered systematically and the species populations in the areas were counted by four pairs of experienced eyes. By using GPS to move through the zones in straight lines and not recovering tracks the chance of counting repeats was reduced.

In addition, identifiable characteristics of individuals within a species or a herd were recorded in order to prevent recounting on the same day. This process was done in all three zones, and was repeated 3 times. Each zone was surveyed for one day and therefore the entire survey took 9 days.

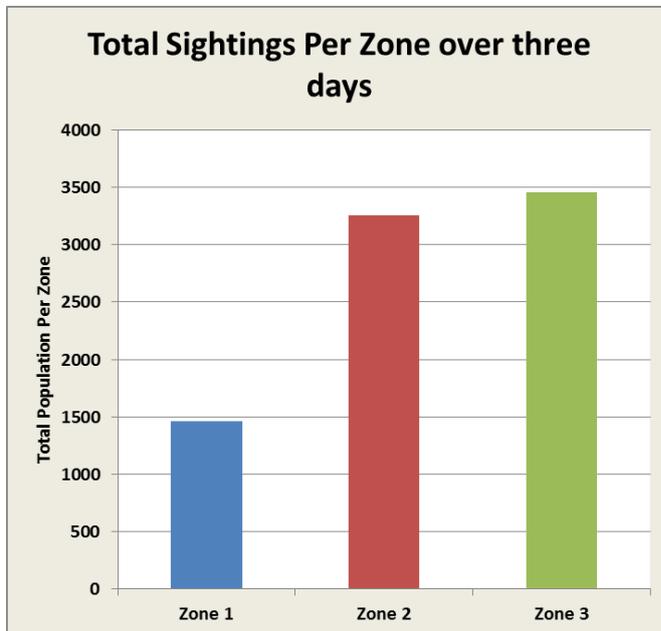
Where the terrain was impassable due to a river crossing the survey points the zone was split 'in situ' with one area on one side of the river being recorded in its entirety and then the remaining land area being recorded after crossing the river. Whilst there would indeed be a small time lag between the counts, the chances of animals crossing the waterways were relatively slim and therefore did not significantly impact the reliability of the count.

Due to the fact that the weather can have a severe effect on the population of a species recorded due to restricted visibility and many species' natural tendency to stay under cover during intense rainfall, additional days were built into the schedule in case of severe rainfall. Should this have occurred, the survey allowed time for counts to be postponed until the weather had returned to the 'normal' conditions compared to the other days of the surveys. In the event this was not needed.

## Research Results

It is important to emphasise that this is not a wildlife census or count of animal numbers. The Conservancy concept's theory of change links increased wildlife to an enhanced visitor experience. Therefore the focus was on the number of animals seen each day within the designated survey areas. The same animals may have been counted on different days.

**Plate 6 Total Sightings per zone over a three day survey in each zone**



**Zone 1:** Area outside the conservancies where villages exist and there is active livestock grazing and herding

**Zone 2:** Area where the conservancy has been recently established (1 year)

**Zone 3:** Area where the conservancy has been long established (5+years)

Area	Sightings	%
Zone 1	1,465	18%
Zone 2	3,258	40%
Zone 3	3,455	42%
Total	8,178	100%

(Supporting data is presented in Appendix 2)

In the conservancy zones (2 and 3) there is a clear increase in the number of sightings when compared to zone 1. In addition to inherent wildlife numbers being lower, animals in zone 1 were more evasive due to the fact that they are driven away from the villages. They took flight at an early opportunity, before the vehicle had come within the range that tourists would be used to viewing them. However, the reason for the increased numbers counted in Zones 2 and 3 is not to be attributed to this fact. It was clear even from a distance that populations in those areas are much larger. Due to the open nature of the plains it is possible to be fairly certain that the number of animals seen in the area would be very close to the number of animals habituating the area; this is especially true for larger species of mammals.

The fact that the animals in zones 2 and 3 were less evasive of the vehicle validates the claim (See Appendix 1) that in the Conservancies 'Wildlife is not harassed and can function more normally'.

It is noteworthy that the increase in numbers between zones 1 and 2 is very pronounced when compared to the increase between zones 2 and 3. The increase between zones 1 and 2 is 1,793 but the increase between 2 and 3 is only 197. This shows that one year after the establishment of a conservancy it is already sustaining a much greater amount of wildlife with a commensurate increase in the number of animal sightings.

When considering the time line between inputs (the resources to commence a land lease) and the impact (the change achieved by the intervention) this is a very short "payback" period. It is important to recognise that there are a number of activities such as moving settlements, training of staff, anti-poaching and conservancy management that all need to take place through the input to impact chain. The demonstration of such strong increases in wildlife numbers between zone 1 and zone 2 within such a short period of time shows that the concept is easily proven and well worth the investment.

