AWF Technical Paper Series

AFRICAN WILDLIFE FOUNDATION®

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COMMUNITY PAYMENT FOR ECOSYSTEM SERVICES IN THE AMBOSELI ECOSYSTEM: LEASING LAND FOR LIVELIHOODS AND WILDLIFE

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Executive Summary

Amboseli National Park, located in southern Kenya, is world renowned for its elephants, wildlife and magnificent views of Mt. Kilimanjaro. However, like many Parks throughout the world, Amboseli is too small to support viable populations of certain species. Wildlife is dependent on the community lands outside the Park. Six community group ranches surround the Park, including Kimana Group Ranch which abuts the Park on the east side. Over the past two decades, Kimana Group Ranch has sub-divided its land into 60-acre lots, which have been allocated through letters of allotment and title to individual members of the Group Ranch. The sub-division has resulted in land sales that have left pastoralists landless, as well as mixed land use not-compatible with conservation, including farming, development, settlement and fencing. This has resulted in a significant challenge to wildlife movement and traditional pastoralism. In an effort to protect wildlife habitat and provide direct financial benefit to landowners, the African Wildlife Foundation (AWF) established a Payment for Ecosystem Service (PES) program in 2009, which entails the leasing of land for biodiversity conservation from 340 Maasai landowners. The leases are legally binding and outline land use restrictions that must be met in order for payment to be received. Some of the restrictions include no farming, fencing, blocking wildlife movement, commercial resource extraction and development. To sustain the PES program, AWF first secured the support of private foundations and government funding sources, and then entered into an agreement with a private enterprise and Kenya Wildlife Service who will support the lease program by making the PES payments. Africa is facing unprecedented loss of wildlife and habitat. New and innovative conservation tools must be used. The conservation lease program is one that can be replicated in other areas to secure wildlife habitat and provide benefits directly to communities.

AWF Background

The African Wildlife Foundation (AWF), founded in 1961, is an international non-governmental organization headquartered in Nairobi, Kenya. AWF's mission is 'to work together with the people of Africa to ensure that the wildlife and wild lands of Africa endure forever.' AWF has an integrated large landscape-scale approach, which addresses threats to conservation, sustainable natural resource management and improving livelihoods. AWF's African Heartlands Program is currently operational in nine high-priority landscapes, known as Heartlands, across 15 countries in central, eastern, southern and west Africa.

In each Heartland, AWF implements its work through five main strategic areas: applied conservation science and research; land and habitat conservation; conservation enterprise; climate change; and capacity and leadership development. Policy development is a cross-cutting theme that is integrated into each of these programs. Through these programs, AWF aims to facilitate practical, field-based solutions to global and local sustainable natural resource management challenges in Africa.

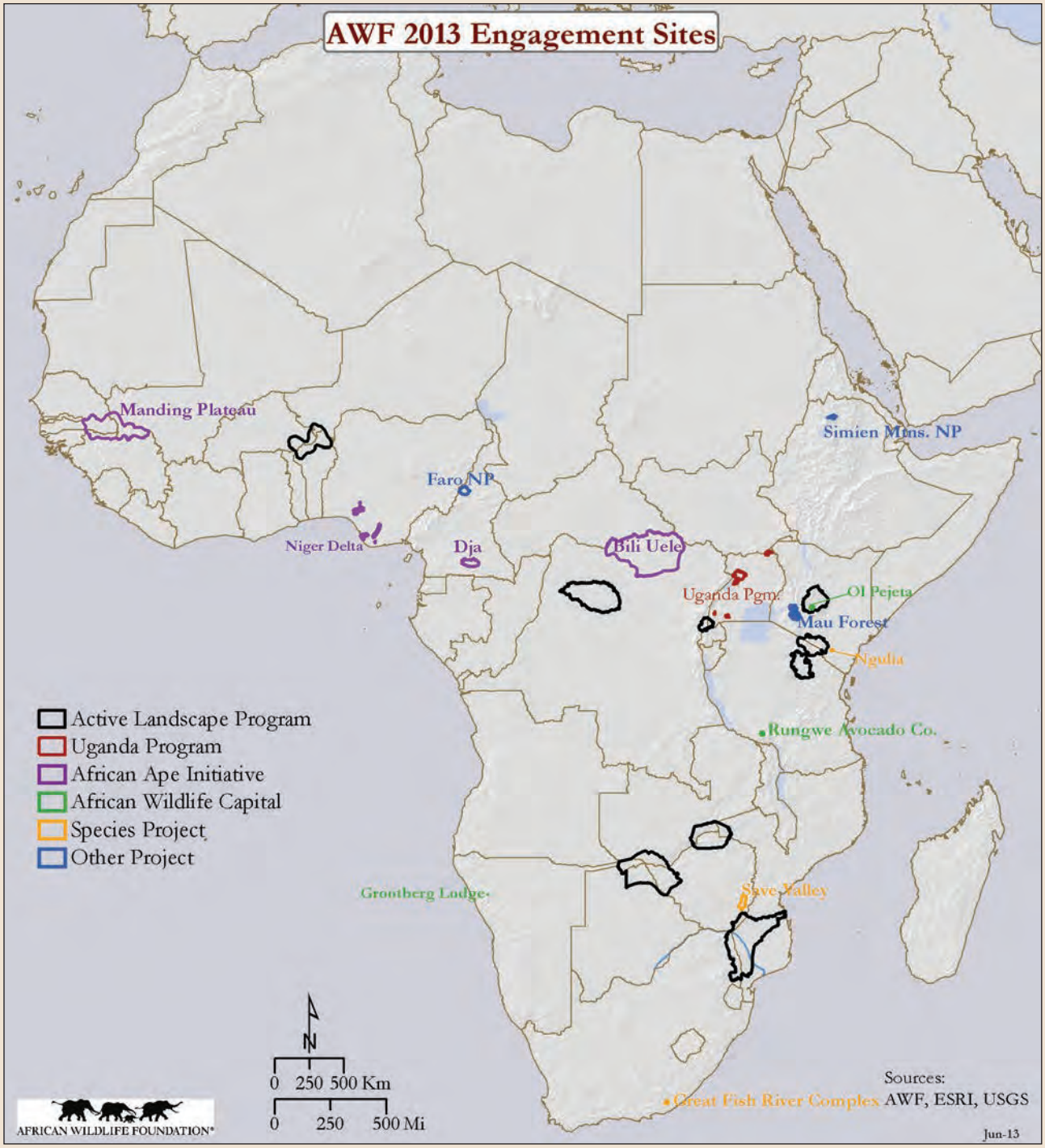

Figure 1: AWF Program Areas.

