2021
VOL 15 ISSUE 3

current conservation

Special Issue
African conservation today

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This magazine is produced with support from:

daksha · Dilip Matthai Nature Conservation Trust · atree · Society for Conservation Biology · wipro · Balipara Foundation Assam • India · FES Foundation for Ecological Security

ISSN **0974-0953**

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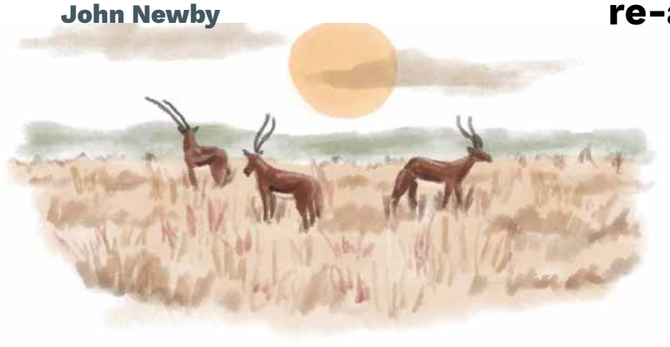

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editor's note

Cover art **Barkha Lohia**

The convergence of a series of happy coincidences led to this special issue on African conservation: our partnership with the Society for Conservation Biology (SCB) at the start of the year; SCB's 30th International Congress for Conservation Biology, which was slated to happen in Kigali, Rwanda in December 2021 (now taking place virtually); one of our Advisory Board members, Gladys Kalema-Zikusoka, being invited to deliver a plenary talk at the congress; and conversations with another AB member, Fred Nelson, who is at the forefront of enabling local African conservation organizations to become more effective and achieve greater impact.

This special issue on 'African Conservation Today: New Trends, Perspectives and Opportunities' gives us a bird's-eye view of exciting developments in the region. From harnessing new opportunities within the wildlife economy to 'shared landscapes' that support people and biodiversity, there is a lot of work being pioneered here, as well as strong local leadership and emerging new voices to showcase. With that, I'm happy to hand over to Fred and Gladys—the Guest Editors—and their compendious introduction to the issue. It has been an absolute pleasure to see it all coming together.

As (almost) always, we end with a dose of Shockingon and their grand plans to re-afforest the planet.

— **Devathi Parashuram**

African conservation today: New trends, perspectives and opportunities

Introduction to the Current Conservation special issue on African Conservation

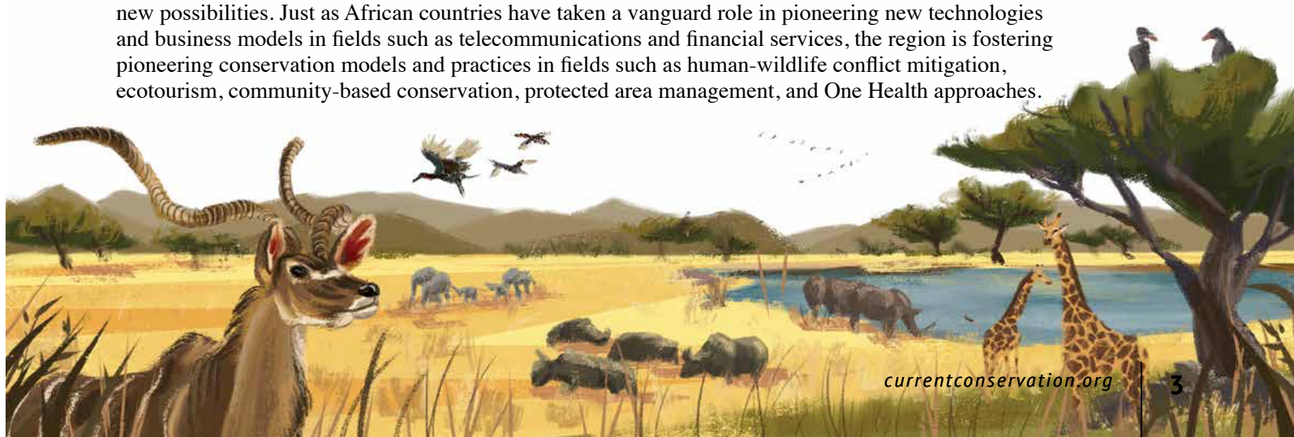
Authors **Fred Nelson, Gladys Kalema-Zikusoka** | *Illustrator* **Pari Satarkar**

Rapid social, technological and environmental change are reshaping conditions for human societies all around the world. Over the past two years, the COVID-19 pandemic has amplified the pace of change with an unprecedented scope of disruption, and, in many cases, social trauma. For conservation today, the watchwords of our time are urgency, scale, and entrepreneurship. Conservation efforts need to creatively address enormous challenges on a large scale, if they are to step up to address the realities of the unfolding climate and biodiversity crises.

Nowhere are these realities more pressing than in sub-Saharan Africa. With by far the youngest and most rapidly growing human population, widespread economic poverty, and relatively young political systems with fragile democracies, African societies face an additional suite of challenges. And with economies and large rural populations that are heavily dependent on natural resources and healthy ecosystems, the impacts of climate change and environmental degradation are particularly pressing across this region. With the onset of the COVID-19 pandemic, disease has become a more prominent direct and indirect threat to the conservation of great apes and other species that generate significant tourism revenue, and which supports conservation efforts on the ground.

This puts conservation in a critical position in relation to social, economic, and even political futures across Africa. It demands, as a recent paper published in *Science* by a leading group of African conservationists (and summarized in this issue of Current Conservation) puts it, "a paradigm shift toward sustainability, meeting peoples' needs, and equity" in how conservation is conceptualized and pursued. It also makes the 'old' ways of doing conservation—top-down, centralized, focused on pristine nature and wilderness, and with a strong bias towards the biological sciences—increasingly anachronistic in a context where human livelihoods and land use practices have been intertwined with ecological systems for longer than anywhere else on earth.

