

Bucking the dismal decline in wildlife: Amboseli numbers are going up

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Photo by David Western

Amboseli Conservation Program's five decades of continuous monitoring the Amboseli region shows an astonishing turnaround for wildlife after years of decline. Many species are now more abundant than forty-five years ago, a remarkable contrast to the rapid losses across Africa and around the world.

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What explains this small point of light in a gloomy outlook for wildlife? What lessons does Amboseli offer conservation? And how can the success be kept up as the space for wildlife shrinks?

As scientists patch together wildlife counts of the past few decades, a dismal picture emerges. Joseph Ogotu and associates (2016) show wildlife to have declined by over two thirds in Kenya since the late 1970s. Western and colleagues found similar declines in protected areas (Western et al., 2009), and yet other biologists show numbers to have fallen by well over a half across Africa (Caro and Scholte, 2007; Craigie et al., 2010).

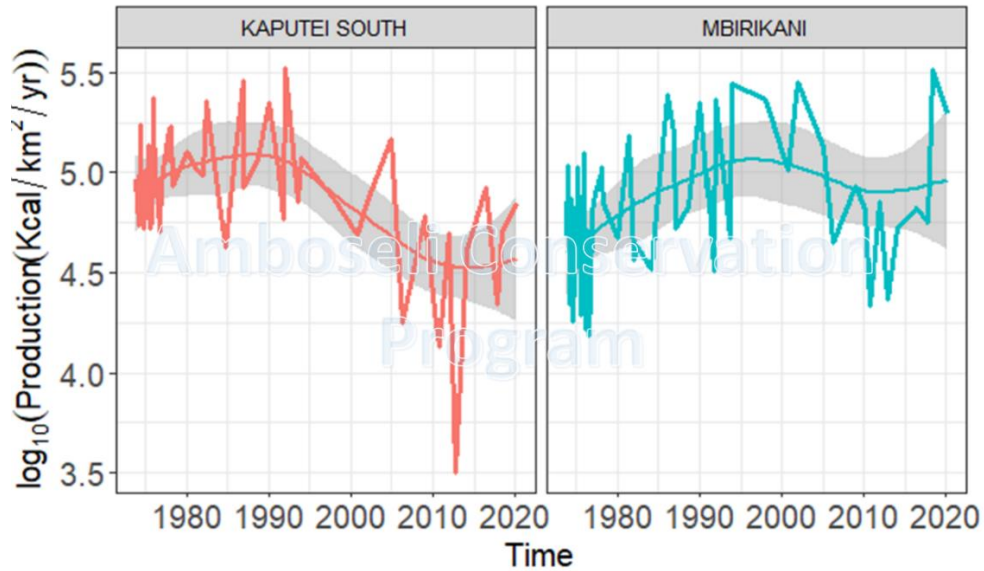
Africa's wildlife losses mirror worldwide trends. The World Wildlife Fund's distillation of 14,000 populations of 3,700 species of mammals, birds, fish, amphibians, and reptiles have slumped by nearly sixty percent in forty years (WWF 2016). The causes? Over-harvesting, land and habitat loss, ecosystem degradation and climate change.

In our ACP counts of the eastern Kajiado's former pastoral lands north and south of Amboseli we find the same picture. Here, where migratory populations of wildebeest, zebra, elephants, giraffe and eland spread from the slopes of Kilimanjaro to the Mombasa Road in the early 1970s, the herds have all but vanished. Amboseli stands alone as the only ecosystem in Kenya to have sustained its wildlife numbers since the 1970s. More remarkably, the numbers of two threatened species, the elephant and giraffe, have grown.

Let us take a closer look at the Amboseli record and the cause of its conservation success.