Payment for Ecosystem Services

AWF's Land and Habitat Conservation program aims to secure strategic lands to protect the ecological integrity of landscapes and suitable habitat for viable populations of wildlife. AWF employs a variety of strategies and tools towards achieving its land conservation objectives, including support to protected areas, land use planning, establishment of community conservancies, corridor designation, and environmental easements. Central to AWF's land conservation strategy is to provide meaningful benefits to community landowners. For example, AWF's well-established conservation enterprise program secures land conservation with payments to communities from viable enterprises such as tourism lodges. However, given the rate of land use change in certain regions, AWF has been exploring and piloting new land conservation mechanisms.

Africa is facing unprecedented habitat and species loss. Projections of the impact of global change on biodiversity show continuing and, in many cases, accelerating species extinctions, loss of habitat, and changes in the distribution and abundance of species and biomes over the 21st Century. (Secretariat of the Convention on Biological Diversity, 2010). Climate change is projected to accelerate the rate of species and habitat loss (Millennium Ecosystem Assessment, 2005; IPCC Assessment Report, 2007). New and innovative conservation mechanisms are needed to halt this rapid decline (Gitahi, N. & Fitzgerald, K., 2011). While the specific term 'Payment for Ecosystem Services' emerged in the late 1990s (Ravenborg et al., 2007) as a mechanism for rewarding land and resource management practices which sustain and restore ecosystem service functions (Wunder, 2005), the concept of compensating such beneficial behaviors goes back several decades (De Groot et al., 2010). An eco-system service (Boyd, J. and S. Banzhaf, 2007)(ES) is "the benefits of nature to households, communities, and economies" (Boyd, J. and S. Banzhaf, 2007).

The Millennium Ecosystem Assessment (MEA) distinguishes between three ecosystem services, based on a functional perspective:

- provisioning services, such as food, water, timber and fibre;
- regulating services, such as regulation of floods, drought, land degradation and disease; and
- supporting services, such as soil formation and nutrient cycling.

Generally four types of eco-system services are described in the PES literature:

- hydrological services;
- carbon sequestration;
- biodiversity protection; and
- landscape beauty.

(Ravenborg et al., 2007).

The most commonly recognized definition of a payment for ecosystem service (ES) contains five key components:

1. a voluntary transaction where
2. a well-defined ES (or a land-use likely to secure that service)
3. is being 'bought' by a (minimum one) ES buyer
4. from a (minimum one) ES provider
5. if and only if the ES provider secures ES provision (conditionality).

(Wunder, S, 2005).

The AWF conservation lease program in the Amboseli Ecosystem is a PES program that is protecting biodiversity and meets these five criteria:

1. The transaction between the landowners and AWF, tour operator and the protected area, authority is completely voluntary.
2. The ecosystems service of biodiversity protection exists (via critical habitat for wildlife movement and dispersal that is scientifically documented) and the land uses that maintain that habitat are known.
3. The biodiversity protection service is being bought by AWF, tour operator and the protected area authority.
4. The biodiversity protection is being provided by the land owners participating in the program.
5. Payment is provided on the condition that the land owners provide the agreed biodiversity benefits.

The program also includes all four ecosystem services outlined: hydrological services; carbon sequestration; biodiversity protection; and landscape beauty.

Amboseli Ecosystem

AWF works in what it refers to as the Kilimanjaro Heartland, a large landscape that stretches from Amboseli National Park, to the Chyulu Hills and Tsavo West National Parks in Kenya to Mt. Kilimanjaro National Park in Tanzania. Amboseli National Park, 392 km^2, forms the core of the ecosystem, while six community lands (group ranches) surround the Park. While Amboseli National Park is world renowned for its elephants, diverse wildlife and magnificent views of Mt. Kilimanjaro, the Park is too small to support viable populations of elephants, predators and certain ungulates. Wildlife is dependent on the unprotected areas outside the Park. If the Park is to survive and the eco-system to support viable populations of wildlife, the Park must be maintained and the surrounding strategic dispersal areas and wildlife corridors must be protected.

In 1991, the Amboseli Ecosystem was declared a UNESCO Biosphere Reserve because of its global ecological importance. The biosphere reserve concept is built around the model of core protected areas surrounded by successive zones of various human activity and use. To meet its obligations as a Biosphere Reserve, Kenya must establish and promote sustainable and appropriate human-use in the buffer surrounding the Park to ensure the protection of the core protected area. The Park's buffer area includes the six group ranches.