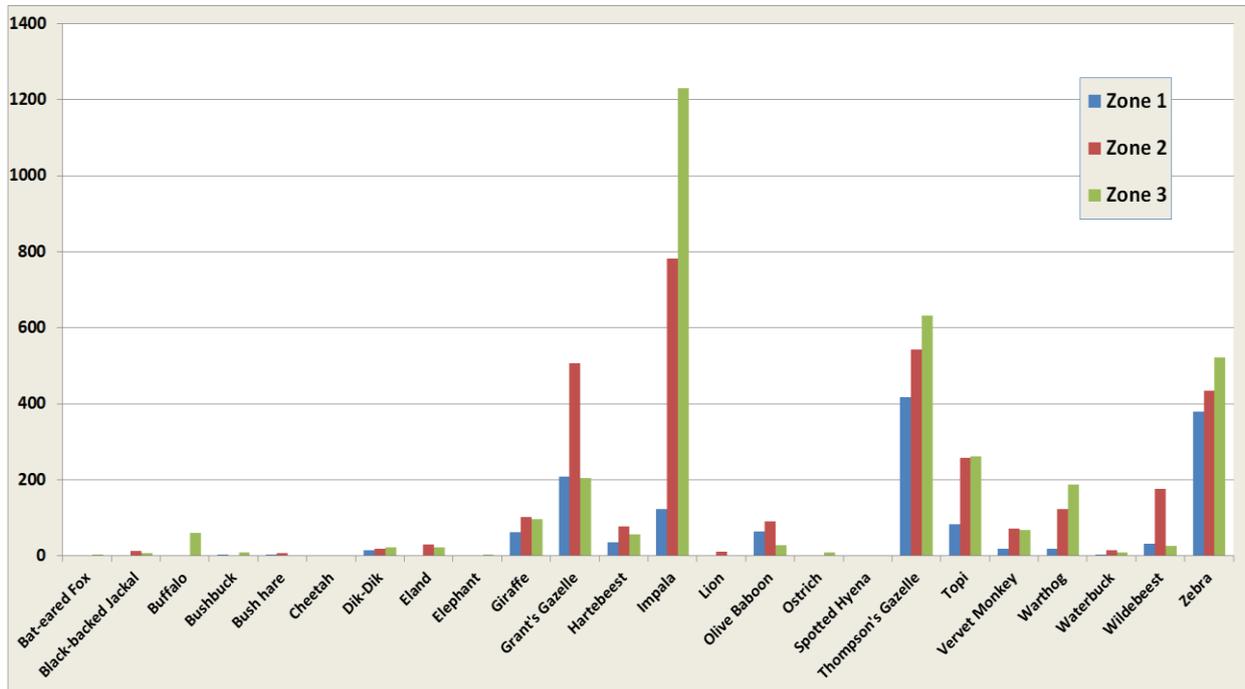
Some species such as Buffalo, Elephant and Ostrich were not seen at all in Zones 1 and 2 but were sighted in Zone 3. Both Buffalo and Elephant are signature species and are part of the Big 5 (buffalo, elephant, leopard lion and rhinoceros) and are often a focus for tourists.

This suggests that in contrast to the MMNR<sup>8</sup>, there is no decline in large herbivores in the Conservancy. In fact, there appears to be a recovery due to the establishment of the conservancy allowing for a build-up of vegetation which provides an adequate food supply for the large herbivores which in turn provide prey for the carnivores. Habitat restoration is seen to be taking place and the survey results confirm that wildlife is returning to areas identified as critical wildlife dispersal areas.

Whilst there is an overall increase and nearly all of the species increase between the zones, there are some species that do not follow the overall trend of increase. For example, bush hare were not seen in zone 3. This can be attributed to the fact that due to increased predator numbers in some areas certain prey species are less dense and are possibly more wary which leads to less sightings of them.

Some species, while biologically important, are unlikely to be as much of a focus for tourists as others. Plate 7 below presents a chart showing the total numbers of individuals per mammal species in the survey for each zone.

**Plate 7 Total Number of Sightings over three days per zone**



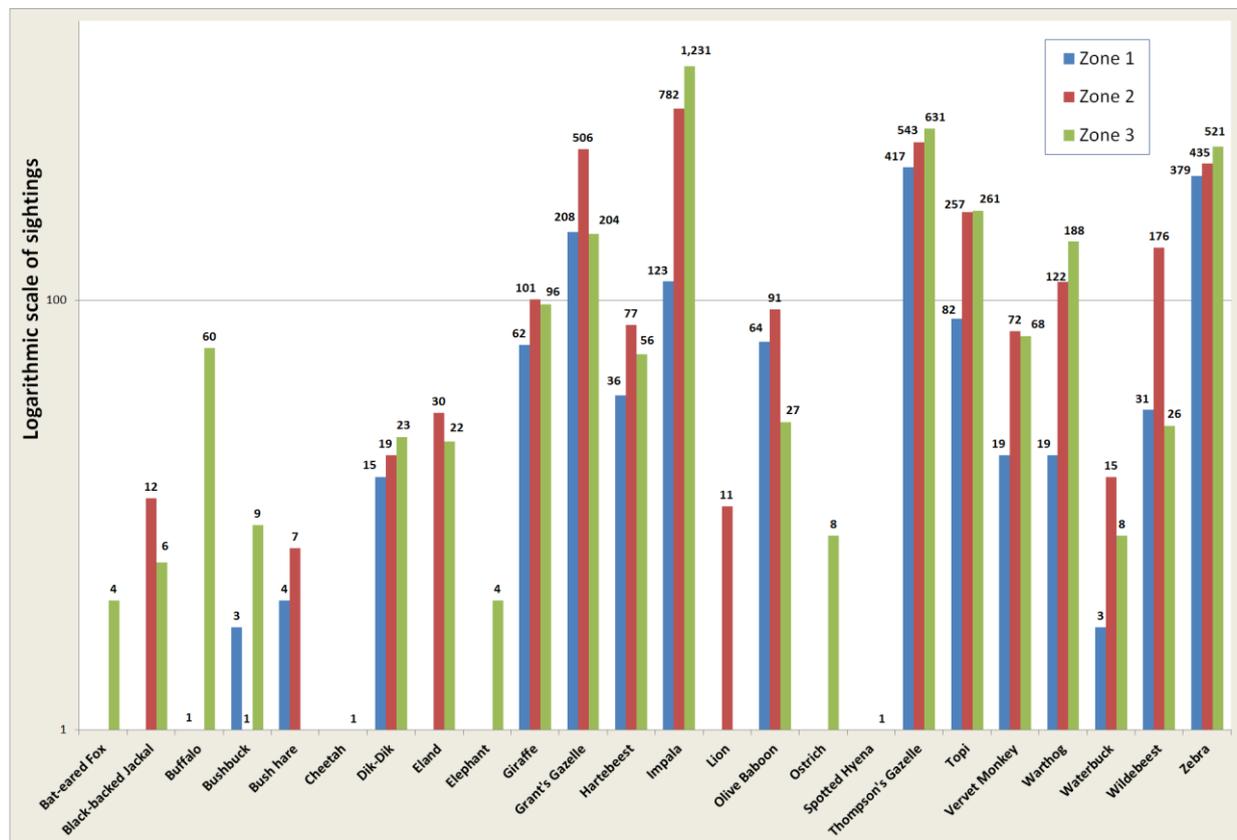
Some species were seen in small numbers and therefore do not show on the bar chart. Supporting data showing all sightings over the three days is presented in Appendix 2