In this context, new ideas and approaches to conservation are indeed flourishing across the region, creating new possibilities. Just as African countries have taken a vanguard role in pioneering new technologies and business models in fields such as telecommunications and financial services, the region is fostering pioneering conservation models and practices in fields such as human-wildlife conflict mitigation, ecotourism, community-based conservation, protected area management, and One Health approaches.



This special issue of Current Conservation attempts to capture some of the new directions that are reshaping African conservation today. It features a range of perspectives that touch on many of the key themes and trends in conservation from across the region.

One highly innovative and entrepreneurial organization working to reshape African conservation is the African Leadership Group, helmed by its founder and CEO, Fred Swaniker (originally from Ghana). In establishing the School of Wildlife Conservation as part of the ALG network in Rwanda, and creating the Business of Conservation annual conference, Swaniker often talks of wanting to change conservation in the region from an 'old social cause' to an 'engine of growth' and development. Here, African Leadership University's Director of Research, Susan Snyman, reports on the key findings of a major new study ALU has carried out over the past year on Africa's 'wildlife economy', and how developing new economic opportunities tied to wildlife and wild landscapes are key to conservation efforts.

Relatedly, David Obura, a Kenyan marine scientist and leading global expert on coral reefs, recently led the authorship of a prominent article by a group of African conservationists in *Science* that provides an African perspective on global conservation models and targets. Calling for a greater focus on 'shared landscapes' that support people and biodiversity, Obura and colleagues ground the ambitions of the 2030 global conservation dialogue in African realities and priorities.

The special issue includes two perspectives on community management, indigenous knowledge and land use systems, human-wildlife co-existence, and locally led collaborations from East Africa: one on the Northern Tanzania Rangelands Initiative by Alphonce Mallya and one on the South Rift Valley of Kenya by Peter Tyrell, Peadar Brehony, and John Kamanga.

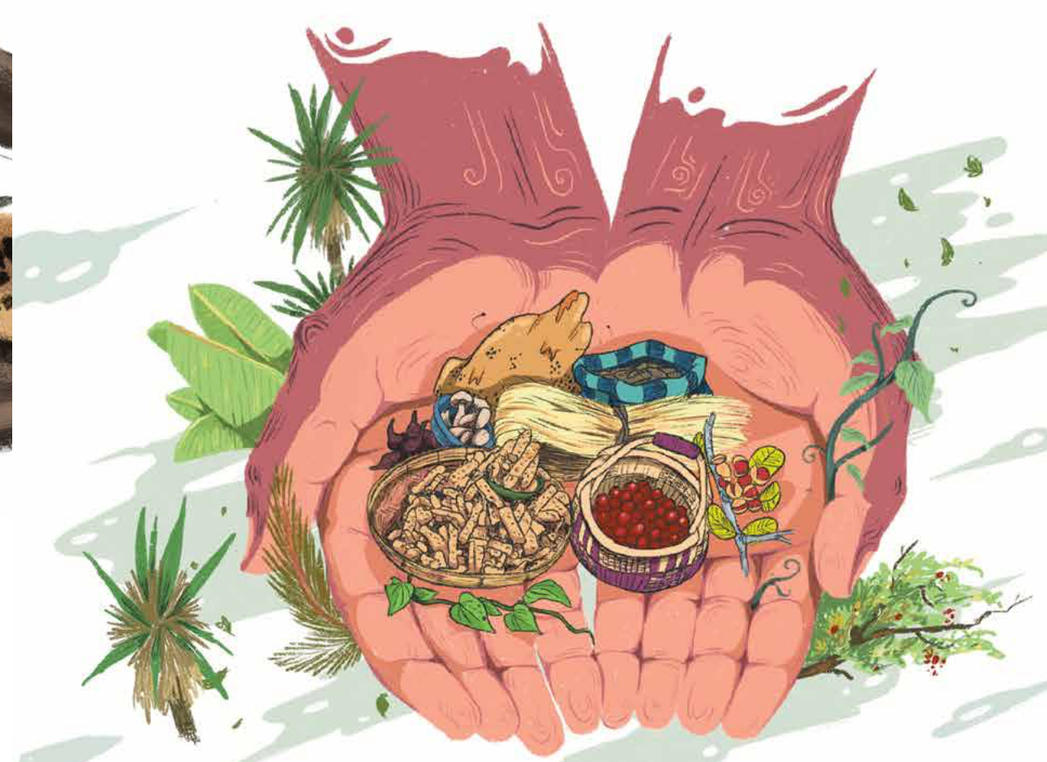
The Saharan and Sahelian region is often overlooked in conservation efforts, but some of the most notable efforts at rewilding and restoration of endemic wildlife, and development of locally suitable management systems, is taking place in countries such as Chad. John Newby, of the Sahara Conservation Fund, provides an overview of these efforts.

Building the capacity of African scientific networks and institutions is important to the long-term effectiveness of conservation in the region. Inza Kone and colleagues describe how the African Primatologist Society is helping to build African leadership in conservation science and action. Lastly, the special issue showcases some of African conservation's new voices and emerging leaders, who are driving change and innovation in their communities and their countries, while also providing a remembrance of one of African conservation's greatest minds, the late Zimbabwean Professor Marshall.