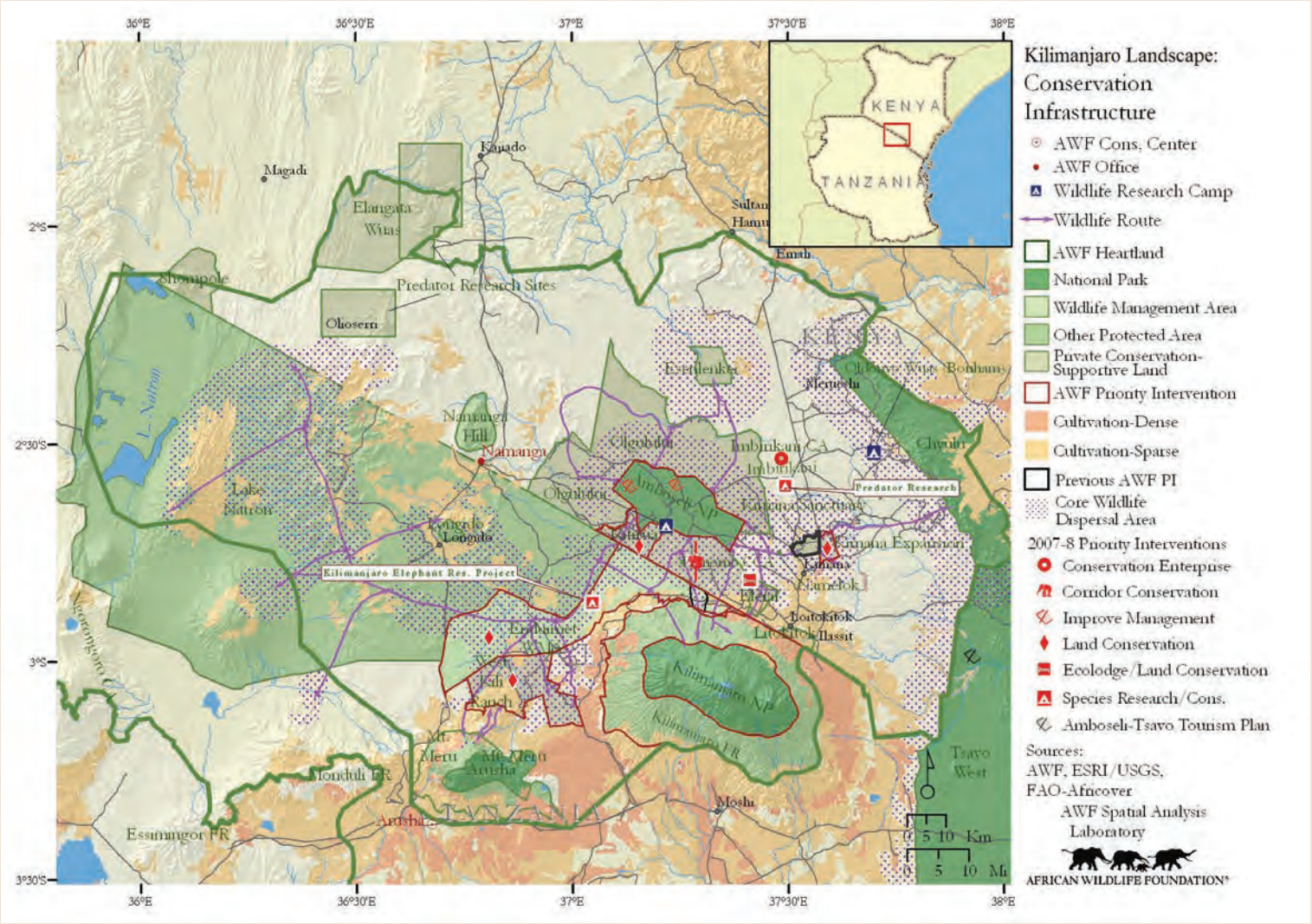

Figure 2: Kilimanjaro Landscape, southern Kenya and northern Tanzania.

The Amboseli ecosystem has an elephant population of approximately 1,500 individuals. These elephants are a major driving force in the ecology of the ecosystem and the subject of one of the longest elephant studies in Africa by the Amboseli Trust for Elephants. Scientists monitoring the elephant population have documented their movement patterns and that of other wildlife species. The land stretching from Amboseli National Park to the Chyulu Hills is one of the main wildlife movement routes identified by researchers as a top conservation priority in the ecosystem. This area is used heavily by elephants and other wildlife. In the wet season, mammals disperse out of Amboseli, move through Kimana Group Ranch (25,120 hectares) to Kimana Sanctuary to Chyulu West National Park. This strategic linkage is critical to the viability of Amboseli's elephant population and other mammals including lion, cheetah, zebra, jackals, and eland. A wildlife survey completed by KWS and partners in 2010 supports this prioritization.

Securing wildlife habitat outside protected areas across Africa is a key conservation challenge. This challenge is aptly displayed in the Amboseli ecosystem, where elephants traverse through community-owned pasture and cultivated land as they move between the safe havens, which results in human-elephant conflict, economic loss for communities and the demise of wildlife through killings in retaliation and defense.

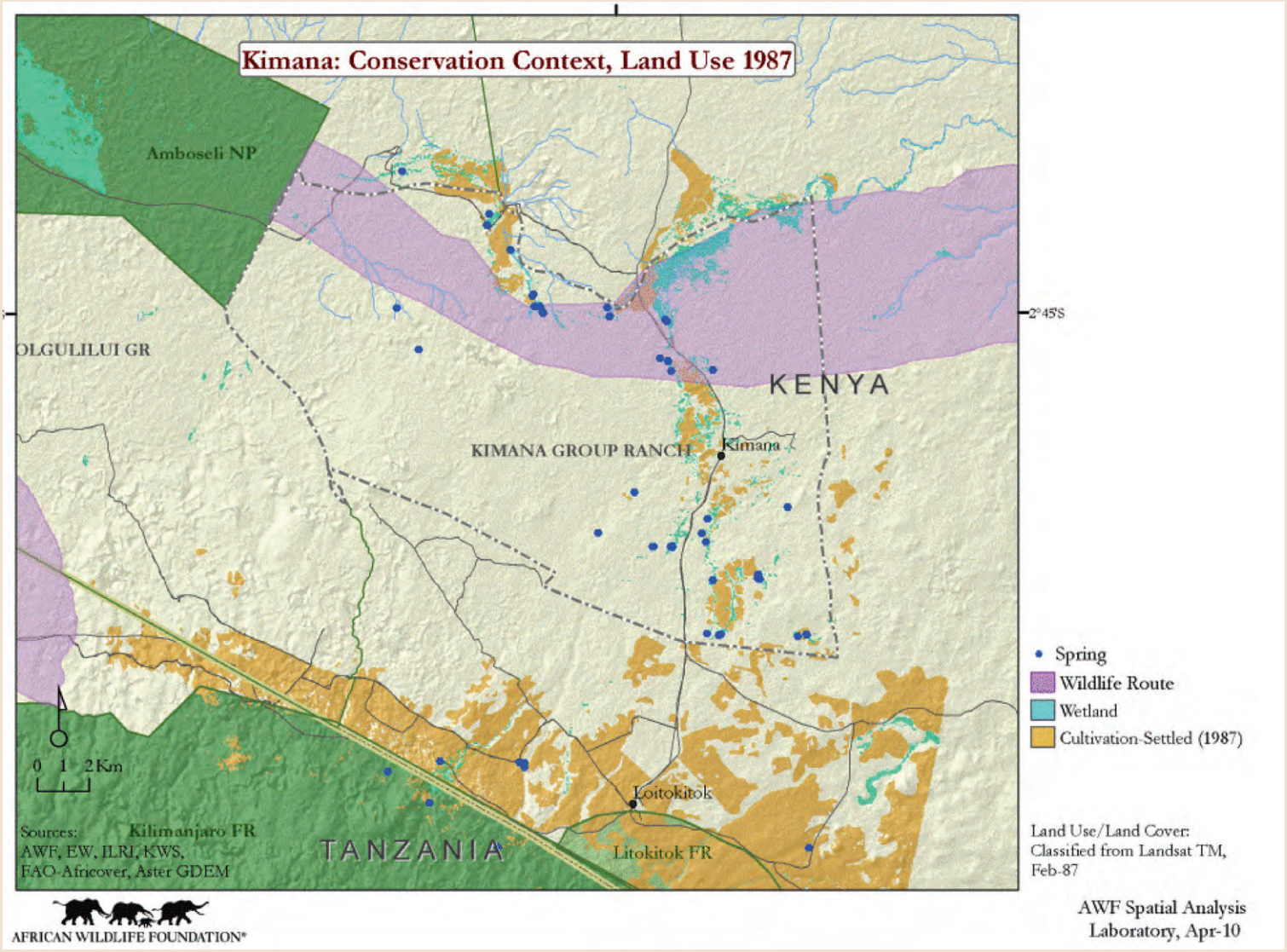

Figure 3: Amboseli National Park, east-west wildlife linkage extending to Chyulu Hills National Park.

Current & Historic Use

The Amboseli ecosystem has been occupied by Maasai pastoralists for centuries and pastoralism has been the main economic activity in the ecosystem. The Maasai rely heavily on community lands for grazing livestock, sourcing medicinal plants, building materials and firewood. Tourism has been part of this ecosystem for decades; however, unequal distribution and/or lack of benefits are problematic as landowners do not feel that they adequately benefit from the industry (Okello et al. 2011). Due to increasing population and changing lifestyles, pastoralists have started farming and/or leasing land to farmers, especially near the swamps (ILRI, 2003) where water is readily available. Elephants and other wildlife depend on these swamps for water and food and continue to access this historical resource; thus, encroaching on farms, which has led to a significant increase in human-elephant conflict. Land use on these community lands vary greatly, yielding an inconsistent and unstable environment for elephants and other wildlife, and a frustrating livelihood for the communities. If Kenya's wildlife is going to thrive in the Amboseli ecosystem and human livelihoods improve, adequate space needs to be provided for wildlife habitat and movement and in conjunction with economic value to people for the provision of space.