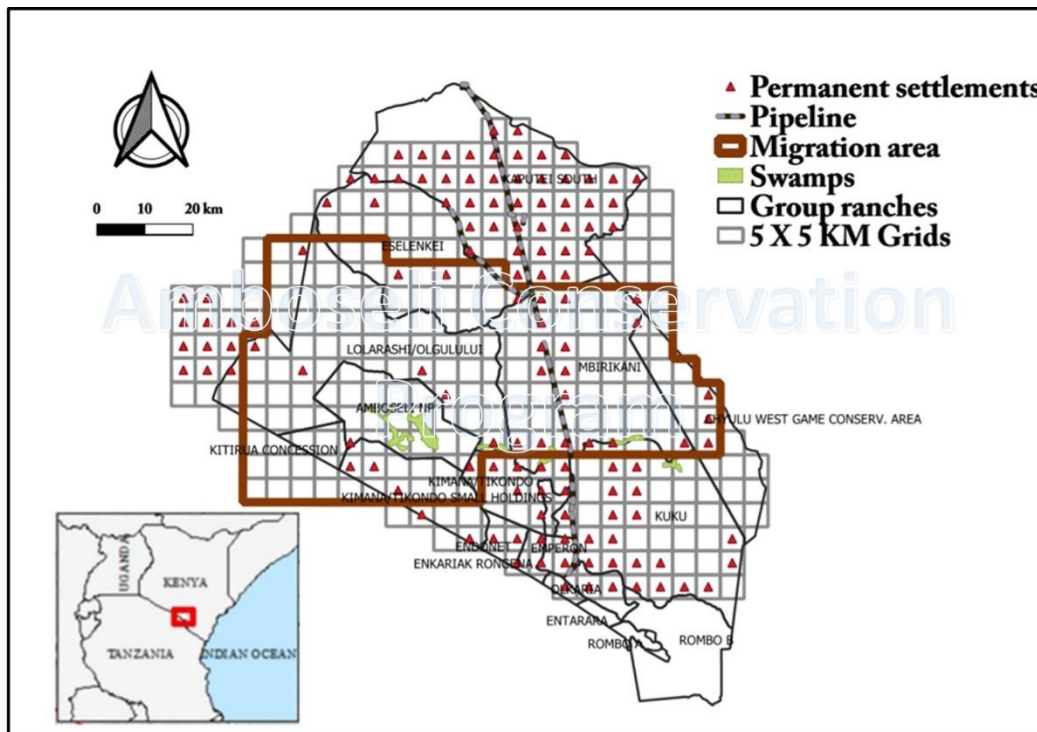
The causes of wildlife declines in eastern Kajiado as in Kenya generally include population growth, land pressures, sedentarization, pasture degradation, poaching, human-wildlife conflict, and drought (Western et al. 2009a, Ogotu et al. 2014, Okello et al. 2016). Of the many threats, by far the gravest is subdivision and settlement.

The impact of privatization and burgeoning permanent settlements on wildlife in the formerly open pastoral lands is well documented after the subdivision of the Kaputei Group Ranches north of Amboseli. Here, wildlife declined sharply from 1970 to 2005 following land subdivision (Western et al. 2009a). In stark contrast, wildlife increased on the adjacent open lands of Mbirikani Group Ranch (see figure below). The losses on the privatized Kaputei ranches arose from displacement by closely spaced settlements and pasture losses due to heavy year-round grazing (Groom and Western 2013). Aerial counts we have conducted since 2005 show wildlife declining faster still on Kaputei and Mbirikani rebounding strongly after the severe drought of 2009.



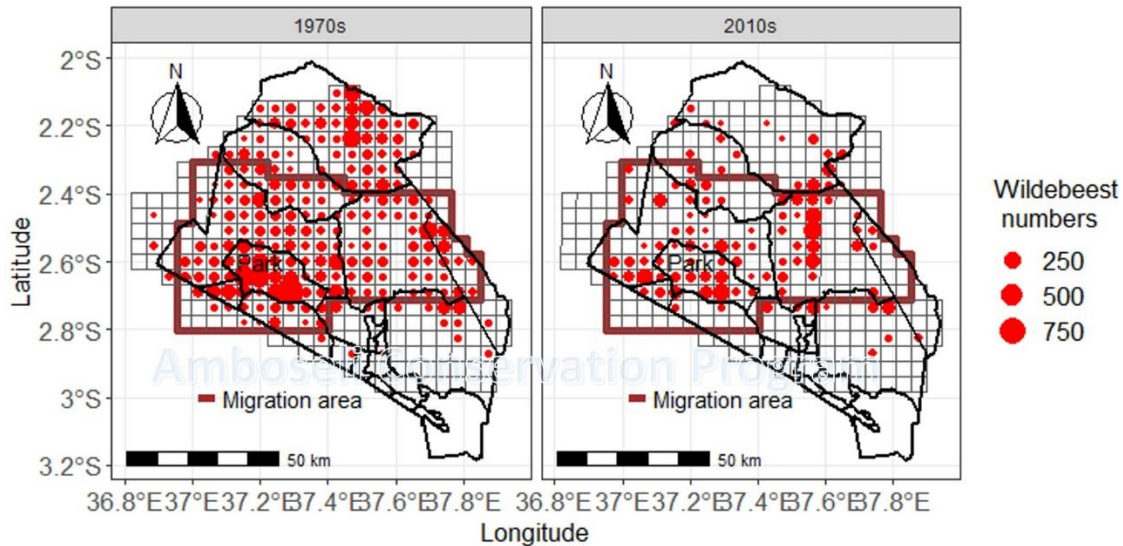
Wildlife production (the annual energy turnover of all species combined) fell significantly ($\tau = -0.18$, $p = 0.05$) on the Kaputei ranches after land subdivision and accelerated after 2000. In contrast, wildlife on the neighboring Mbirikani Group Ranch increased significantly ($\tau = 0.217$, $p = 0.0207$) across the open lands and recovered strongly after a severe drought in 2009.

