MOSAIC

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Beyond Group Photos with Local Cross-Border Communities



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For the first time since completing my doctoral research on the mathematical modelling of large mammal migrations in Amboseli, more than a decade ago, I found myself standing on the Tanzanian side of the Kitenden Corridor. It was a remarkable moment looking across the landscape towards the Amboseli Basin. A place I had spent years studying through models, spatial data and migration patterns now offered me a different perspective.

My research examined how large mammals move across landscapes in response to changing environmental conditions and resource availability. One of the key ecological questions was what happens when these movements are disrupted. The models demonstrated the importance of maintaining ecosytem connectivity. The results showed that blocking wildlife corridors could restrict animal movements, intensify competition for limited resources and increase the risk of competitive exclusion among species.

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Local stakeholders share these concerns. They recognise that cross-border challenges, including land subdivision on one side of the border, continue to threaten the space available for wildlife and livestock movement. The fear remains that, without coordinated efforts to address these challenges across the Kenya–Tanzania border, the Kitenden Corridor and other critical wildlife movement routes could gradually become restricted, undermining the coexistence of wildlife, livestock and local communities.

A week earlier, the international mission of the MOSAIC project had gathered in Amboseli, Kenya, to take stock of the project's three-year implementation in East Africa, following similar meetings in the Amazon region of Brazil, Colombia, Peru and French Guiana. The meeting with stakeholders in Amboseli highlighted several issues that communities face, providing a platform for local people to discuss livestock diseases, marketing challenges, environmental degradation and herders' well-being.

This was achieved through formal project presentations covering stakeholder mapping validation, ecological calendar and knowledge graph updates, as well as through serious games played by participants. There was also the showcasing of an information ecosystem platform with locally enabled languages for the dissemination of project results.

The four-day sessions also included discussions on indigenous biodiversity knowledge as presented by the elders, women and youth who attended the meeting at the Amboseli Research and Community Centre in Lemong'o. The discussions highlighted the importance of keeping this type of knowledge flowing from generation to generation among the Maasai community.



Project MOSAIC stakeholders are introduced to the rules of the serious game by a herder from the Kimana Herders Forum during the first part of the mission in Amboseli, Kenya. Most of the rules become self explanatory as the game progresses, with participants learning through play and experience.



Emmanuel Roux, the MOSAIC Project Coordinator, poses in shock during a game session after realising he has made a costly herding decision: overstocking livestock when pasture is scarce. The bottle tops representing his herd are twice the biomass level supported by the available pasture, represented by tiny wooden blocks. A moment of realisation that even in a game, poor grazing decisions come at a cost!

A visit to a Maasai cultural village south of Amboseli offered a glimpse into the blend of traditional and modern medicine. There, a young medicine man, trained by his father, took the mission participants through a range of traditional medicines used for both people and animals, explaining their applications and side effects. Traditional ways of starting a fire were also demonstrated, bringing another aspect of indigenous knowledge to life.





On the left: Three doctors—of Mathematics, Herbal Medicine and Conventional Medicine, display some of the herbs traditionally used by local communities in Amboseli. While in the Amazon, smoke may signify the presence of spirits during traditional blessing ceremonies among Indigenous communities, in Amboseli it signals fire, traditionally made by continuously rubbing sticks together, with dry elephant dung used to secure the kindling, as seen in the photo on the right.

An hour-and-a-half ride on the rough road between Amboseli and the Namanga One Stop Border Point (OSBP) took us through the vast savanna landscape that lay in wait for the El Niño rains, which had been delayed despite the forecast.

The Tanzanian side of the border was as dry as the Kenyan side, despite being on the windward side of Mount Kilimanjaro. It rained a few days later. We were scheduled to meet and engage with additional project stakeholders in the Enduimet area of northern Tanzania to further understand the cross-border dynamics.

Cross-border challenges among a homogeneous local community were interesting in that the administrative and governance structures on the Tanzanian side include villages, districts, regional government and national government, whereas in Kenya, governance is at two levels: national and county. This necessitated discussions on the limitations of using a uniform model for mapping cross-border stakeholders. The stakeholder mapping exercise at the Enduimet WMA offices brought these issues to the fore, highlighting areas that researchers in the MOSAIC project should look into.



David Western explains the One Health framework in the cross-border region, while Solonka translates his remarks into Maa for the participants in Amboseli.



The MOSAIC team met with leaders and professionals from Tanzania, during the second stakeholder engagement meeting held in Enduimet.

The meeting with stakeholders in Tanzania involved leaders from 11 villages. A few women leaders were present. The leaders are elected, perhaps explaining why so few women were in the room, given the demands of politics and family obligations on women in the communities in Enduimet. Despite their small numbers, the women presented interesting aspects of traditional knowledge and practices that ranged from their roles in taking care of their families, animals and the environment. This aligned well with the One Health approach promoted by the MOSAIC project.

At one moment, during a presentation by a relatively young leader, the translator paused as the men began murmuring. The lady was sharing so much information in an open forum that it made the men uncomfortable. With that information flow blocked, she switched to narrating how women use their traditional knowledge to improve family livelihoods, including the application of traditional ecological calendars for seasons, planting, livestock vaccinations, antenatal and postnatal care, among other practices.