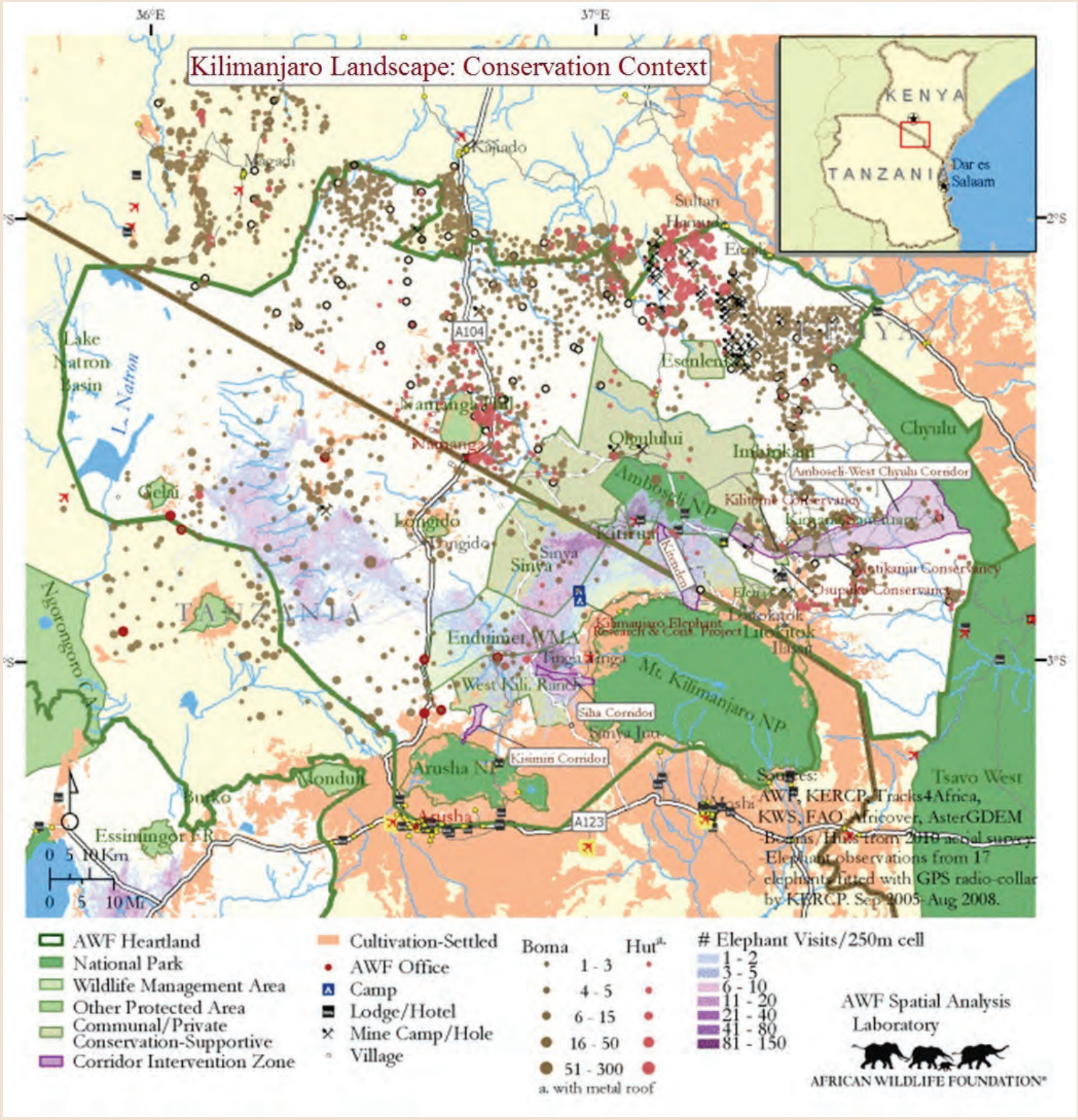

Figure 4: Kilimanjaro Landscape use encroachment.

Threat

One of the most severe threats to wildlife in the Amboseli Ecosystem is habitat fragmentation and loss due to land sub-division and land-use change (Western et al., 2009). In addition, the decrease in water resources due to an increase in population usage and climate change is posing a significant threat to wildlife and communities. The Kimana Group Ranch located on the east side of Amboseli National Park has been sub-divided into 60-acre lots and allocated to individual owners. The sub-division of land is primarily due to: a breakdown in communal systems; failure of the group ranch system to deliver equitable benefits and improve livelihoods to communities; and socio-economic changes such as a more sedentary way of life, which is in part a response to government policies prescribing a sedentary lifestyle. As a result, landowners

of the sub-divided parcels are selling their lots for development, speculation and agriculture, which is significantly fragmenting the landscape and resulting in habitat loss and blockage of wildlife movement. The fragmentation of the east-west dispersal area between Amboseli and Chyulu Hills National Parks puts the eco-system at risk and the rapid rate of change is alarming from a conservation perspective. If community members do not benefit meaningfully from the conservation of habitat, they will seek other alternative land uses that generate more income but are incompatible with wildlife movement in the landscape and put their pastoralist way of life in jeopardy.

With the sub-division of land, the rate of land sales and lodge development has increased. There are currently over 15 lodges and tourism facilities proposed for/or existing in the area outside Kimana Gate, the east side of Amboseli National Park. In addition, there is a proposed housing development in the former Kimana Group Ranch land. This has, and will continue to have, a devastating impact on the habitat and dispersal area. It will also compromise the tourist experience, which will ultimately result in fewer tourists and reduce the benefits to local communities. In 2009, a Taskforce was formed by the Kenyan Ministry of Tourism because of 'the growing concerns in government and civil society about the deteriorating status of the environment and the tourism product in the Greater Mara and Amboseli ecosystems.' The Taskforce found that in the eco-system there were 1,332 tourism beds, of that 778 tourism beds are found in Kimana Group Ranch alone. Most tourists visit the Park, so while the number of lodges in the Park is lower, the impact from all the visitors from outside the Park is severe on the Park itself.

Payment for Ecosystem Service Lease Program

AWF's conservation goal, in collaboration with landowners and partners, is to protect the dispersal areas and wildlife linkages around Amboseli National Park. Given the rate of land use change in Kimana Group Ranch, AWF determined this area to be the most threatened and therefore prioritized the land stretching between Amboseli National Park and Kimana Community Wildlife Sanctuary.