Fred Nelson *is CEO of Maliasili, which works to support leading local conservation and natural resource organizations, primarily in Africa and Madagascar, to help them grow their work and impact.*

Gladys Kalema-Zikusoka *is Founder and CEO of Conservation Through Public Health (CTPH), Uganda, an NGO that protects grillas and other wildlife through the One Health approach. She is also and Vice President of the APS.*

Pari Satarkar *is an animator and illustrator who weaves narratives through visuals. She enjoys storytelling, sketching the world around her, and going on adventures with her dogs.*

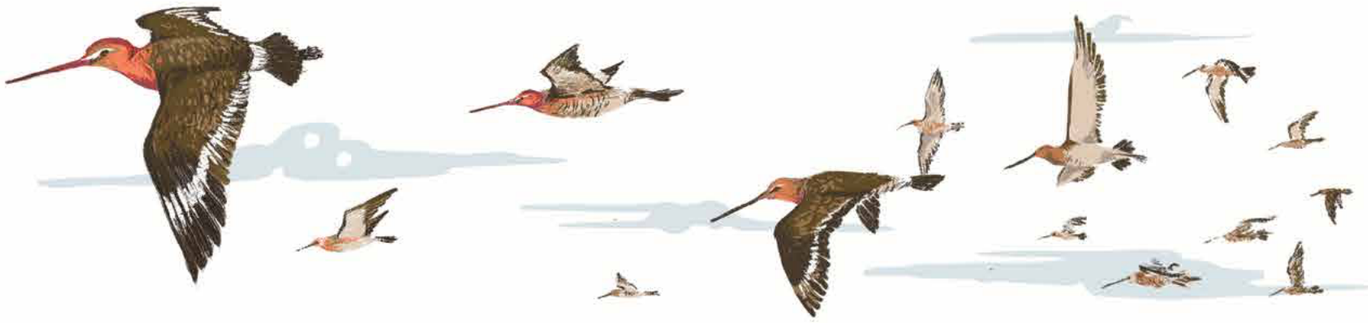


Unlocking the potential of Africa's wildlife economy to drive conservation

Author **Susan Snyman** | *Illustrator* **Karunya Baskar**

Conservation in Africa today continues to be strongly shaped by economic realities. For conservation to succeed, it needs to contribute to reducing poverty and uplifting the economic aspirations of a rapidly growing population with huge demand for employment and upward mobility. Conservation efforts also must face the reality that many wild species—particularly the region's iconic large mammals—create real costs that are imposed on local people living alongside wildlife. Fortunately, Africa's wildlife resources also have immense economic value and are one of Africa's greatest actual and potential sources of competitive economic opportunity. This value is, however, poorly understood and largely not taken into consideration in decision-making, policy development or in practice.

59 percent of Africans live in rural areas and are heavily dependent on natural resources for subsistence and livelihoods. Local and national economies also rely heavily on natural resources, the sustainable use of which is crucial for ensuring economic resilience and a prosperous future. However, these resources are rapidly declining in the face of various, mostly human-induced threats, with serious implications for conservation, human welfare, and the wildlife economy. African countries must effectively manage their natural resources for them to deliver a sustainable flow of benefits, and to harness the value of wildlife for conservation in both protected areas, as well as on private and community lands.



State of the wildlife economy in Africa

The old adage 'you can't manage what you don't measure' applies equally to the value of wildlife. It was a key impetus for the African Leadership University to develop a State of the Wildlife Economy in Africa report. An understanding of the wildlife economy and the value of these activities to local, national, and regional economies is essential for encouraging greater investment in wildlife—the asset base of the wildlife economy—so that governments will see wildlife as a key strategic asset, as well as a key growth opportunity. The hope is that by encouraging a 'growth mentality' and identifying opportunities, governments, private sector, and all stakeholders will invest more in sustaining the region's natural assets (i.e., in long-term conservation as a key pillar of Africa's economic development).

For many years, the focus of the wildlife economy has been on ecotourism. However, COVID-19 and the catastrophic impacts of the pandemic on the ecotourism industry have starkly highlighted the need to diversify the wildlife economy, as well as ecotourism itself, to build resilience and reduce risk. Other important activities with scope for further growth include wildlife ranching, carbon credit projects, film and photography, wildlife estates, non-timber forest products, and fisheries. The report includes detailed information on all of the above aspects of the wildlife economy, as well as the potential challenges and opportunities related to each. Some of the key regional trends highlighted in the report are summarized below.

Key regional trends

Most African countries engage in a diversity of wildlife economy activities, at varying degrees of intensity and scale. **Ecotourism** is by far the largest activity in most countries, especially in eastern and southern Africa. Yet, despite its ubiquitous nature, detailed data on ecotourism was found to be inconsistent. **Forest products** are of widespread importance across the subcontinent. However, a large part of the market is informal and, therefore, not accounted for. There is also a significant amount of illegal trade and unsustainable use, especially charcoal, which remains the most important source of household energy in most African countries. At the same time, this extensive use highlights the high level of demand for forest products and the huge potential of legal market opportunities.

Wild meat is one of the most valuable forest products in Africa, after timber. **Wild meat hunting** is largely legal in central and western Africa—where consumption is more prevalent due to strong wild meat-eating cultures and traditions—although it is poorly regulated. Conversely, it is illegal or heavily restricted in many east and southern Africa countries, where wildlife has high tourism value. Wild meat hunting is a key driver of species decline across Africa and African countries need to improve monitoring and research related to it.

Trophy hunting is practiced in a number of countries, and in some, such as Cameroon, Namibia, and South Africa, comprises a large part of local and national economies. There is, however, a lack of comparable data related to hunting, most of which is outdated. And **wildlife ranching** is prevalent in southern Africa—Namibia, South Africa, Zambia, Zimbabwe—because of enabling legal conditions and policies that provide secure private and, in some cases such as Namibia, communal user rights over wildlife. As a result of COVID-19, many other countries are looking at this as a key activity to diversify the wildlife economy—for example Kenya, Rwanda, and Tanzania.