“When, for example, a cow loses its calf immediately after calving, there is a tendency for the cow to reduce its milk production if it does not see the calf during milking. So, what we do is to quickly skin the calf and stuff it so that the mother cow can smell the calf and think it is alive during milking, triggering the flow of milk. This practice ensures a continuous flow of milk for the family despite the unfortunate event of losing the calf,” she said. “We use herbs for family and livestock needs, and one can learn about these during community dances that involve courtship among the community youth. This practice acts as a platform for learning exchanges, among other important outcomes such as partner finding among the youth,” she continued, amidst laughter in the room.

Presentations from the Responsible Beings organisation, Enduimet WMA, African Conservation Centre and MOSAIC international partners from France, Brazil and Colombia highlighted work in Kenya on linear and circular ecological calendars, knowledge graphs, stakeholder mapping tools, monitoring, modelling and the ecosystem information portal.

In Tanzania, local herders had an opportunity to lead a panel discussion involving veterinary doctors, local leaders and researchers, during which they extensively highlighted the challenges of zoonotic and livestock diseases, including diseases that are difficult to treat such as what they call “Circling Disease” (*Ormilo*). The vet took them through what should be done in the unfortunate event of an animal getting infected.

On wildlife–livestock interactions, herders expressed concern that continued contact sometimes transmits disease-causing pathogens. They emphasised that vaccination is key and encouraged each other to vaccinate all their animals, in addition to deworming them and providing clean drinking water.

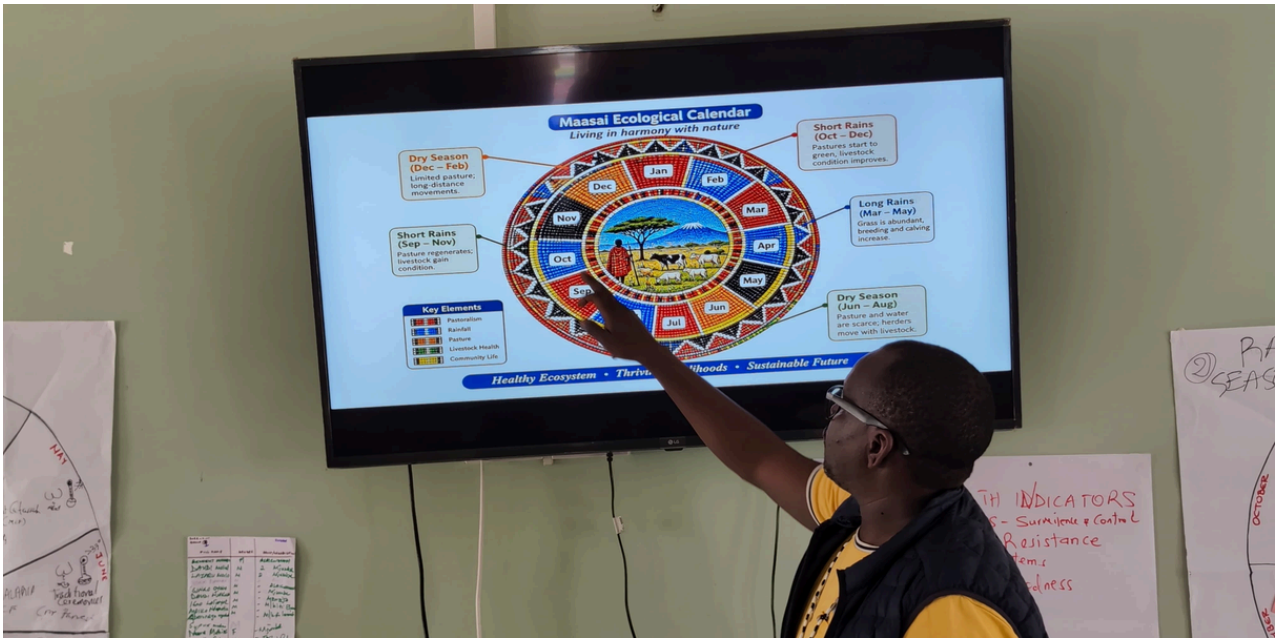




Left: Lucy Waruingi, Executive Director of the African Conservation Centre, introduces the Indigenous Knowledge Tree to community members, highlighting the importance of culture and traditional knowledge in conservation.

Right: A young Maasai woman shares sensitive cultural knowledge, drawing laughter and playful calls from some elders urging her to exercise restraint.

The exchange highlighted the importance of intergenerational knowledge sharing and preserving Indigenous knowledge. Among the Tiwa of the Amazon, this involves reviving ancestral practices, protecting forests and waters, and securing recognition of territorial rights. In Amboseli and wider East Africa, similar efforts focus on sustaining traditional knowledge and strengthening community stewardship of natural resources. Preserving this heritage while embracing technological advances is key to advancing community-led conservation.



Women's beadwork is finding a new place in ecological calendar modelling, translating seasonal changes and environmental rhythms into patterns, colours and cultural expressions as shown here by Victor Mose.



MOSAIC team members follow a presentation by a community health promoter (far left) and a member of the Amboseli One Health Club.

There are plans to set up One Health community clubs on the Tanzanian side of the border, similar to what has been done in Amboseli, to continuously provide a platform for cross-border communities. The One Health clubs have representation from the environment and human health workers, such as community health promoters. The potential of using these clubs to promote planetary health and expand to issues such as antimicrobial resistance is enormous and can easily be scaled up.

I left Enduimet after completing a 14-day MOSAIC project mission on rough savanna terrain, enlightened on some of the aspects I had identified as areas for future study in my PhD conclusion and recommendations many years ago. These have now become important issues, expanding under the One Health framework. I left reflecting on what else the future holds for this integrated approach.