As can be seen from Plate 7, there is a pronounced increase in many species. For example, in the community land, zone 1, the total number of Impala sighted was 123. In Zone 2, the total sighting was 782. This is a marked increase of 659 sightings. This trend continues and in Zone 3 the total number of sightings was 1231 which equates to a sighting density of approximately 62 Impala per square kilometre compared to Zone 1 at roughly 6 Impala per square kilometre. This equates to an increase of 900%.

It is difficult to see the trend in change in species with lower total sightings. These lower sightings are due to the fact that there are naturally greater populations of herbivores as compared to carnivores in an ecosystem. In order to take this into account, the total sighting results have also been presented using a logarithmic scale to accentuate the trends between zones (See Plate 8 on the following page). While this makes some of the changes where the total number is over 100 sightings appear understated, it also allows for the changes between total sightings that are under 100 to be more exaggerated and hence easier to analyse.

<sup>8</sup> Continuing wildlife population declines and range contraction in the Mara region of Kenya during 1977–2009, Journal of Zoology

**Plate 8 Total sightings using a logarithmic scale.**



**Test of statistical significance**

Whilst it is apparent that the numbers counted in zones 2 and 3 exceed that of zone 1, it is important to see how statistically significant this difference is. This has been considered using the Chi-squared test of independence in contingency tables. The expectation is that that animal sightings in zones 2 and 3 (established conservancy areas) would be more than in zone 1 (outside the Conservancy).

The question to address is: Are the deviations (differences between observed and expected) the result of chance, or were they due to other factors - in this case, the different zones and their status as conservancy and non-conservancy areas. The test allows consideration of how much deviation can occur before the research must conclude that something other than chance is at work, causing the observed to differ from the expected.

The Chi-square test investigates the null hypothesis which states that there is no difference between the expected and observed result. In this situation if the conservancy has no effect, (the null hypothesis), then the research would expect the numbers in each species to be about the same for each zone, other than for random fluctuations.

The test was carried out using the data presented in Appendix 2 for 10 key prey species, Buffalo, Eland, Grant's Gazelle, Hartebeest, Impala, Thompson's Gazelle, Topi, Warthog, Waterbuck and Zebra.

The results show that there is less than a 1% chance that the difference in sightings of these species is a result of random chance. In effect, the test clearly demonstrates that the variation in numbers is significant and can be attributed to the fact that the data comes from sightings in different zones.

**Species not recorded**

The climatic conditions at the time of the survey need to be taken into account. The survey was carried out in April and the grass was long and this provided cover for big cats. Although they were not represented in the survey data in large numbers, big cats are always present where there are large numbers of prey species and where they are not in conflict with humans.

The survey guidelines and time allocated for each survey were strictly adhered to. Predators, elephants and buffalo are often seen to be signature species by visitors and even where they were seen they were not recorded if they did not fall into the designated survey areas on the designated days.

A sighting was only recorded if it took place on the allocated day of the survey in the allocated survey area. For example, while it appears that there were lion sightings only in Zone 2, lions and cheetahs were sighted regularly in zones 2 and 3 during the survey period but were not in the right place at the right time to be recorded. Similarly spotted hyenas were seen in some numbers in Zone 3 are but were not recorded as they were located a few hundred metres outside the survey area boundary. A large herd of over eighty elephants was also sighted in Zone 2. There was also a resident hippopotamus near the Porini Mara camp which has not been recorded.

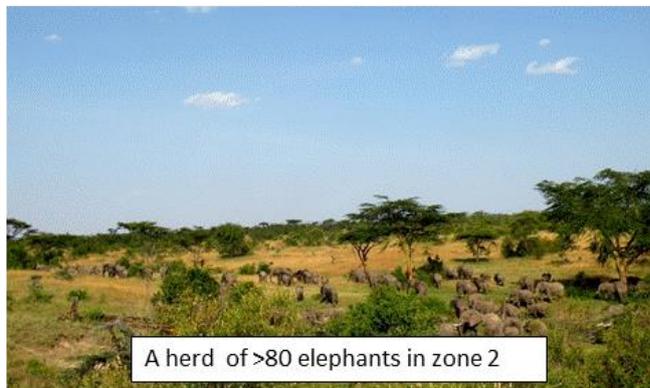
This means that sightings of these signature species would be far higher for visitors as they would not be constrained by the parameters imposed for the survey and would in fact be going where the animals they wanted to see were expected to be.