The findings from the two ranches, one subdivided and privatized, the other open to free-ranging herds of wildlife and livestock, explains the conservation success of Amboseli.



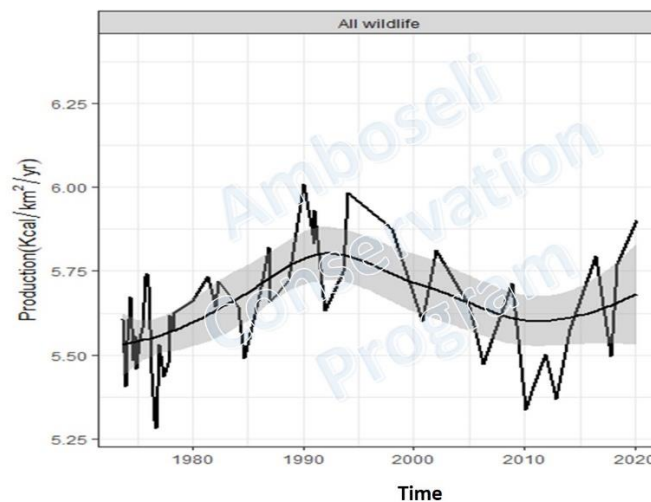
Amboseli National Park is surrounded by Maasai group ranches. ACP has conducted aerial surveys of the 8,500 square kilometers eastern Kajiado region since 1973 using a 5 x 5 kilometer-square grids to count and map wildlife and livestock. The brown box (migration area) defines the Amboseli ecosystem—the seasonal range of the migratory wildlife populations using Amboseli National Park and permanent swamps in the dry season.

A map of the migratory wildebeest populations in eastern Kajiado tells the story.



Numbers and distribution of wildebeest in eastern Kajiado averaged for each grid square for the 1970s and 2010s. The brown box (migration area) defining the Amboseli ecosystem shows migratory populations thriving in the absence of permanent settlements and collapsing where they have spread since the 1970s, as illustrated above.

The migratory range of the wildebeest, zebra, elephant and other migratory species using the permanent swamps of the Amboseli Basin and national park in the dry season ranges across 3,700 km² falling within the rain shadow of Kilimanjaro—an area too dry to farm. Wildlife numbers here have grown in the migratory populations since 1974, as shown below. Several smaller non-migratory species including Thomson’s gazelle, impala, kongoni and oryx have declined, but among the larger and migratory species, the wildebeest has held its own and zebra numbers have grown strongly, along with elephant and giraffe.

