

# Managing the migration – Maasai Mara National Reserve and Serengeti World Heritage Site connectivity



Jacinta Nzioka



© GUDKOV ANDREY

## Introduction

The greatest natural mass wildlife migration on the planet, involving one ecosystem, two different nations and millions of animals, brings together the Serengeti World Heritage Site (WHS) in Tanzania and the Maasai Mara National Reserve in Kenya. In terms of natural heritage, the border is crossed by the Mara River and represents a fluid boundary. On the scale of Indigenous local communities, the

---

J. Nzioka (✉)  
Kenya Tourism Board, Nairobi, Kenya

borderlands area is also shared on both sides by the Maasai peoples, long associated with a pastoral and herding tradition of domesticated animals, but more recently through transformed engagement in conservation and tourism activities. But with regard to the more substantive conservation, tourism and other economic or political aspects, the boundary between Kenya and Tanzania forms a more challenging frontier which, to be truly effective, demands a greater degree of cooperation and joined-up management of the ecosystem.

This paper reflects on the desire to share meaningful cooperations that require the incorporation of a multitude of agencies and responsibilities far beyond the basic involvement of the Kenya Wildlife Service (KWS) and natural heritage conservationists. The Maasai Mara is already acknowledged through its listing since 2010 in the Kenyan Tentative List of UNESCO World Heritage Sites.<sup>1</sup> The complexity is represented not least by the indication of the Maasai Mara as a mixed site under the Outstanding Universal Value criteria (v), (vii) and (x), whereas in the existing Serengeti WHS, it is only presented as a natural site under criteria (vii) and (x). For more effective collaboration across interrelated issues, such as anti-poaching, the evolving roles of Indigenous peoples and the development of sustainable tourism initiatives, as well as the desire for infrastructural development for the people, it is apparent that the future lies in measures that bring together combined management efforts which, as well as crossing borders, also bridge the nature-culture divide.

## The ecosystem

The East African savannas are well known for the large-scale seasonal migrations of grazing herbivores. Perhaps one of the most well-known is the annual migration of 1.3 million wildebeest, along with 0.6 million zebras and Thomson's gazelles in the Serengeti-Mara ecosystem (Sinclair, 1995). The significance of this migration is enormous: it is the largest and most species-diverse large mammal migration in the world. It is of iconic importance for tourism and has huge ecological significance, resulting in the Serengeti National Park in Tanzania being listed as a WHS.

## The Maasai Mara National Reserve

The Maasai Mara National Reserve is situated in Rift Valley Province of Kenya, in Narok County. It was inscribed onto UNESCO's Tentative List in 2010 as a mixed site under criteria (v), (vii) and (x). Indeed, the site qualifies for inscription onto the

---

<sup>1</sup> <https://whc.unesco.org/en/tentativelists/5512/>

full World Heritage List, as it hosts traditional human settlements that are under threat by human development; it is a unique and spectacular showcase for nature's beauty, with the migration being recognized by both travel media and tourists as one of the new wonders of the world. It is also recognized as an ecosystem for natural habitat and conservation, having some of the highest numbers of predators and savannah big game in the world.

The site adjoins the Serengeti National Park along the Kenya-Tanzania border, and is considered part of the same ecosystem. The National Reserve is Kenya's most-visited protected area, world famous for its high density of herbivores and predators, and the annual migrations of wildebeest, *Connochaetes taurinus*.

The Maasai Mara lies in the Great Rift Valley (fault line), some 3,500 miles (5,600 km) long, from Ethiopia's Red Sea through Kenya, Tanzania, Malawi and into Mozambique. It is characterized by a wide valley and a towering escarpment in the hazy distance. Habitats in the Maasai Mara are varied, including open rolling grassland, riverine forest, Acacia woodland, swamps, non-deciduous thickets, boulder-strewn escarpments, and *Acacia*, *Croton* and *Tarchonanthus* scrub. The permanent Mara and Talek rivers and their tributaries flow through the reserve and approximately trisect it. There is a pronounced rainfall gradient from the drier east (with c. 800 mm rainfall per year) to the wetter west (with c. 1,200 mm per year).