A large resident lion pride in zone 3 comprising adults, sub adults and cubs



Three cheetahs on an impala kill in zone 2



A herd of >80 elephants in zone 2

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### 3 Visitor experience

The Conservancy Concept's theory of change relies on increased tourism. Understanding why and how visitors make choices and the key issues and factors that influence tourists is therefore relevant. The primary research was conducted by interviews with visitors to the Porini Mara safari camp. It was followed up by interviews with visitors to the Porini Lion safari camp in the Olare Motorogi conservancy.

The secondary research included reviews of the visitor book in both camps, extensive reviews of comments on Trip Advisor and Fodor's Travel and website reviews of travel companies.

The conclusions from this research indicate that simplistically the safari tourist can be categorised into three categories:

1. Those who want a cheap budget safari often as part of a wider holiday package
2. Those who want a more special safari experience and are ready to pay more for it
3. Those who are influenced by sustainability and ethical issues

The Conservancy Concept by the very nature of what it is trying to achieve is attractive to categories 2 and 3

Comments include:

- *We don't like to see many other vehicles*
- *We rarely saw more than one other vehicle while on game drives, as only Porini vehicles had access to Ol Kinyei Conservancy.*
- *Saw more animals than I could have imagined and didn't have to share with other jeeps.*
- *It (the Conservancy) also limits the amount of tourists and traffic in the area and it gives you the feeling of being almost alone in this part of the wilderness.*
- *We spent the next hour or so with them (cheetahs), and of course because it is a private game conservancy, we were the only vehicle in the area, so these five wonderful creatures were not hounded by countless mini-buses as they would have been in the neighbouring Maasai Game Reserve ..... this is one of the best things about going to Ol Kinyei - the game is yours and yours alone, and there's nothing better than just sitting there watching them being a family, and all the interaction that goes on.*
- *The massive advantage of the conservancy is the lack of other camps in the area meaning you have more freedom (as opposed to the Maasai Mara when it can occasionally, despite its size, feel slightly "crowded" - particularly when 15 jeeps race to spot a leopard and you've cornered the thing).*
- *Conservancies provide privacy and the fact that all the employees are Maasai, provides added value in the form of culture and their knowledge of the lands and wild life*
- *Really entertaining, yet quiet and peaceful. So glad to know that I was helping the Maasai instead of just exploiting their land like many of the other safari companies.*
- *A fantastic concept for both the traveller and the community.*
- *I was also very pleased with the partnership the camps exhibit with the local communities - the pride the staff feel in the conservancies and in the camps is palpable*
- *The allure of the Gamewatchers experience that we really believe separates it from other camps and lodges is the unique and special relationship that Porini shares with the Maasai community. What we experienced in superior and luxurious accommodations, five-star food, productive game drives is a product of a model whereby land is leased from the Maasai in the Amboseli and Mara eco-systems to create wildlife conservations. The common goals of many are melded into this incredible adventure that bridges so many agendas into one fantastic experience. The pay-out for us was the complete fulfilment of our safari dreams.*
- *The relationship between the Maasai and the tent camp operator seems to be win-win*

Visitors to the conservancy are focused on the wildlife and the enhanced game viewing experience that the conservancy offers but in addition to this, a number of tourists believe that it is important to take 'eco-friendly' or 'ethical' holidays which have a minimal impact on the environment and benefit local communities.

The benefits that are recognised by visitors include:

- Low density tourism (one tent per 700 acres)
- Abundance of wildlife which is not overcrowded by many vehicles
- Very few restrictions on when and for how long game drives can take place
- No habitat disruption from settlements
- Opportunity to picnic and enjoy 'sundowners' in the bush without having to return to camp by sunset
- Ability to do night drives and game walks
- Low impact eco-friendly tented camps
- Demonstrable benefit to the local community



A minority of visitors to the conservancy were not aware of the Conservancy Concept at all and simply believed that the camps were part of the 'Maasai Mara [Reserve]' although others had some understanding of the way in which it worked.

For many tourists it is the exclusive game viewing experience combined with the limited number of camps within the conservancy that is seen as a key differentiator. Although these visitors may not be particularly driven by environmental or sustainability issues, their continued patronage and rationale for "liking" the experience are important as in itself it fosters the strong environmental and impact benefits of limited tourists and vehicle numbers.

Others are clearly driven by an understanding of the Conservancy Concept that suggests that as a result of responsible ecotourism, wildlife areas can be protected and local communities can be benefitted. Ecotourism is defined by Ecotourism Kenya as, "*nature and culture-based tourism that invests in and supports the protection of the environment, respects local cultures, and involves local communities to ensure equity amongst all stakeholders*". For a large number of the visitors interviewed, the fact that the conservancy benefits and works with the local community was deemed important, as was the idea that the Conservancy Concept fosters eco-tourism on the part of a tourist.

Whilst still in the minority it seems that the number of tourists who pay regard to ethical issues is increasing. Many organisations, pressure groups and campaigners are promoting eco-tourism and many tourists are paying heed to this aspect.