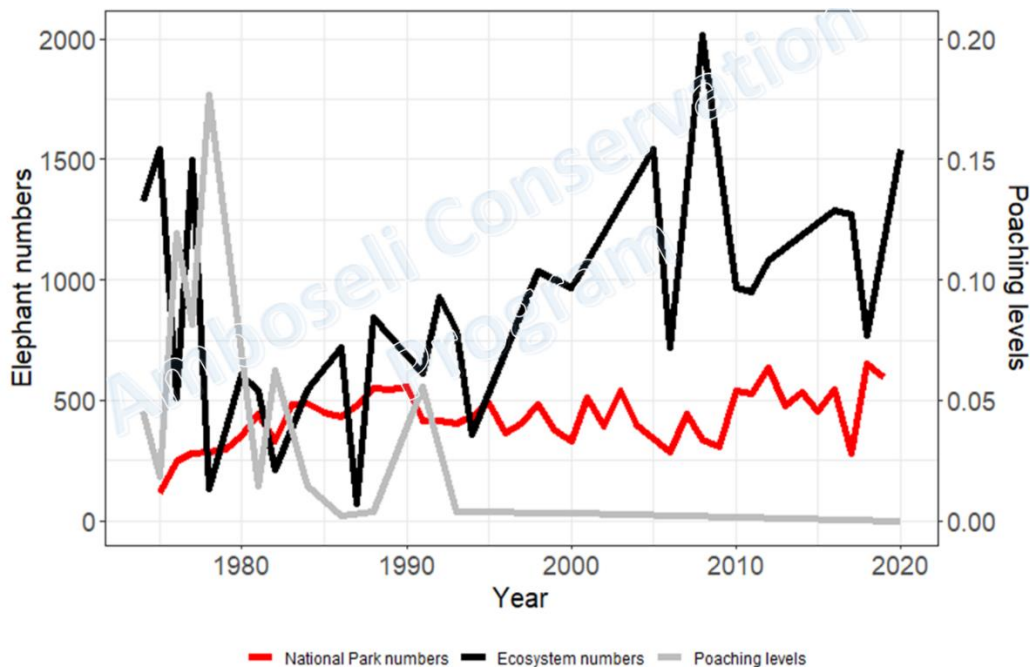


The combined populations of all wildlife in the Amboseli ecosystem have grown significantly in the last 45-years ($\tau = 0.22$, $p = 0.0199$) even as the numbers on the subdivided ranches north and south of Amboseli have all but disappeared.

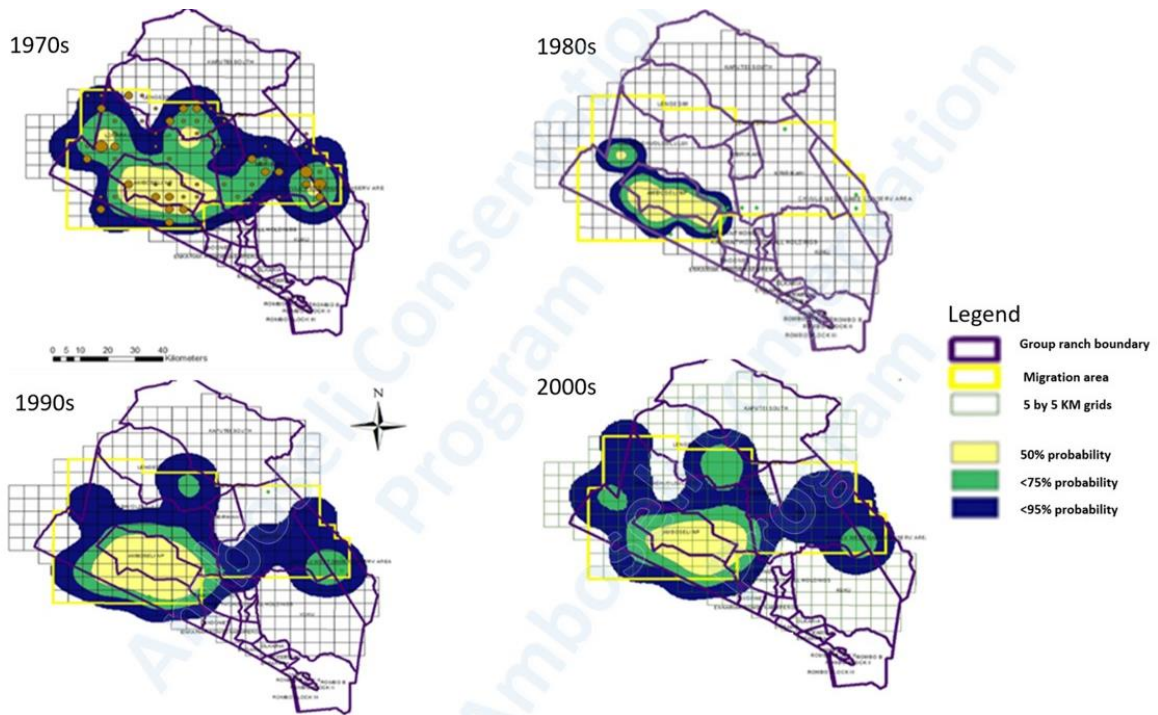
Amboseli success is due in part to the creation of Amboseli National Park in 1974. Had the park not protected the permanent swamps the migrants depend on in the late dry season, they would have been drained for the irrigated farms that have shrunk the archipelago of swamps and permanent rivers east of Amboseli. Wildlife in the park itself only thrived because of the pioneering steps Amboseli took to pay the Maasai group ranches to protect the migratory herds and promote ecotourism enterprises around the national park. Today the Amboseli Ecosystem Trust--made up of group ranch representatives, the Kenya Wildlife Service, conservation organizations and tour operators--has developed an [Ecosystem Management Plan for 2020 to 2030](#) to sustain the open rangeland areas.

A closer look at the two of Africa's threatened species, the elephant and giraffe, highlights the success of Amboseli—and the formidable hurdles in keeping the migratory lands open as the migratory lands become privatized.