The report found that the **carbon market** in Africa has great potential, in terms of the revenues that can be earned and as a means to support conservation, but it is largely untapped. This is due to a combination of policy and legal provisions—relating to property rights surrounding carbon and forests, which would give communities and the private sector rights and, therefore, incentives to engage in the carbon market—as well as a lack of awareness and/or understanding of the carbon market. Where communities have rights to benefit from carbon projects, it has been shown that there can be considerable positive financial impacts. Finally, **wildlife film and photography** is underdeveloped in almost all countries. It should be seriously considered as a future opportunity for employment and revenue, both locally and nationally. The same holds for **wildlife- or 'ecoestates'**, which can provide a mechanism for integrating housing development in natural landscapes in a way that conserves biodiversity, but also provides innovative financing for conservation of these landscapes through land purchases, rentals, levies, etc.

Examples and case studies

At a national level, the report includes many examples that highlight the positive impact of different policies and institutional arrangements for unlocking the potential of the wildlife economy. For example, in South Africa, the Game Theft Act (1991) provides certain ownership rights to landowners over wild animals held in adequately enclosed areas. This has provided incentives for a major shift in farming activities, with the sale of wild meat in South Africa now generating approximately USD 56 million annually.

In Rwanda, the Rwanda Development Board (RDB), which was established in 2008 out of a merger of eight government institutions, is a government institution with a mandate to accelerate the country's economic development by being a 'One Stop Centre' for business and investments, and thus providing an enabling environment for the private sector to invest. The government of Rwanda also revised the investment law, in order to facilitate the growth of new sectors and attract new investments, by means of various incentives. The establishment of such a supportive, enabling environment is important for attracting investors in the wildlife economy.

In Namibia and Kenya, community conservancies have been supported and established on a large scale to create formal, legal mechanisms for communities to benefit from wildlife enterprises and uses. In Namibia, over 80 conservancies now generate over USD 10 million in annual revenue and income from tourism, hunting, and other natural resource uses. In Zambia, a new institutional framework for community forest management uses legislation to vest rights to forest products, including carbon, in community forest managers, thereby allowing communities to benefit from their forests in new and important ways.

Strengthening the wildlife economy

Some key recommendations in the report include the need to raise awareness and increase knowledge related to different wildlife economy activities. This is because many stakeholders, especially local communities, are not aware of alternatives or how and where they can get involved. The overall strengthening of policy, legal, and regulatory provisions governing natural resources—particularly property rights over wildlife, forest, and fisheries—is critical to unlocking the potential of the wildlife economy. There also needs to be an improvement in overall governance and the business environment, including institutional arrangements for benefit-sharing, to ensure greater inclusiveness and equity and to garner support from local communities. Essential to the long-term sustainability of wildlife and wildlife economies is investment by government, the private sector, and communities in the conservation of wildlife—the asset base of the wildlife economy.

The pandemic has highlighted the importance of collaboration and strategic partnerships at all levels, as well as the need for a government strategy to provide direction, guidance, and structural coordination to all stakeholders. The wildlife economy includes a diverse range of stakeholder groups across several sectors. Hence, strategic direction is important to avoid overlapping mandates, a lack of role clarity, and conflicting policies and actions.

In addition, broader diversification of wildlife economy activities and products is important in order to reduce risk, build resilience and engage more stakeholders, sharing benefits more widely. The establishment of systems and protocols for data collection and analysis for Africa, at all levels from the community to national, is also critical to promote data-driven decision-making going forward.

Ultimately, we need to change the narrative about wildlife to drive investment and conservation outcomes. Wildlife is a key strategic asset contributing to African development and livelihoods and we need to grow this asset and invest in it.

Further reading

Snyman, S., D. Sumba, F. Vorhies, E. Gitari, C. Enders, A. Ahenkan, A.F.K. Pambo et al. 2021. *State of the Wildlife Economy in Africa*. African Leadership University, School of Wildlife Conservation, Kigali, Rwanda.

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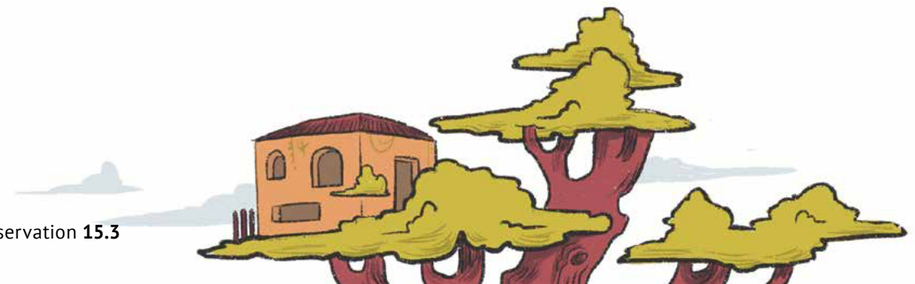
Dr Susan Snyman *is Research Director at African Leadership University's School of Wildlife Conservation, with over 20 years experience in resource economics, rural communities and conservation in Africa.*

Karunya Baskar *is a visual designer and artist who loves to travel. Whether it's scuba diving, surfing or trekking through the hills, she's always up for an outdoor adventure.*



Shared earth, shared ocean: An African vision for the post-2020 Global Biodiversity Framework

Author **Fred Nelson** | *Illustrator* **Niharika Shenoy**

In 2021/2022, the Global Biodiversity Framework of the Convention on Biological Diversity will finally be adopted by the 198 member states at the Convention's 15th Conference of Parties in China. A vast increase in effectiveness will be needed, compared to the last decade, to succeed in its ambitions. Conservation efforts have focused on the most intact natural locations, in Africa and across the globe, but tend to neglect the places where many people need it most—around their farms and homes. It is in these 'shared spaces', such as agricultural, fishing, and pastoralist systems, that a new paradigm is needed for conservation action, which is both nature-positive and people-centered.