It was evident that unless an alternative was given to landowners in the community, the critical dispersal area stretching from the Park to the Chyulu Mountains would be fragmented. Viable economic alternatives had to be found or landowners would sell their land to wildlife-incompatible land uses.

After assessing the land, land tenure, historical and current use and consulting with community members, AWF determined that a Payment for Ecosystem Service mechanism through a lease program was the most appropriate mechanism for securing the land. The Amboseli ecosystem is already a cash economy and the community members were very explicit in their desire to have household direct payments. In 2008, AWF launched the conservation lease program with landowners in the Kimana Group Ranch. AWF's conservation objectives for the lease program are to:

- Contribute to the viability of Amboseli National Park as core wildlife habitat by protecting scientifically documented and strategic dispersal areas outside the Park.
- Provide competitive incentives directly to landowners and individual community members for keeping their land open and passable to wildlife.
- Prevent the conversion of land from open rangeland to agriculture or development and prevent the fencing and over-grazing of the land.

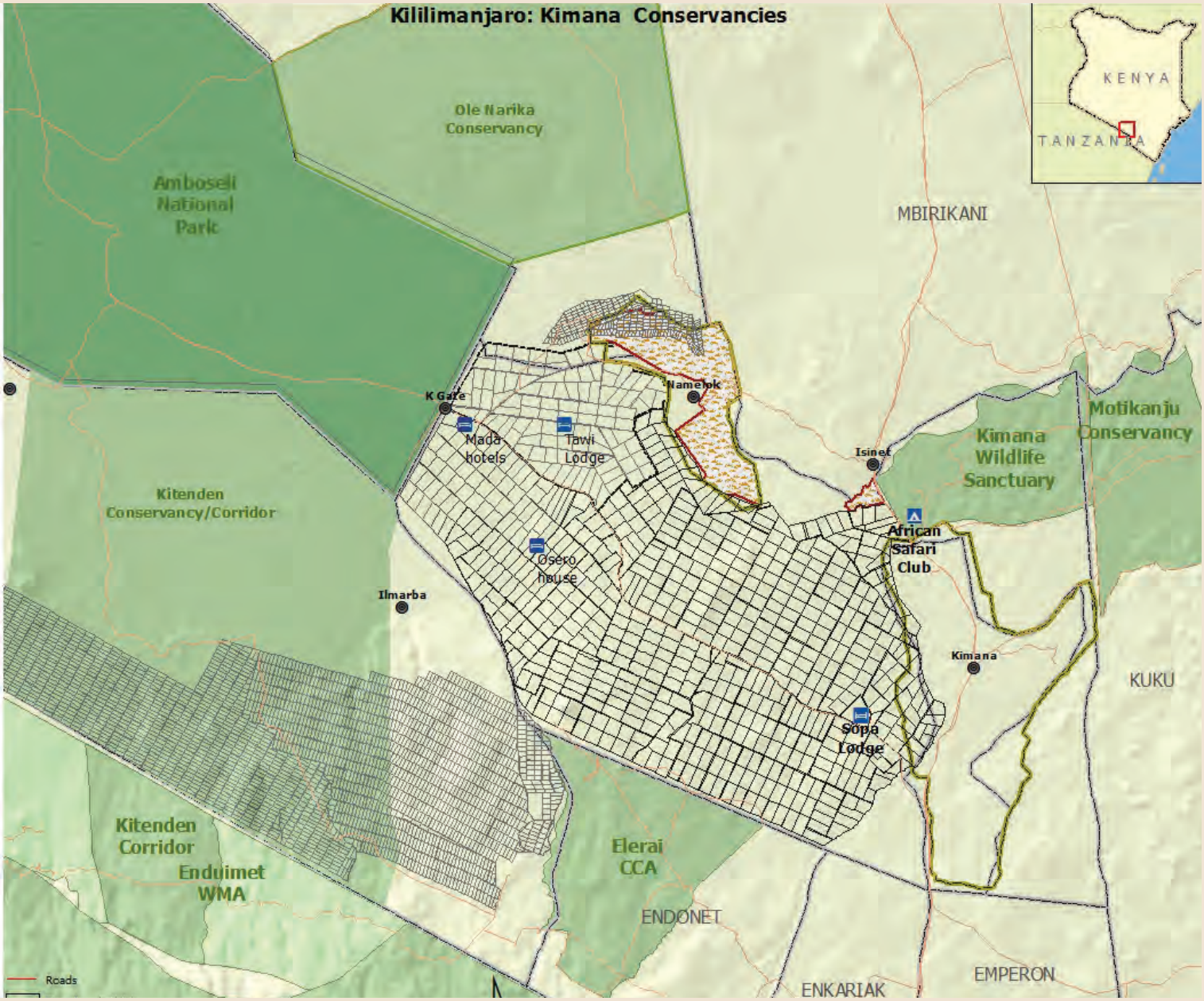

Figure 5: Sub-division of Kimana Group Ranch.

AWF has worked in the Amboseli landscape for decades and over this period has developed a growing platform for mutual trust within the communities, which enabled us to launch this program successfully. AWF worked with the individual landowners in the Kimana Group Ranch to help them understand that collectively their land was more valuable than individually. Fully recognizing the collective value of land, the landowners formed landowner associations. This enabled them to make collective decisions while retaining and benefitting from their individual land ownership. These landowner associations range in size, from 50 landowners—Osupuko landowner association, to 100 landowners—Kilitome landowner association. A total of five associations were formed and included over 340 individual landowners. Through these associations, AWF was able to engage the landowners in a discussion about conservation leases and Payment for Ecosystem Services.