## The Serengeti World Heritage Site

The Serengeti WHS, on the other hand, is situated on the north-east part of the United Republic of Tanzania and is at the heart of the larger Serengeti ecosystem, which includes other game reserves and conservation areas. It was declared a WHS in 1979.

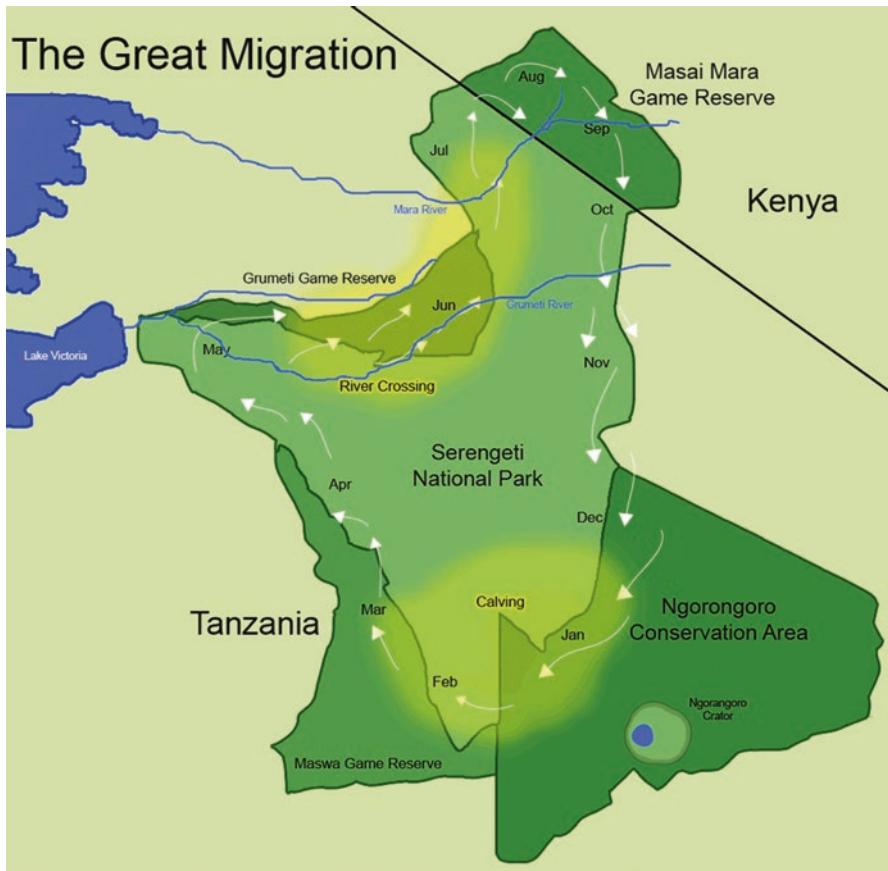
The Serengeti National Park was inscribed onto the UNESCO World Heritage List in 1981<sup>2</sup> as a mixed site under categories (vii) and (x). The park is a nature site of phenomenal authentic beauty and unique natural habitat for conservation, and is managed by the Tanzania Parks Authority, a government agency.

Serengeti National Park was one of the first sites listed as a WHS when United Nations delegates met in Stockholm in 1972. By the late 1950s, this area had already been recognized as a unique ecosystem, providing us with many insights into how the natural world functions and showing us how dynamic ecosystems really are.

Today, most visitors come here with one aim alone: to witness millions of wildebeest, zebras, gazelles and elands on a mass trek to quench their thirst for water and eat fresh grass. During this great cyclical movement, these ungulates move around the ecosystem in a seasonal pattern, defined by rainfall and grass nutrients. These large herds of animals on the move cannot be witnessed anywhere else. Whereas other famous wildlife parks are fenced, the Serengeti is protected but unfenced, giving animals enough space to make their return journey – one that they have been doing for millions of years (Figure 1).