In a recent article in *Science*, a group of African conservation leaders call for conservation to fully take on a human face. Legacies of inequitable impacts of protected areas on local and indigenous communities have made many countries in the Global South and varied communities distrustful of global conservation targets and initiatives, which they feel are thrust upon them and fail to address their local needs and contexts.

The 'shared earth, shared ocean' framework provides guidance for consolidating and upscaling existing conservation successes, through focusing on the local context. This framework will help put local communities in charge where they live, recognize their local conservation practices, and link their efforts and resource needs to national and global networks. For example, new recognition of 'other effective area-based

conservation measures' as a complement to formal protected areas, will strengthen overall conservation efforts. This is in large part because of the legitimacy and commitment that full involvement of local people and institutions will bring to decision-making on conserving nature.

In many 'shared spaces', restoration of natural areas will be essential to both meet peoples' needs and to reach new global conservation targets. In cities and intensively farmed areas, a smaller proportion of area under natural habitat may be all that is possible, focusing on values of green spaces to people in densely populated areas.

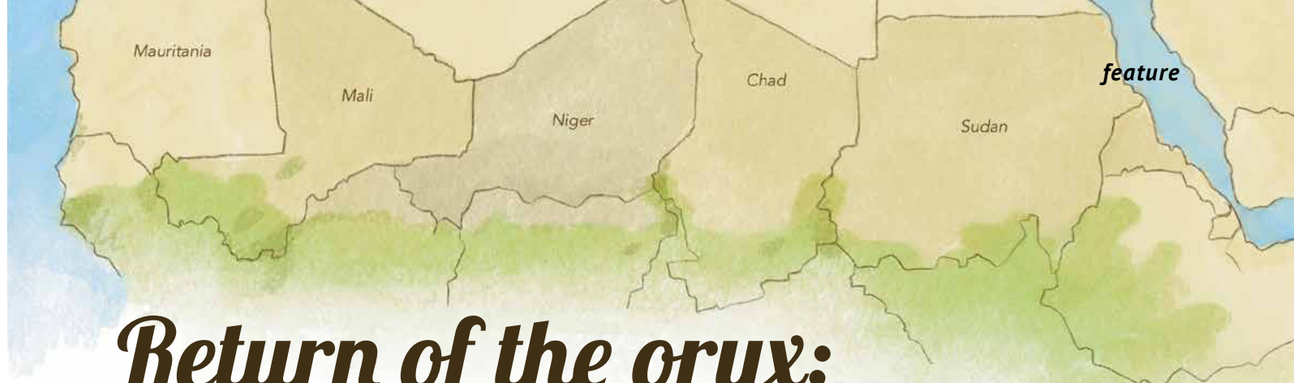
The study builds on a wide scientific literature, both on conservation and meeting peoples' needs, and mirrors the structure of the new Global Biodiversity Framework and its foundations in the Sustainable Development Goals. The authors describe three preconditions for success. First, the commitment of the full level of finance and material support needed, from both public and private sources, to avoid the insufficient impact of conservation to date. Second, the unsustainable economic and societal production and consumption practices that have driven nature to its current state must be transformed to circular or zero impact models. Third, climate and other global changes are transforming the planet, and these need to be minimized to assure the local conservation commitments made under this framework will have the best chance of success into the future.

Original paper

Obura, D., Y. Katerere, M. Mayet, D. Kaelo, S. Msweli, K. Mather, J. Harris et al. 2021. Integrating biodiversity targets from local to global levels. *Science* 373: 746–748, DOI: 10.1126/science.abh2234.

Fred Nelson *is CEO of Maliasili, which works to support leading local conservation and natural resource organizations, primarily in Africa and Madagascar, to help them grow their work and impact.*

Niharika Shenoy *is a freelance illustrator, translator and copywriter.*



Return of the oryx: Restoring the Sahara's endangered wildlife

Author **John Newby** | *Illustrator* **Barkha Lohia**

The wildlife of the Sahara and bordering Sahelian grasslands are some of the most threatened on Earth. Drought, desertification, habitat loss and, above all, overhunting, have reduced many species to the verge of extinction. Animals such as the addax (*Addax nasomaculatus*), dama gazelle (*Nanger dama*), and cheetah (*Acinonyx jubatus hecki*) have disappeared from over 95 percent of the territories where they were found earlier. One of the region's most iconic species, the scimitar-horned oryx (*Oryx dammah*), became extinct in the wild in the 1980s, and several others are severely threatened over large parts of their range. This includes species such as the Barbary sheep (*Ammotragus lervia*), dorcas gazelle (*Gazella dorcas*), slender-horned gazelle (*Gazella leptoceros*), Cuvier's gazelle (*Gazella cuvieri*), striped hyena (*Hyaena hyaena*), ostrich (*Struthio camelus camelus*), and Nubian (*Neotis nuba*) and Arabian (*Ardeotis arabs*) bustards.

Over much of the Sahel and Sahara the fate of these unique species is being played out against a dramatic backdrop of climate change, unsustainable land use, political instability, and armed insurgency. Despite this daunting situation, efforts led by the Sahara Conservation Fund (SCF) over the past 20 years have achieved important milestones, including putting Saharan conservation more firmly on the global conservation map. Working with diverse partners in Chad and Niger, efforts are underway to save the remaining wild populations of addax, dama and dorcas gazelles, to restore the scimitar-horned oryx, and to reinforce populations of the almost extinct addax.