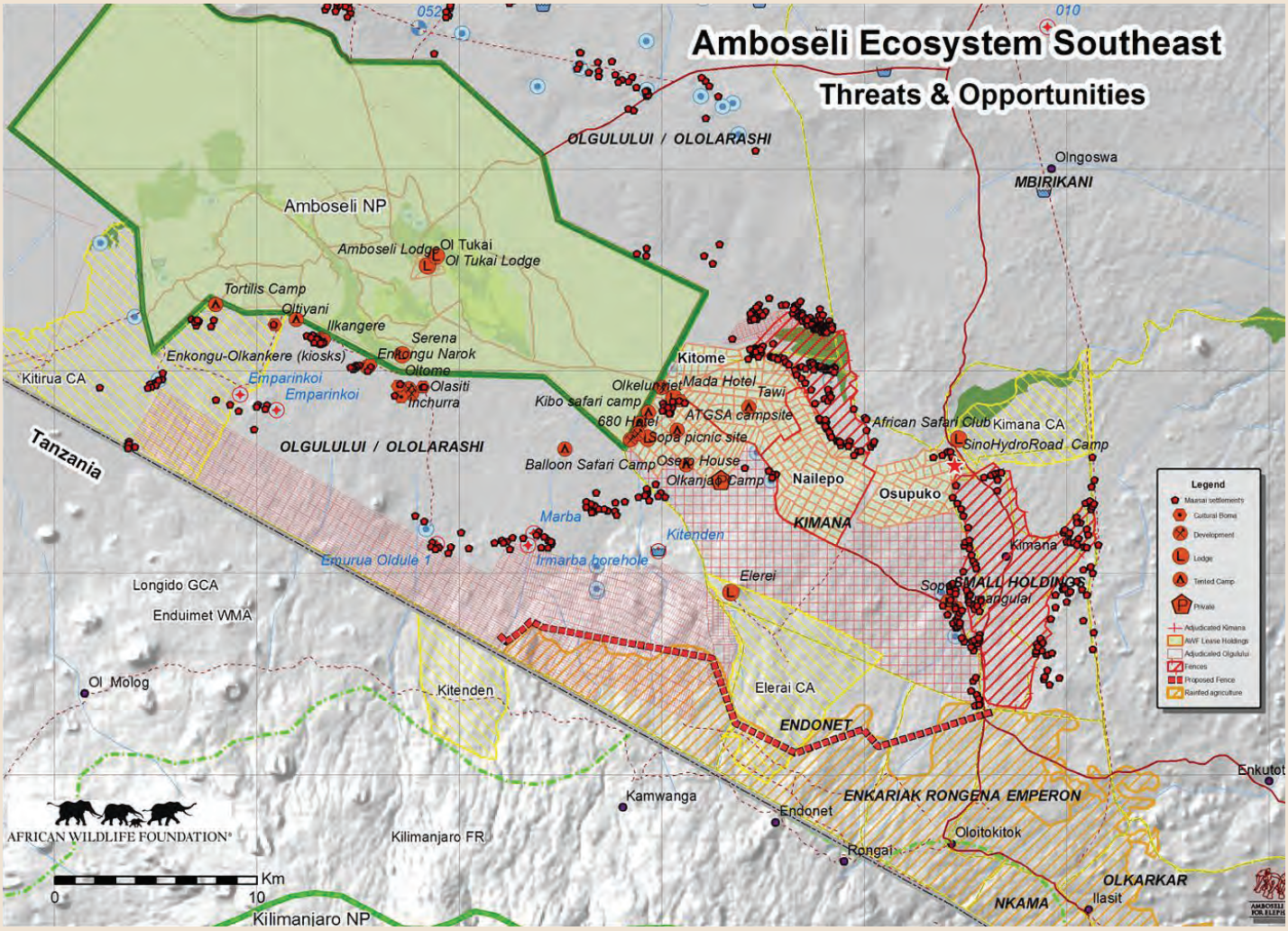

Figure 6: Lodge Development adjacent to Amboseli National Park. Source: AET.

AWF drafted a conservation lease agreement and started the program as a pilot with the Osupuko Association, because they composing of fifty landowners, were the first to organize and were eager to engage. This lease agreement was presented to the community in a series of community meetings with the landowners at a central location in their community. Women, youth and men participated in these meetings. These meetings were held in Kimaasai, with translation as needed into Swahilli and English. AWF's Community Organizer (CO), who is from the Kimana community and speaks Kimaasai, English and Swahilli, was pivotal in organizing and facilitating these meetings.

The conservation lease outlines the purpose of the lease, the term of the lease, land use restrictions, retained rights, payment requirements, how violations will be addressed and other relevant parameters. The purpose of the conservation lease is to "provide habitat, dispersal and movement areas for wildlife" and to help "connect conservation areas" and to "contribute to the survival of wildlife area in the Amboseli ecosystem as well as the continued existence of ecotourism as a means of poverty reduction and economic development and overall public benefit by ensure that wildlife species endure for the benefit of future generations."

The conservation lease prohibits: development, fencing, logging, mining, dredging, agriculture, resource extraction, non-tourism related commercial activity, and illegal taking of wildlife. Grazing is permitted in compliance with a management plan that followed the signing of the conservation lease. The community selected a Maasai attorney, who met them in the absence of AWF, to review the lease agreement in its final stage before signing. By having this meeting without AWF, community members were free to voice concerns and changes were made as a result. AWF paid the fees of the attorney for the community. The extensive community engagement and meetings took approximately eight months. Thus, in keeping with the concepts of Free and Prior Informed Consent, as outlined in the Akwe Kon Voluntary Guidelines endorsed by the Convention on Biological Diversity, AWF used a process whereby local and indigenous communities had the option to accept or oppose the program, were fully briefed on the program components in their native language and exercised their voluntary rights.

Valuation and Payment

Ecosystem services have a range of values which are generally classified into two groups: ecological benefits/values and socio-cultural benefits/values, some of which can be captured through economic valuation (it is disputed whether intangible values are fully captured through economic methods). The concept of Total Economic Value (TEV) is generally accepted as the framework for mapping the values associated with ecosystem services. TEV consists of two main types of values: use values and non-use values, which are then further classified.