---

<sup>2</sup><https://whc.unesco.org/en/list/156/>



**Figure 1.** Flow of the migration between Serengeti and Maasai Mara. *Source:* UNEP, 2013. (The names and boundaries shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations).

## Management of the transnational sites

The Maasai Mara National Reserve is managed by the Narok County Government. Because of a rapidly growing human population and accelerating land-use changes, there is ever increasing pressure on the reserve. Parts of the area have good agricultural potential due to moderately high rainfall and fertile soils. Large-scale farms with fields of wheat, maize, barley, soya beans and sorghum are already dotted across the landscape towards the north, in Lemek and Olkinyei. There are now farms within 10 km of the reserve boundary, and there have been serious human-wildlife conflicts in this area. The clearance of natural vegetation that accompanies agriculture increases the pressure for demarcation and subdivision of

land. This has led to the splitting up of group ranches into individual plots that can be fenced, leased or sold. Generally, subdivision is a process that contradicts wildlife conservation. As subdivision proceeds, the movement of wildlife is inevitably impeded, and human-wildlife conflict increases. Some 45 tented camps and lodges now operate in and around the reserve. There has been little consideration given to how many tourist facilities the area can support, and the proliferation of accommodation puts severe pressure on resources, particularly wood-fuel and water. Uncontrolled dry-season grass fires, poaching for meat both for subsistence and on a commercial scale, especially along the western boundary, invasion of the reserve by livestock, rampant off-track driving, and chronic harassment of animals have all attracted unwelcome attention.

On the other hand, the Serengeti National Park is managed by the Tanzania Parks Authority (TANAPA), which is an agency of the federal government, and has been engulfed by a series of management challenges that threaten the property. Similar challenges facing the Mara are seen in Serengeti, although not on the same scale of rampant intrusion; Serengeti still remains less crowded, especially with regard to tourism infrastructural development. The escalation of elephant and rhino poaching in the property is of significant concern and is also affecting other natural properties in Tanzania and across the African continent. While the authorities are undertaking efforts to contain the situation in Serengeti, a broader approach to solving the illicit trade in ivory, rhino horn and other wildlife products is required. According to UNESCO's [2014](#) World Heritage Committee report, there are a number of threats beyond poaching that need to be considered through joint management of the ecosystem, including infrastructure development (airports, airstrips and roads), hydrological challenges, development of tourist camps and lodges.

## **The case for a considered review of the transnational site management**

Currently, UNESCO lists 37 transboundary World Heritage sites globally and the migration is not on the list. Serengeti is a listed nature site, and the Maasai Mara is on the Tentative List.

The Serengeti and the Mara are quite unique, due to their large concentrations of wildlife and the great wildebeest and zebra migration, and carnivores that follow suit. Both these areas are exceptional, in that no migration of this magnitude happens anywhere else in the world. The two sites are also an area whose host communities, the Maasai people, still lead traditional lifestyles that are now under threat from human development and the growth in tourism. The community found in Serengeti is the same as that found in Maasai Mara. They share the same language, lifestyle, values and practices, and are believed to be the same Maasai people, who are simply on either side of the border. Like the herbivores that migrate across the Mara river between the two countries, the Maasai people equally make the crossing to interact,

as they uphold family ties across these imaginary ‘colonial borders’, as the local people refer to them. Maasai Mara is surrounded by ‘community conservancies’ – buffer zones and private conservation zones whose owners voluntarily leave their land for conservation by private agencies in return for an income from leasing the land. This eases pressure on the reserve due to growing species populations, gives the locals an economic alternative to grazing and ensures a concerted effort towards conservation in the ecosystem.

Serengeti National Park, on the other hand, is sufficiently large and intact to ensure the survival of all the species contained therein, if maintained in its present state, but that does not in itself ensure the protection of the entire ecosystem. That said, all other parts of the ecosystem do have a greater or lesser degree of protection. A potential threat is the plan to build a transport infrastructure through the Serengeti. This would essentially bisect the ecosystem, with predictably negative consequences for both the Serengeti and the Mara.