Unlike many endangered species today, the oryx's disappearance was largely due to overhunting rather than habitat loss. Up until the early 1960s, the species was still relatively common over much of its Sahelian range, from Mali in the west, through Niger and Chad, and into Sudan. Always a target species for traditional hunters, using dogs and horses to hunt them, the impact on population size was probably quite low and highly seasonal. As pastoral development opened up the hitherto waterless and largely uninhabited grasslands used by the oryx, the impact of traditional hunting increased, as did the number of all-terrain vehicles and modern firearms.

With virtually no protection or law enforcement, oryx numbers rapidly plummeted and by the end of the 1970s the species was confined to a couple of populations in eastern Niger and central Chad. At that time, the wild population almost certainly numbered less than 5000 individuals, with most of these in the Ouadi Rimé-Ouadi Achim Game Reserve in central Chad. In 1979, civil war broke out in Chad, wiping out much of the larger desert wildlife in the Ouadi Rimé reserve and elsewhere. The last oryx was reportedly shot in Chad in the late 1980s. Fortunately, oryx held in captivity were quite numerous.

Today, although the oryx's native grasslands of central Chad are impacted by serious overstocking of livestock, overgrazing and bushfires, wildlife still has access to large areas of suitable habitat. Recognising the opportunity and with encouraging support from regional governments, the Sahara Conservation Fund began collecting data to develop a plan to reintroduce the oryx from captive-bred sources into a suitable site. Meetings were held in 2010 and 2012 and the selected reintroduction site was the Ouadi Rimé-Ouadi Achim reserve in Chad—the oryx's previous stronghold.

Following a feasibility study carried out in 2015, March 2016 marked a major milestone for regional conservation efforts. 25 oryx bred in captivity were flown from Abu Dhabi to Chad to seed one of the world's most ambitious reintroduction programmes. From this founding population, 218 oryx have been reintroduced into the wild to date and by mid-2021 these had grown to a free-roaming population of around 380 animals. There have been setbacks, including deaths from disease, calf predation, and possibly malnutrition during hard times, but the overall trend continues to be very positive.

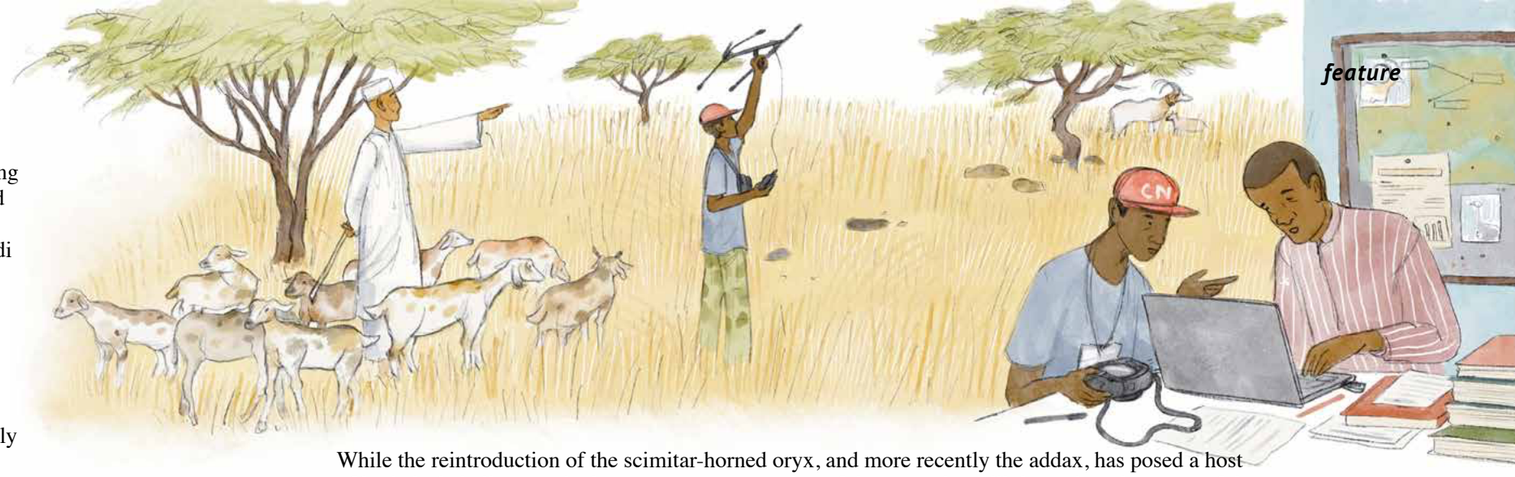
Bringing back the addax

In the neighbouring Sahara, the addax population has been following an inexorable downward decline for many decades. Today, the entire remaining wild population of a few dozen animals is confined to the Tin Toumma desert of eastern Niger. Two decades ago, the addax population had stabilized at around 300–400 animals. But with the discovery of oil in eastern Niger and the fall of the Ghaddafi regime across the border in Libya, new threats to their survival emerged in the form of massive disturbance from oil exploration, an influx of arms and four-wheel drive vehicles from Libya, and uncontrollable poaching by the armed forces sent to protect the oil workers.

The extinction of a species, either locally or globally, is not simply the loss of a unique plant or animal amongst many others but often the disappearance of a key element in a complex local web of life. For species like the addax, it is also the loss of innate and learned behaviour that, in addition to physical and morphological adaptations, permit the animals to survive and thrive in one of the world's most hostile environments. Reintroduction may be able to bring back similar animals biologically, but it can never replace the intrinsic knowledge and culture of the animals that lived, learned, and evolved in that place over countless generations. Preventing, at all costs, the extinction of wild populations of animals, however small their numbers, is essential.