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It is apparent that for some visitors it was only after visiting the camp that they were aware of the Conservancy Concept and conservancy partners should do more to foster a better understanding of the issues at an early stage. A simple short bullet point summary of the Conservancy Concept should be made easily available. Travel and booking agents should be encouraged to explain the Conservancy Concept and its benefits to potential clients. Surprisingly, the web sites of conservancy partners do not focus on the win-win issues. The web site review shows that not enough attention is being paid to this important aspect which could become a more important differentiator as the number of competing safari companies continues to increase.

There are an increasing number of tourists who are concerned about the impact of long haul air travel on their carbon footprint. This is a valid concern, but the great importance of sustainable ecotourism in supporting vitally significant environmental and conservation initiatives should not be underestimated. In addition, the opportunity and relevance of carbon sequestration in forest, scrub and savannah needs to be taken into account. There are a number of easily available “carbon calculators” that if made available by conservancy partners would allow tourists to easily offset “air miles”. The research indicates that a number of tourists would be ready to contribute to carbon sequestration programmes if it was easily offered. It is estimated that one tree, can on average, sequester one ton of carbon over its lifetime and tourist contributions can help support reforestation and regeneration of shrublands and grassland.

### **Conclusion**

The Conservancies create an enhanced viewing experience and opportunity for ethical eco-tourism for discerning visitors who recognise the opportunity and the privileges that they enjoy as being part of this important initiative. However, more must be done to publicise and capitalise on the key differentiators and the importance of this initiative.

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## 4. Benefits to the local community

The local community is defined as the Maasai who lived and grazed their herds on the land that is now the conservancy.

The Maasai are a pastoral people. They are not hunters; however their cattle compete with wild ungulates for grazing. There is an inevitable risk of a wildlife-human conflict. In addition, lion hunting is part of their culture and established custom. They obtain their sustenance from their cattle and sheep and their herds form a measure of their wealth and wellbeing. Thus, hazards such as the risk of droughts pose a great risk to them as this invariably leads to severe livestock loss with a direct impact on their economic security.

Low impact eco-tourism where the local communities are directly employed in tourism, habitat protection and wildlife management leads to a broadening of the income base for those communities. The Maasai are less dependent on their livestock which can be adversely impacted by climatic conditions as they have alternate sources of income from land rental and wages. This increases their economic security and wellbeing. The virtuous circle is completed by the realisation that increased wildlife leads to increased tourism. Despite the wildlife-human conflict the Maasai have realised that wildlife, including predators, is worth more to them alive than dead. The fact that there are areas that are “exclusively” for wildlife also reduces the wildlife-human conflict.

The benefits to the local community of a well-run conservancy which actively engages with, supports and empowers the community are many. These include:

1. The establishment of reliable sources of income
2. Access to medical care through the provision of local health centres
3. The availability of financially viable and local education and training through the provision of local schools and training as camp guides, chefs, guards, drivers etc.

### **A reliable source of income**

To the Maasai, their cattle are wealth capital. Income is derived from selling their livestock for money. This means that disasters such as droughts and widespread diseases can lead to a massive loss of wealth and income. For example, many of the Maasai interviewed said that they lost up to 50% of their herds in the 2009 drought. Livestock is essentially a currency for the Maasai with internal payments being made in the form of livestock. Cattle ownership is a measure of wealth and status and generally the Maasai only sell their cattle when there is a requirement for money in order to buy goods. This essentially means that the Maasai are asset rich as opposed to cash rich. The downside of this is that they are at great risk of losing their assets and have no method of recovery such as insurance policies.

The Conservancy provides a source of income in a number of ways. The most obvious of these is that the land, leased on a monthly basis, is paid for four times per year which ensures a steady income. The rental payments increase annually. This amount is paid directly to land owners – there is no central committee and each individual land owner is encouraged to be actively involved.

A key factor is that regardless of guest numbers in the Conservancy, the lease income that the Maasai receive is an agreed amount. Therefore even where extraneous events have meant a reduction in tourism and visitor numbers the local community still gets the fixed rentals and the volume variances have to be absorbed by the conservancy partners.

In addition to this, at least one member of the landowning family from whom the land for the conservancy is leased will be employed within the conservancy. Bearing in mind that between 2000 and 2009 20% of the population were below the international poverty line of US\$1.25dollars per day<sup>9</sup>, the fact that the lowest paid workers are able to ‘take home’ US\$120 per month shows the real benefit that is provided to employees of the Conservancy. In addition, staff working at the camps get free accommodation and food and also receive gratuities from tourists.

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<sup>9</sup> Unicef: Kenya Statistics

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Gamewatchers Safaris has calculated that the total cash flowing into the community from the Ol Kinyei Conservancy is Kshs 22 million p.a. (c. \$260,000)<sup>10</sup>. In addition, they have contributed to and facilitated the funding of various projects aimed at improving infrastructure and provision of healthcare, water, and schools.

### **Access to medical care**

While Gamewatchers Safaris as the company managing the Conservancy has made no firm commitment to provide medical care to members of the community, the new income streams from the Conservancy are enabling the people to pay for their own basic healthcare. However in some circumstances, the cost of the healthcare needed is beyond the financial capacity of the affected family and some interviewees explained that that on occasion the conservancy partner has assisted with the medical care of individuals.

The nature of this support varies - in one case this was simply the use of a Conservancy vehicle to take a patient to hospital whereas in other cases there was direct financial support for a family who were simply unable to afford a medical treatment.

### **Availability of education**

Schools in rural Kenya are few and far between and children may have to walk many miles in order to reach them. Gamewatchers Safaris sponsored the construction of a school which was constructed near Oloibormurt which is close to the community land surrounding the Conservancy.<sup>11</sup>

The school was cited as an excellent example of making education available to local people and in cases where a family has a lack of funds, the conservancy partners have, on occasion, made personal sponsorships for the college or school education of a child.