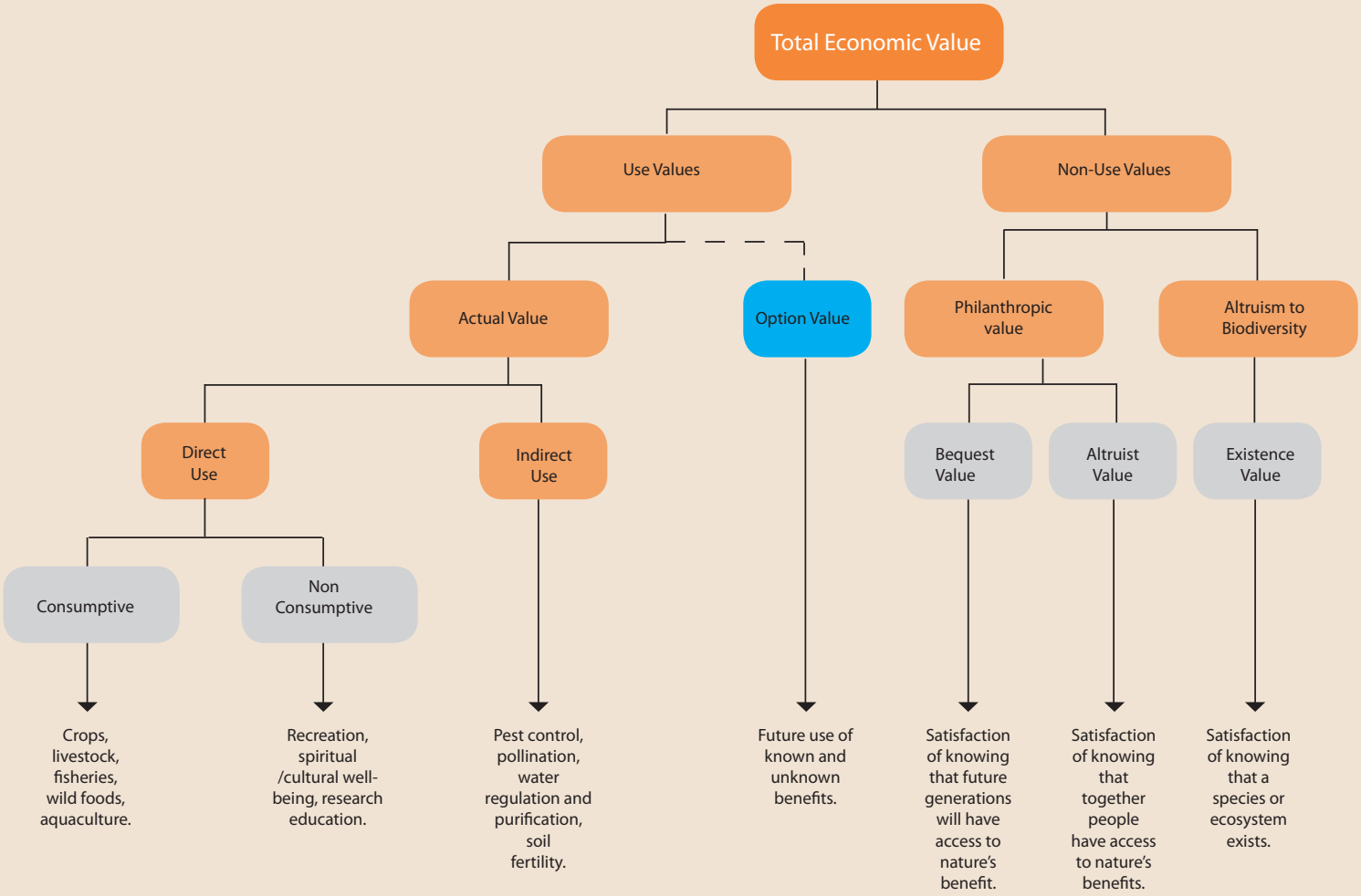

Figure 7: The Economics of Ecosystems and Biodiversity: The Ecological and Economic Foundations.

The market is the most widely adopted mechanism for determining the use values of goods derived from ecosystems (crops, livestock, wild foods and fuelwood) and may be a way of determining the non-consumptive use values from a system (e.g. tourism values reflecting recreational values). But many service functions of ecosystems are not traded in a market, making it necessary to set a price through other methods including:

- Avoided Cost (AC): services that allow society to avoid costs that would have been incurred in the absence of those services. Such as flood control, which avoids property damage.
- Replacement Cost (RC): services could be supposedly replaced by human-made systems; such as natural waste treatment by wetlands that can be replaced by an artificial treatment system.
- Factor Income (FI): some ecosystem services enhance incomes; such as natural water quality improvements that increase commercial fisheries catch.
- Travel Cost (TC): use of ecosystem services may require travel, such as to protected areas for wildlife viewing. The travel costs can be seen as a reflection of the implied value of the service.
- Hedonic Pricing (HP): service demand may be reflected in the prices people will pay for associated goods; one example is when housing prices at beaches usually exceed prices of identical inland homes near less attractive scenery (DeGroot et al., 2002).

In this case, there is no "biodiversity market;" therefore, AWF had to come up with a more indirect means of assessing value and establish the Willingness To Pay (WTP) or Willingness To Accept compensation (WTA) for the availability or loss of these services (DeGroot et al., 2002).

To determine the value of the payment, AWF did a market assessment of other leases, mainly tourism and agriculture, in the region and based its payment on the average value for comparable lands, adjusting comparable lands to the subject land that was to be leased. This could be described as WTP and WTA, as well as group valuation, which reflects an inclusive group process of discussion, review and consensus on value with the community.

AWF started lease payment at 500 Kenya Shillings /acre with an annual increase of 2.5%-3%. One of the greatest challenges with community conservation programs is the delivery of benefits in an equitable manner. Often, community financial benefits are given to a committee and do not reach individuals or households. Given that the landowners wanted direct payment, and each landowner in the lease program has a letter of allotment and/or title with no prior claims or title issues, AWF agreed with the community that payment would be made to each landowner directly though electronic transfer to individual bank accounts, not through cash payment. AWF helped landowners to set up bank accounts. Landowners were given the option to assign their payment to another member of the community if they chose, but this had to be done through a formal assignment process.

As per the lease, payment is made directly to their accounts through wire transfer every six months. If there is a violation of the lease, AWF retains the right to withhold payment. To date there has been one violation. This was reported to AWF and managed at a community level through their traditional conflict-resolution mechanisms. Because the conflict was resolved quickly, AWF did not have to withdraw payment. Currently, there are five community conservancies: Osupuko, Nailepeau, Kilitome, Ole Polos and Oltiyani Conservancies. This includes 350 plus individual landowners (some parcels are jointly owned) and protects approximately 20,000 acres of critical wildlife habitat. The five conservancies collectively formed one landowner association for all five conservancies and registered with the Government of Kenya. With an average household of seven in this landscape, the lease program is directly benefitting over 2,450 individuals; this does not include employment beneficiaries. As noted prior, one of the greatest challenges of community conservation across Africa has been getting benefits to have a meaningful impact at a household level. This program achieves impact at a household level and instills the value of banking money for the future. However, it should be noted that this program impacts people who own land in an ecologically significant area. There are a number of landowners who want to be part of the conservation lease program, but their land falls outside a wildlife corridor or dispersal area; therefore, AWF has not engaged them in the program. In addition, those Maasai who do not own land are also unable to participate in the program.

The conservation lease program is entirely voluntary. There are landowners who chose not to participate in the program. This does cause a risk to the overall sustainability of the program. If these landowners practice incompatible land uses, it will have an impact on the integrity of the conservancies. Many Maasai who own land are choosing to sell it. While this is entirely their choice as landowners, AWF encourages Maasai to retain their ownership, as there are various cases in this landscape where Massai have sold their land at a cheap price and then later suffered as a result of no longer owning that resource or land. The sale of land in this landscape to speculators and developers remains a significant threat to the landscape and lease program, as it has an impact on the conservancies.

Management and Stewardship

AWF worked with the communities to develop an ecological assessment and management plan for Osupuko, Nailepeau and Kilitome Conservancies. The management plan outlines a grazing regime, including guidelines for dry and wet season grazing. A community scout program was established on each of the conservancies to prevent poaching and lease violations while providing employment to community members. The scouts have been trained and equipped and are currently being managed in coordination with other scouts in the region through the Big Life Foundation. AWF is also helping the communities assess additional ways of generating income, for example, charging for game drives from safari operators in the region.