Encouraged by the results of the efforts to restore the scimitar-horned oryx, the Government of Chad, the Environment Agency of Abu Dhabi, and the Sahara Conservation Fund decided to include the addax as part of their reintroduction programme. In 2020, the first addax were released into the wild and today they total over 50 animals. Plans are also underway to supplement populations of the critically endangered dama gazelle, a magnificent Sahelian species now reduced to four tiny, isolated populations in Chad and Niger. In association with African Parks Network, ostriches from southern Chad are also being reintroduced into the Ouadi Rimé and Ennedi reserves.

The need for long-term conservation



While the reintroduction of the scimitar-horned oryx, and more recently the addax, has posed a host of logistical challenges, the longer-term conservation of these species will depend on the successful management of the large arid landscapes in which they reside. Much has changed across the grasslands of the Sahel since the 190s. Land that was largely unoccupied for most of the year is now dominated by livestock and the consequent impacts of competition for natural wet season waterholes, overgrazing and loss of preferred plant species, disturbance, bushfires, and the spread of cattle-borne diseases. In Chad, at least, hunting is under control for now, but could become a major problem should insecurity and civil unrest occur. Human activities apart, there is also the impact of habitat loss through long-term climate change and desertification. Coming to terms with this new paradigm is far more challenging than simply controlling poaching.

Created in 1969, the *Réserve de faune de Ouadi Rimé-Ouadi Achim* allows the pursuit of traditional forms of resource use, including grazing, use of dead wood, and access to natural waterholes and wells. What this arrangement failed to recognize was the vast increase in the numbers of people, livestock, and wells. Other rules and regulations are also completely out of date, necessitating a major overhaul of the reserve's decree and limits, not only to bring it up to date, but also to permit management of space and natural resources for the long-term benefit of both humans and wildlife.

While most of the local people in and around the vast Ouadi Rimé-Ouadi Achim reserve are genuinely happy to see the return of the iconic and truly impressive addax and oryx, they currently have no real vested interest in their long-term conservation. Direct benefits are few and indirect ones—such as improved rangeland management, bushfire control, and the potential of future tourism development—are largely intangible. In the long term, improved rangeland management and the restoration of currently degraded grazing resources could be strong incentives.

To achieve long-lasting results in the social and environmental context of a largely mobile pastoral society requires not only working at a larger scale—the Ouadi Rimé-Ouadi Achim reserve is twice the size of Belgium—but also in a way that truly incorporates social needs and priorities with those of conservation. The two are not incompatible, but even if they were, the realities of today dictate the pursuit of cooperation and cohabitation. Exclusion of the human element from landscapes so critical to the survival of people with virtually no viable alternatives is neither just nor practical. The promising growth in delegated management and private-public partnerships over the past decade is highlighting what can be achieved using new models of protected area administration. Thanks to support from the European Union, an experiment in management of the Ouadi Rimé-Ouadi Achim reserve with full participation from the local population is underway. The development of an effective and sustainable conservation model in the region will hopefully emerge, benefitting the interests of both people and wildlife while providing a valuable example to other protected areas in the Sahara and the Sahel.

John Newby *is a conservation biologist specializing in the critically endangered birds and mammals of the Sahara. His current focus is on effective co-management of key protected areas in Chad and Niger.*

Barkha Lohia *loves working on picture books, editorials and sometimes dabble in tattoo art. Apart from these, she can often be found loitering around jungle spaces of Delhi.*

The new voices in African conservation

Author **Maliasili** | *Illustrator* **Pari Satarkar**

A rising generation of new African conservation leaders are creating innovative solutions to conservation challenges across the region. They are developing new people-centric organisations that will determine the future of the continent's most critically important natural landscapes.

Daniel Sopia

As the CEO of the Maasai Mara Wildlife Conservancies Association (MMWCA), Sopia has been integral in the evolution of community-led conservation efforts in the Maasai Mara, one of Kenya's most vital ecosystems. MMWCA is the umbrella body representing the landowners who have pulled together their individual parcels to form big, contiguous areas for wildlife and tourism now known as group conservancies, that protect the land surrounding the Maasai Mara National Reserve.

Paine Makko

Ujamaa Community Resource Team (UCRT) is Tanzania's top land rights group that has helped secure more than one million hectares of community land, empowering communities to own, manage, and benefit from it. As the Executive Director, Paine combines her experience as a pastoralist and background in development to create solutions that work for both people and nature through UCRT.

Maxi Pia-Louis

Maxi is the Director of the Namibian Association of CBNRM Support Organisations (NACSO), and has greatly contributed to Namibia's success in community conservation. She coordinates NACSO's three thematic working groups and ensures collaboration and learning between its nine non-profit member organisations. She also facilitates communication and partnerships between NACSO, the government, and other partners.

Moreangels Mbizah, PhD

Moreangels is the Founder and Executive Director of Wildlife Conservation Action, Zimbabwe, an organisation that aims to build the capacity of local communities to protect and coexist with wildlife. A conservation biologist by training, Moreangels has worked in wildlife conservation for more than a decade, focusing on the preservation of large carnivores, such as lions and African wild dogs, as well as human-wildlife coexistence.

José Monteiro

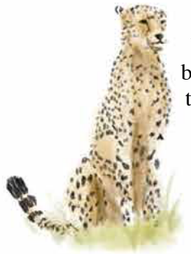
Jose is an experienced Forest Ecologist skilled in land-use practices and management, including natural resources governance for development. His particular area of focus is communities living in rural Mozambique. As the Coordinator, José has played a critical role in facilitating the establishment of the Community Based Natural Resources Management Network in Mozambique (R-GCRN), aiming to empower communities to build robust governance systems to improve their decision-making over land use and management of their natural resources.

Tiana Andriamanana

Tiana is the Executive Director of Fanamby, an organisation that works across a portfolio of half a dozen protected areas spanning more than 500,000 hectares of Madagascar's diverse forests and ecosystems. Madagascar is one of the most critical countries globally, with most of its plants, mammals, and reptiles found nowhere else on earth. Tiana's experience in business engagement has shaped her approach to natural capital management in Madagascar.