UNESCO’s World Heritage Committee Report of 2014 recommended to the States Parties of Kenya and Tanzania to further strengthen efforts towards the sustainable management of the Mara River Basin and preparation of a joint management plan for the basin, and to sustain and strengthen management programmes, including collaboration with other stakeholders across the wider Serengeti ecosystem through the Serengeti Ecosystem Forum. Progress has been very limited with this, which continues to pose a threat to the sites.

A Joint Tourism Marketing Strategy – a recent engagement under the East Africa Community (EAC) regular summits in 2018 – identifies transnational tourism product development as key. This includes the ecosystem, but there are visible challenges in implementing the strategy, due to disjointed management of the zone. The proposed infrastructure development by respective states should be reviewed to balance conservation and human development.

The East African savannas are highly resilient and variable ecosystems, so migration enables animals to track spatially and temporally varying resources across the landscape. This gives migratory populations an advantage over resident populations, and allows these populations to rise to very high levels (Hopcraft et al., 2013). Migrating animals may also move to access breeding grounds, to reduce the risks of predation and disease, and to enhance their genetic health (Bolger et al., 2008).

A passive, yet serious, threat to the migration as a unique and authentic natural phenomenon is climate change, in particular affecting the source of the Mara River. The Mau Forest in the rift valley highlands of Kenya is currently undergoing a reforestation programme following massive deforestation over the past ten years. The migration is triggered by climatic changes and natural seasonality of rains and breeding patters, forcing the wildlife to cross the river for both breeding and feeding seasons. Any interruption to these natural trends will affect entire populations, and it is not clear how much longer the wildlife will continue to migrate between the two countries if the breeding and grazing patters are interrupted by climatic changes.

Excessive numbers of visitors and an over-reliance on wildlife tourism by the two countries, specifically during the wildlife migration season, puts pressure on the two reserves – zealous travellers wait for hours to see this unpredictable, mysterious

and amazing theatre of natural cinema. Human interference, blocking some migratory routes, to obtain a close encounter with the migrating animals, no matter how fleeting, has a long-term effect on the migration.

Wildebeest are especially vulnerable to human impacts in their wet season ranges. Many protected areas in East Africa primarily conserve the dry season habitat for migratory wildlife, with the wet season ranges occurring almost entirely outside of protected areas on adjacent communal or private lands. Protected areas also tend to be small and were not designed to conserve all of a migratory species' habitat requirements (UNEP, 2013). As a result, wildebeest must journey outside of protected areas to reach their wet season ranges. Here, they face a number of pressures due to human population growth, land-use change and increasing development.

## Conclusion and recommendations

Conserving wildlife migratory routes requires implementing conservation plans beyond protected area boundaries. The dispersal areas and migratory corridors encroached upon by humans can be kept open for wildlife by encouraging wildlife-friendly land uses, and the cooperation and participation of community and private landowners. Governments need to provide the correct enabling policy and legislative environment to support the types of initiatives already emerging to protect migratory habitat.

Due to the transnational nature of the wildebeest migration in East Africa, the respective countries and governments, both national and local, need to work together to mitigate threats to the migrations.

Factual scientific information on where, when and why wildlife migrations occur is needed to inform conservation and management decisions, and to project future trends if the information is not adopted into planning today. This includes mapping the movements and ranges of wildebeest, the ecological drivers of migration and population levels, and a good understanding of the threats to migrants and their habitats.

The Kenya and Tanzania governments are already mapping wildlife corridors and migratory routes with the aim of securing critical wildlife areas. In other initiatives, researchers are collaring wildebeest to track their movements to understand the effects of landscape fragmentation and climate change, and reporting their movements online.