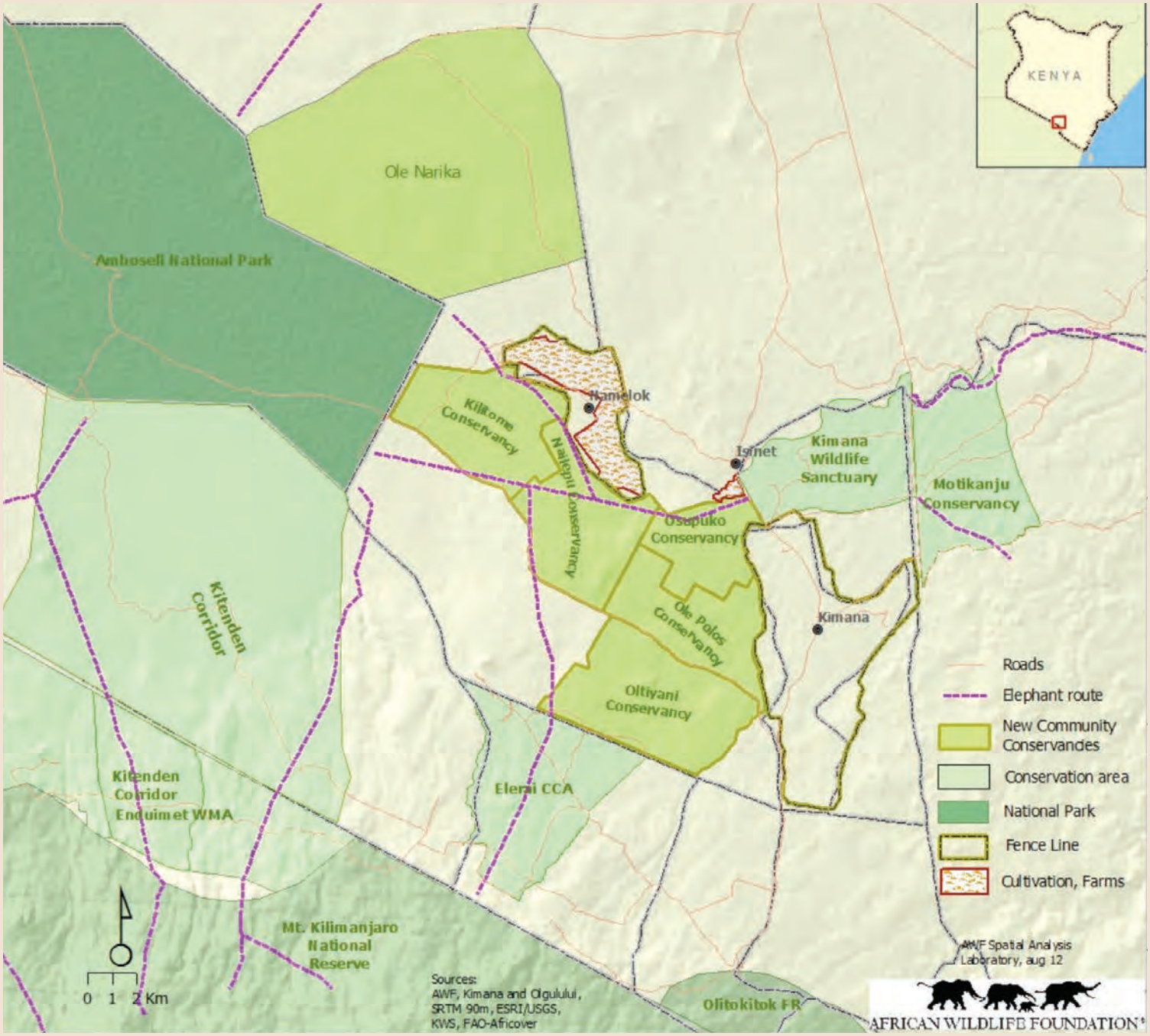

Figure 8: Kilitome, Nailepeau, Osupuko, Ole Polos and Oltiyani Conservancies.

Sustainability

The conservation leases were signed for varying periods of time, pending community willingness and organization and availability of funding. For example, the Osupuko Conservancy lease was signed first for two years, and later extended. This is because this was the first conservation lease, the community wanted to assess the process and program, and because of funding limitations from AWF. The Kilitome Conservancy lease was signed for 15 years. The Kilitome Community saw how well the Osupuko Conservancy Program was working and was willing to sign for a longer period of time. In addition, AWF partnered with an eco-tourism facility in Kilitome Conservancy, Tawi Lodge. AWF entered into a formal agreement with Tawi Lodge for payment of the conservation lease. The agreement stipulated that AWF pay the full lease payment in year one, and continue to contribute to the lease fees for an additional three years, as the lodge opened and increased its profits and was able to accommodate the lease fees. After year five, Tawi took on

the full payment of the conservation lease. AWF raised funds from private foundation, such as the Disney Nature Foundation, and through Government Grants, such as the Royal Netherlands Embassy, to set up the conservation lease program and to make initial payments.

Throughout the process of establishing the conservation lease program, AWF has been collaborating with the Kenya Wildlife Service. In the 2008-2018 Amboseli Ecosystem Management Plan there is specific reference to the need to support community conservancies outside the Park, to protect the dispersal areas outside the Park, and to provide direct conservation benefits to communities. The Board of Kenya Wildlife Service approved the payment of the lease program and starting in 2013, KWS will pay the leases through income generated from the Park.

One of the challenges with PES programs is sourcing the funds to pay. While the concept of buyer and seller is straight-forward, finding willing buyers is a challenge. In many cases, buyers have not had to pay for ecosystem services; therefore, instilling the need to pay can be challenging. In this case, AWF was able to enlist the support from a tourism investor who saw the success of their investment furthered by the program. Likewise, the protected area authority clearly recognizes the link between keeping dispersal areas open and ensuring communities benefit from conservation to the sustainability of the Park. The challenge of replicating a conservation lease program is sourcing the funding.

Conclusion

While Amboseli National Park is world renowned, the Park is too small to support viable populations of certain species. If the Park and the wildlife are to endure in the long-term, the surrounding community lands must be protected in a way that is legally secure and provides competitive benefits to community members. The African Wildlife Foundation Payment for Ecosystem Service Conservation Lease Program does both, securing the land for wildlife movement and habitat protection and providing substantial benefits to community members at a direct household level. The Conservation Lease program is a voluntary transaction where a well defined ecosystem services are being bought by AWF, a tourism operator and Kenya Wildlife Service in exchange for the protection of ecological services. This program is one that AWF will replicate in other areas where feasible and urges replication by other organizations.

Acknowledgement

Recognition needs to go to the AWF staff in the Kilimanjaro landscape for making the lease program feasible: Fiesta Warinwa, John Gisa, Rashid Abdoul Kanyau, Phillip Lenaiyasa, Nicodemus Masila, and Mary Magdelene. Thank you to Andrea Athanas, Program Design Manager—Agriculture and Energy, Arusha, Tanzania, for her input and insight on valuation of ecosystem services. Thank you to the Royal Netherlands Embassy, DGIS and Disney Nature for supporting the lease program and to Kenya Wildlife Service for their partnership in this important endeavour.

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