In addition, staff who are employed by the conservancy partners develop marketable skills and are able to develop a career path in the tourism / hospitality/ conservation industries.

### **Interviews with the local community**

A series of interviews of those employed by the Conservancy were carried out (guides, drivers, camp staff, rangers and the conservancy's warden) in which one of the interview questions was, 'Has your income and living improved as a result of the Conservancy?' 85% of those that were questioned responded that the Conservancy had improved their income and living.

Responses from those employed within the Conservancy included:

- *"You have income at the end of the month and you have wages. Also, I have a small piece of land in the conservancy which I lease- I also have income from that"*
- *"You know, before we were relying on our animals which can die during the dry season but the income from the conservancy is [consistent] all year"*
- *"Personally, when I started I owned 50 sheep, now I have bought using the money I earned, 400 sheep. Also the cows- I was employed here with no cows and since then I have 30 cows"*
- *"When the conservancy was not here, the wild animals were still there, eating the grass, but we weren't benefiting from them. Now the wildlife is just like our domestic animals because you are earning from the wildlife like domestic animals."*
- *"Yes I have, I used not to have any animals before but now I have 5 cows, 10 sheep and 20 goats"*
- *"I get a regular salary, and my parents and daughters benefit from my salary. Also the land... at the end of the three months I get the payment"*
- *"It has really improved. It has helped me to build a house"*
- *"I was born on this land and I want to keep my involvement with it and continue to earn money through it"*

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<sup>10</sup> Porini Safari Camps: Responsible Tourism

<sup>11</sup> The Star: So, Who Are Real Beneficiaries of Corruption In The Mara?

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It is evident that there is a realisation that wildlife can be a driver of a valuable source of income for a community member and there is also a clear awareness of the fact that the money from the conservancy is a far more reliable source of income than cattle. This may over time change the impetus of investing in more and more livestock.

Members of the Maasai community outside the conservancy were also interviewed. These people were found within two kilometres of the conservancy's boundary and many (as expected by the proximity of their villages to the conservancy) were owners of land within the conservancy.

One individual who was herding his sheep explained the advantage of being able to give up some land to the conservancy while retaining some land for a traditional way of life. *"Those sheep are my bank account - when I want anything I have to sell the sheep. But now that I have conservancy land leased it means that I get money every quarter in advance. Therefore I have enough money and I never have to sell any sheep or cattle so they keep on multiplying and my bank balance keeps increasing."* This shows that the Maasai are now able to keep livestock almost as wealth capital and as a means of tradition and status as opposed to being a sole and often unreliable source of income.

Another Maasai interviewed said he was waiting for the conservancy to offer to lease his land so that he could also benefit from the regular income.

It is interesting to note that despite receiving money, many of those interviewed chose to immediately convert this into livestock, and this shows a natural inclination to preserve their own traditional values and behaviours.

However, the impact of the increase in livestock numbers, whilst small in itself needs further consideration. Presumably, the increase in the conservancy acreage and the increase in livestock will create a dynamic which cannot continue ad infinitum. However, as shown by the maps and data at Plates 2 and 3 there is still much scope to increase the size of the conservancies.

Many of the interviewees recognised that increased wildlife numbers were a key driver for increased tourism. Community members said that they now recognise that a live lion is worth more than a dead one. Furthermore, in cases of predator attacks on livestock, not only has the Conservancy Concept educated the Maasai into understanding that a wild lion earns them more money than a cow but the Conservancy also contributes towards compensating the cattle owners. There are differing views on the long term efficacy of predator compensation schemes and the objective must be to manage the land and the livestock so as to reduce the potential of wildlife-human conflict.

The research confirms that not only does the Conservancy provide a reliable source of income to the landowners but it also provides employment opportunities to members of their families. Several of the people that were interviewed at random while driving in the community land outside the conservancy were immediate family members of people who worked inside the conservancy.

## **Conclusion**

The last link of the theory of change is an increasingly important one. Without demonstrable benefit to individual land owners and the wider local community, land will not become available for the expansion of the conservancies. Conservancy partners must work to continue to increase the perceived benefit to the local community. There is a risk that concerns about land grabs in other parts of Africa could taint this initiative if uninformed pressure groups and media do not recognise the true benefit to the community. Conservancy partners need to be constantly aware of the contagion risk of bad publicity that may stem from other areas and other less scrupulous practices and they should better explain how their model works to the benefit of the local community.

The final loop back in the theory of change presented in Plate 1 shows that since the communities recognise the benefit to them they are ready to incorporate more of their land into the Conservancy. This is evidenced by the increase in the size of the Ol Kinyei Conservancy which started in 2005 as 24km<sup>2</sup> and has more than tripled in size to over 70km<sup>2</sup>. Since the field work was carried out the land in Zone 1 is now part of the Ol Kinyei Conservancy and it is expected that in terms of habitat and wildlife numbers it will be on par with the more established parts of the Conservancy. Future survey work over the same survey area would be able to easily confirm whether this has happened.

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## 5. New times, new challenges

As the Conservancies continue to face a changing and challenging landscape, they will encounter many challenges.

Land prices in Kenya are increasing fast. Local inflation and interest rates are high. The Conservancy partners have made it a point not to purchase land from the Maasai but instead to enter into land lease arrangements. In the main these are for 15 years.