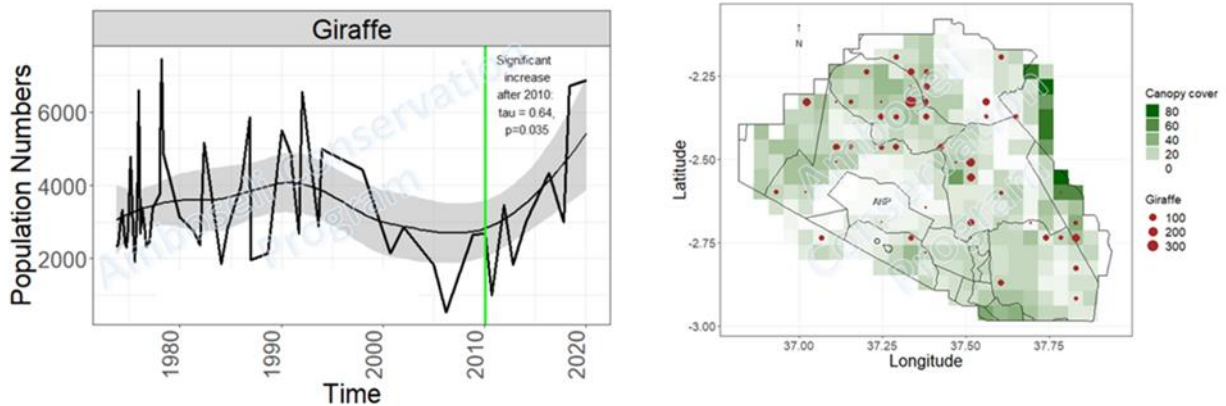
Africa's elephant population fell from over 1.2 million in 1970 to under 600,000 in 1989 when a world-wide ban on ivory took effect. After a brief recovery, a second surge in poaching followed the reopening of the ivory trade in 2008, causing numbers to fall to some 450,000 Africa-wide. The following illustrations tell the story of the impact of heavy poaching in the 1970s on the numbers and spread of Amboseli elephants, and the strong recovery once community-based conservation kicked in after 1977.



Elephant numbers in the Amboseli ecosystem fell from a around 1,500 in the early 1970s to under 500 due to heavy poaching. Protection afforded by the community-based conservation initiatives starting in 1978 (Western 1994) have seen the population rebound and exceed its earlier peak.



The migratory range of elephants was compressed into the national park during the heyday of poaching and in recent years has since spread out once again due to anti-poaching efforts by the community, Non-Government Organizations (NGOs) and the Kenya Wildlife Service.



Giraffe population trends and spatial distribution in the Amboseli ecosystem in southern Kenya.

The decline and rebound of the Maasai giraffe population in Amboseli tells a similar story. The four sub-species of giraffe have decline by over a half across Africa in the last three decades, and the combined populations of reticulated and Maasai giraffe in Kenya from 73,000 to 27,000. The giraffe recently joined the elephant as a threatened species on the IUCN Red List. The ACP counts of the Maasai giraffe in Amboseli reflect the Africa-wide sharp drop in numbers once the bushmeat in Kenya picked up in the 1990s. By the mid-1990s the population had fallen to well under a half. Following the creation of a strong

community wildlife ranger force by Big Life Foundation and other NGOs in 2010, the giraffe population has grown steeply to one of the largest in Africa.

Unlike elephants, giraffes barely use Amboseli National Park, which has lost most of its woodlands due to a five-fold increase in elephants. Rather the success of the giraffes is due to the extensive bushland habitats on the surrounding group ranches under Maasai ownership, as the map above shows.

The success of Amboseli is now threatened by the same land subdivision and settlement forces closing off land and displacing wildlife across the pastoral lands. Ololorashi Ogulului Group Ranch, which spans most of the migration range of Amboseli's wildlife, is currently subdividing the land into individual holdings. Selengei and Mbirikani Group Ranches are following suit.

If subdivision follows the Kaputei route of permanent settlements on each allotment, the future of wildlife and pastoral herds is bleak. If on the other hand Ololorashi Ogulului carries out its [land use plan](#) to keep the pastoral lands open and set up a land trust for its members, it could sustain the a healthy population of livestock and wildlife as it has done for millennia.

This report summarizes the extensive findings of the long-term ACP monitoring report which underpinned the [Amboseli Ecosystem Management Plan](#) . Fuller reports have been submitted for publication in international journals. The most important conclusion is that space, mobility, and supportive communities are vital to conserving wildlife populations.



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