Conserving migrations requires a proactive approach, anticipating and responding to threats before the abundance of migrating animals is critically reduced, and thus the phenomenon of migration long-gone. In this regard, conservation organizations such as the Convention of Migratory Species, which works to conserve migrations of species threatened with extinction, could be expanded to conserve threatened or endangered migrations, and not just those which contain rare or endangered species (Harris et al., 2009).

Efforts to secure dispersal areas and migratory corridors will require an integrated approach to land-use planning both inside and outside of protected areas. By taking into account wildlife and their migratory routes, people, livestock, landscapes and natural resources, a more comprehensive conservation effort can be made. Thus, there is a need to work collaboratively with landowners and users to identify threats along migratory routes, so that these critical areas can be effectively protected.

Extensive consultation with communities and landowners, as well as governments, conservation organizations and other stakeholders, must be a prerequisite to any action. The rapid and dramatic wildebeest population decline in East Africa calls for urgent, comprehensive and decisive remedial steps to protect the remaining populations and rehabilitate their habitats. This will enhance their resilience to the intensifying droughts and contribute to the sustainability of local livelihoods.

UNESCO also has an opportunity to revisit the listing of the site, review its current listing criteria and expand the same to ensure that the entire ecosystem is listed as one. This may compel responsible institutions to align their management and monitoring of all programmes, including conservation and infrastructural developments, to ensure the sustainability of the site for the long term.

## References

- Bolger, D., Newmark, W., Morrison, T. and Doak, D. 2008. The need for integrative approaches to understand and conserve migratory ungulates. *Ecology Letters*, Vol. 11, pp. 63–77.
- Harris, G., Thirgood, S., Hopcraft, J., Cronsigt, J. and Berger, J. 2009. Global decline in aggregated migrations of large terrestrial mammals. *Endangered Species Research*, Vol. 7, No. 1.
- Hopcraft, J., Sinclair, A., Holdo, R., Mwangomo, E., Mduma, S., Thirgood, S., Borner, M., Fryxell, J. and Olff, H. 2013. Why are wildebeest the most abundant herbivore in the Serengeti ecosystem? J. M. Fryxell, K. L. Metzer, S. A. R. Mduma and A. R. E. Sinclair (eds), *Serengeti IV: Sustaining Biodiversity in a Coupled Human–Natural System*. University of Chicago Press, pp. 125–74.
- Sinclair, A. 1995. Serengeti past and present. A. R. E. Sinclair and P. Arcese (eds), *Serengeti II, Dynamics, Management and Conservation of an Ecosystem*. University of Chicago Press.
- UNEP. 2013. *Saving the Great Migrations – Declining Wildebeest in East Africa?* [https://na.unep.net/geas/archive/pdfs/GEAS\\_Dec2013\\_GreatMigration.pdf](https://na.unep.net/geas/archive/pdfs/GEAS_Dec2013_GreatMigration.pdf)
- UNESCO. 2014. *Decisions Adopted by the World Heritage Committee Report at its 38th Session*. Doha, 7 July. <https://whc.unesco.org/archive/2014/whc14-38com-16en.pdf>

The opinions expressed in this chapter are those of the author(s) and do not necessarily reflect the views of the UNESCO, its Board of Directors, or the countries they represent.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-ShareAlike 3.0 IGO License (<https://creativecommons.org/licenses/by-sa/3.0/igo/>), which permits use, sharing, adaptation, distribution, and reproduction in any medium or format, as long as you give appropriate credit to UNESCO, provide a link to the Creative Commons licence and indicate if changes were made. If you remix, transform, or build upon this chapter or a part thereof, you must distribute your contributions under the same licence as the original. This publication is also available at the UNESCO Open Access Repository: <https://unesdoc.unesco.org/>

The designations employed and the presentation of material throughout this publication do not imply the expression of any opinion whatsoever on the part of UNESCO concerning the legal status of any country, territory, city or area or of its authorities, or the delimitation of its frontiers or boundaries.

The authors are responsible for the choice and the presentation of the facts contained in this chapter and for the opinions expressed therein, which are not necessarily those of UNESCO and do not commit the Organization.