The expectation is that land price inflation will outstrip possible tourism price inflation. If not on the next lease renewal then some time in the future it is likely that economic forces will mean that tour operation revenues on their own may not generate enough income to match the income expectations from the land owners.

There are many competing forces for the land and there is a reducing window of opportunity to expand the Conservancies. Conservancy partners may have to urgently rethink business and financing models and the task of setting priorities will remain as difficult as ever; matching the demands to satisfy short-term needs against pressure for the resources required to achieve long-term solutions.

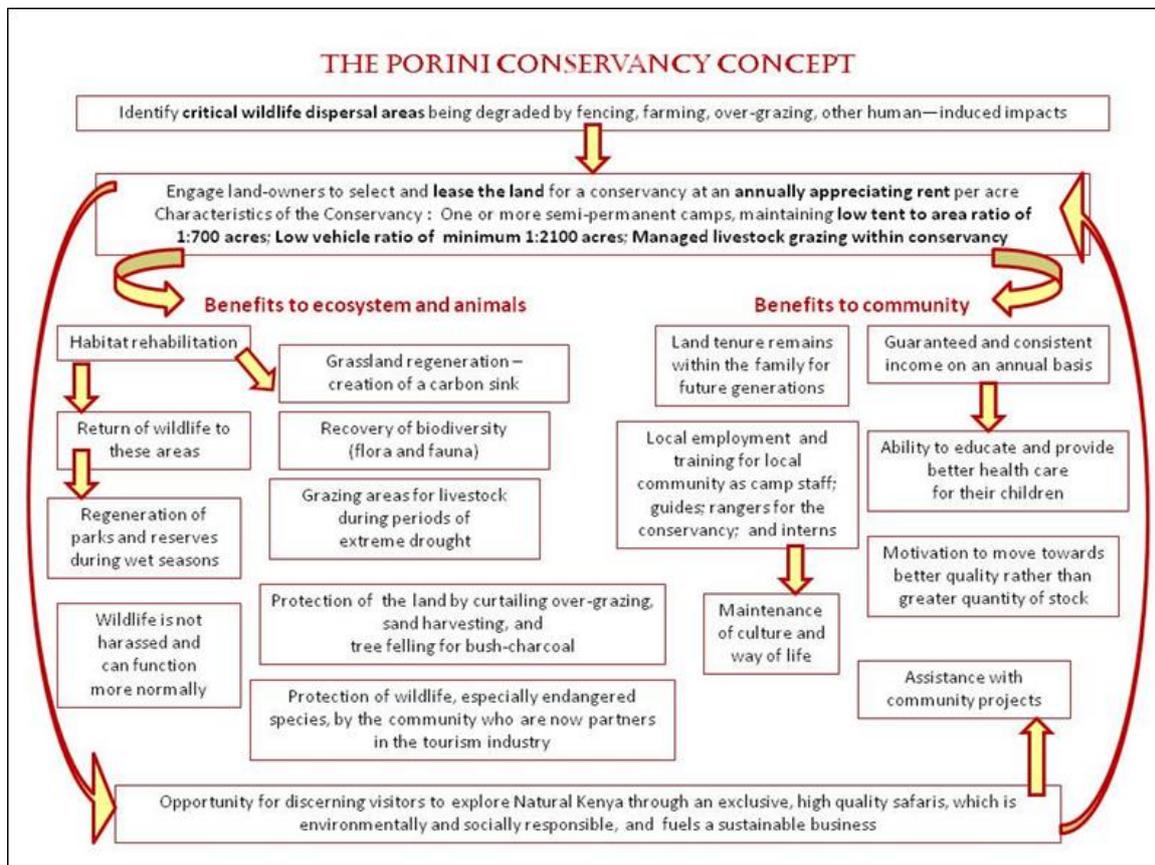
It has become self-evident that plans for future strategic development will have to take into account not only all of these factors but also a very different environment from that of the first decade of the 2000s. Change will be a continuing issue, and the Conservancies will need to ensure that they can continue to manage that change without losing motivation, momentum and clarity of purpose.

Perhaps more effort should go on increased resource mobilisation and new funding models such as social impact bonds and venture philanthropy. As shown in this report, the Conservancy concept undeniably works and social investors, funders and the donor community should get behind it before it is too late.

It will be an indictment of our values and priorities if lands that have supported wildlife for thousands of years are no longer allowed to do so.

## Appendix 1 - The Porini Conservancy Concept

The term Conservancy has been used for some time. However, the Porini Conservancy Concept which was pioneered in Amboseli in 1997 was the first to truly engage the local community as stakeholders. The successful model shown below is broadly unchanged.



Source: Porini Concept paper

## Appendix 2 - The survey data

Species	Zone 1					Zone 2					Zone 3				
	Average	Total	Day 1	Day 2	Day 3	Average	Total	Day 1	Day 2	Day 3	Average	Total	Day 1	Day 2	Day 3
Bat-eared Fox	0.00	0	0	0	0	0.00	0	0	0	0	1.33	4	4	0	0
Black-backed Jackal	0.00	0	0	0	0	4.00	12	11	0	1	2.00	6	0	0	6
Buffalo	0.00	0	0	0	0	0.33	1	0	0	1	20.00	60	28	32	0
Bushbuck	1.00	3	2	1	0	0.33	1	0	0	1	3.00	9	3	2	4
Bush hare	1.33	4	3	1	0	2.33	7	1	3	3	0.00	0	0	0	0
Cheetah	0.00	0	0	0	0	0.00	0	0	0	0	0.33	1	0	0	1
Dik-Dik	5.00	15	7	5	3	6.33	19	2	9	8	7.67	23	7	7	9
Eland	0.00	0	0	0	0	10.00	30	0	24	6	7.33	22	1	10	11
Elephant	0.00	0	0	0	0	0.00	0	0	0	0	1.33	4	4	0	0
Giraffe	20.67	62	32	18	12	33.67	101	28	37	36	32.00	96	27	38	31
Grant's Gazelle	69.33	208	54	65	89	168.67	506	154	154	198	68.00	204	75	70	59
Hartebeest	12.00	36	15	6	15	25.67	77	14	28	35	18.67	56	20	16	20
Impala	41.00	123	32	79	12	260.67	782	164	360	258	410.33	1,231	401	448	382
Lion	0.00	0	0	0	0	3.67	11	7	0	4	0.00	0	0	0	0
Olive Baboon	21.33	64	21	22	21	30.33	91	2	30	59	9.00	27	12	15	0
Ostrich	0.00	0	0	0	0	0.00	0	0	0	0	2.67	8	4	4	0
Spotted Hyena	0.00	0	0	0	0	0.00	0	0	0	0	0.33	1	1	0	0
Thompson's Gazelle	139.00	417	161	107	149	181.00	543	135	190	218	210.33	631	193	267	171
Topi	27.33	82	23	31	28	85.67	257	75	99	83	87.00	261	90	79	92
Vervet Monkey	6.33	19	0	19	0	24.00	72	4	35	33	22.67	68	0	13	55
Warthog	6.33	19	6	9	4	40.67	122	25	33	64	62.67	188	45	90	53
Waterbuck	1.00	3	0	0	3	5.00	15	0	9	6	2.67	8	0	7	1
Wildebeest	10.33	31	19	12	0	58.67	176	52	61	63	8.67	26	13	13	0
Zebra	126.33	379	97	120	162	145.00	435	118	183	134	173.67	521	154	163	204
<b>Total</b>	<b>488</b>	<b>1,465</b>	<b>472</b>	<b>495</b>	<b>498</b>	<b>1,086</b>	<b>3,258</b>	<b>792</b>	<b>1,255</b>	<b>1,211</b>	<b>1,152</b>	<b>3,455</b>	<b>1,082</b>	<b>1,274</b>	<b>1,099</b>

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## Bibliography

- African Conservation Foundation. n.d. Kenya: *Vegetation Loss Threatens to Push Wildlife Species Into Extinction*.  
Available at: <http://www.africanconservation.org/habitat-news/item/kenya-vegetation-loss-threatens-to-push-wildlife-species-into-extinction-5>
- Francine, M. 2004. *Creating Coexistence between Humans and Wildlife: Global Perspectives on Local Efforts to Address Human–Wildlife Conflict*.
- Library of Congress. 2007. *Country Profile: Kenya*.
- Matt, W., Karanga, G., Siati, N. and Leader-Williams, N. 2003. *Wildlife and People: Conflict and conservation in Masai Mara, Kenya*.  
Available at: <http://pubs.iied.org/9225IIED.html>.
- Na.unep.net. n.d. *United Nations Environment Program: Loita Plains*.
- Ng'ethe, J. n.d. *Group ranch concept and practice in Kenya with special emphasis on Kajiado District*.  
Available at: <http://www.fao.org/Wairdocs/ILRI/x5485E/x5485e0t.htm>.
- Ogotu, J., Owen-Smith, N., Piepho, H. and Said, M. 2010. *Journal of Zoology: Continuing wildlife population declines and range contraction in the Mara region of Kenya during 1977–2009*.  
Available at: [http://www.rhinoresourcecenter.com/pdf\\_files/133/1331506552.pdf](http://www.rhinoresourcecenter.com/pdf_files/133/1331506552.pdf).
- Olekina, L. 2012. So, Who Are Real Beneficiaries of Corruption In The Mara?
- Porinisafaricamps.com. n.d. *Conservancy Concept - Porini Camps*.  
Available at: <https://www.porini.com/home/conservancy-concept/>
- Porinisafaricamps.com. 2013. *Responsible Tourism*.  
Available at: <https://www.porini.com/about-us/responsible-tourism/>
- Trip Advisor Ratings of Porini Mara Camp and Ol Kinyei Conservancy:
- Porini Mara Camp: [https://www.tripadvisor.co.uk/Hotel\\_Review-g294209-d614286](https://www.tripadvisor.co.uk/Hotel_Review-g294209-d614286)
- Ol Kinyei Conservancy: [https://www.tripadvisor.co.uk/Attraction\\_Review-g294209-d1460372](https://www.tripadvisor.co.uk/Attraction_Review-g294209-d1460372)
- UNICEF. 2011. *Kenya - Statistics*.  
Available at: [http://www.unicef.org/infobycountry/kenya\\_statistics.html](http://www.unicef.org/infobycountry/kenya_statistics.html).
- Wally, M. 2001. *ECOTOURISM AND SUSTAINABLE WILDLIFE MANAGEMENT*.  
Available at: [http://www.fao.org/fileadmin/templates/lead/pdf/02\\_article03\\_en.pdf](http://www.fao.org/fileadmin/templates/lead/pdf/02_article03_en.pdf).
- WWF. 2007. *Ecotourism feasibility study*.
- Yanes, J. n.d. *Kenyalogy - Kenya Safari Web: Parks & reserves: Masai Mara National Reserve: The great migration*.  
Available at: <http://www.kenyalogy.com/eng/parques/mara35.html>.