Thandiwe Mweetwa

Thandiwe Mweetwa is a Project Manager at Zambia Carnivore Programme. She is a globally-renowned ecologist and educator whose work focuses on carnivore conservation on human-impacted landscapes in eastern Zambia. Thandiwe is a champion of community-centric conservation, including finding innovative and sustainable ways to promote human-lion coexistence.



Sam Shaba

Honeyguide works to develop ecologically viable and financially sustainable Wildlife Management Areas in Tanzania. They accomplish this by advancing the business side of community conservation. As a Program Manager, Sam is integral to Honeyguide's leadership, helping steer the team's strategy, including inventive thinking in how technology and businesses can support conservation outcomes.

Maliasili *works with many of these leaders through its leadership programmes. This includes our 30 community-focused conservation partners that work in eastern and southern Africa (including Madagascar.) Through our African Conservation and Marine Leadership Programmes, we also work directly with 65 individual leaders, helping to build their leadership knowledge and capacity to lead effectively.*

Pari Satarkar *is an animator and illustrator who weaves narratives through visuals. She enjoys storytelling, sketching the world around her, and going on adventures with her dogs.*

What's good for livestock can be good for wildlife

Author **Peter Tyrrell, Peadar Brehony, John Kamanga** | *Illustrator* **Anarya**

Natural history documentaries set in East Africa's iconic savannah landscapes abound with enchanting scenes of wildlife and wilderness. But something critical is generally missing from this archetypal savannah scene: people and their livestock living alongside wildlife. This idea of wilderness, a wild place without people, doesn't not exist.

Conventional conservation thinking—in Africa and around much of the world—tends to hold that livestock ruin the land through overgrazing and are bad for the planet. Cattle release greenhouse gases and large swathes of the Amazon forest have been cleared for ranching. There have been harrowing stories of livestock invading national parks and herders spearing lions and elephants. But in East Africa's rangelands, wildlife is found in areas that have been created by pastoralists and managed principally for livestock. Maintaining livestock and finding solutions to the challenges faced by livestock herders can also help us to conserve wildlife. Here's how.

Going beyond protected areas

Partitioning off vast protected areas from people and their livestock has been the mainstay of conservation practice for over a century. Protected areas now cover at least 15 percent of Earth's land surface. And at the recent World Conservation Congress in September 2021, members of the International Union for the Conservation of Nature approved a motion to protect at least 30 percent of land and ocean by 2030.

However, many conservation researchers and practitioners believe that continually expanding protection by creating spaces that are devoid of people is impractical and misguided. Instead, habitat conservation should value rural people, and include them, their land and livelihoods within conservation projects that span entire landscapes. Indeed, despite increases in the area designated as protected in countries like Kenya and Tanzania, wildlife populations are still declining, and much of the remaining wildlife and biodiversity are found outside of protected areas.

In this vein, research from a number of rangeland scholars shows that sustainable livestock rearing can help conserve the world's remaining rangelands, which make up an incredible 40 percent of the world's land area. Rangelands are defined by low and erratic rainfall, yet they host large herds of migratory animals, like bison and wildebeest. But in places like the North American prairie and the savannas of East Africa, most animals are domestic livestock, who also extensively graze these areas. These livestock are cultural and economic centrepieces of these landscapes and must be at the heart of any conservation solution.

In East Africa today, conservation is largely focused on finding ways to ensure that extensive rangelands, including savannah ecosystems, remain intact and deliver value for people, their livestock, and wildlife, who move widely across the boundaries of different protected and unprotected areas.

Threats to livestock are threats to wildlife

Understanding the ecology of rangelands in East Africa is crucial if we wish to protect the wildlife living there and foster more effective and resilient conservation strategies.

Patterns of rainfall in East Africa's rangelands are inherently erratic, with wide oscillations around annual means, and a relatively predictable long dry season running from June to October. When rain does fall on the rangelands, several species of large mammals generally migrate hundreds of kilometres for the flush of vegetation that follows. During droughts, these animals search out the last patches of vegetation and remaining trickles or puddles of water. In the Mara-Serengeti ecosystem this leads to the world-famous migration of over 1.5 million wildebeest and zebra each year, covering nearly 1000 km in their annual round-trip migration, chasing rainfall and pulses of vegetation.

Likewise, resilient livestock management requires large-scale mobility for the ecological and economic benefits it brings. Herders and livestock move to access resources, while also resting other pastures, allowing vegetation to recover, and acting as reserves during long periods of droughts.

But space for wildlife is now rapidly shrinking across rangelands. From East Africa, to Tibet and Mongolia, urban areas are growing, land is being subdivided into individually-owned units, agriculture is being mechanised, and fences are springing up to demarcate ownership. If other land uses are perceived to be more profitable, financial and political pressures lead to the transformation of previously wildlife-friendly pastoral landscapes. Therefore, areas with the highest potential land value are likely to experience land transformation, if the opportunity cost cannot be met. For instance, recent research from southern Kenya demonstrates that land prices are increasing astronomically as urbanisation continues and speculators buy up parcels of land. This has led to large-scale fencing of landscapes, with around 40,000 km of fencing in southern Kenya—enough to encircle the earth—further limiting the migration of wildlife between the remaining patches of intact habitat.

Importantly, these threats to wildlife populations are the very same threats that are experienced by herders and their livestock. As the space for these herders and their livestock shrinks, the health and number of livestock decrease, the rangelands degrade, and people's livelihoods suffer.

As a result of these twin challenges, conservation efforts in East Africa's rangelands today are increasingly focused on addressing the problems of subdivision, fragmentation, and range degradation, by generating incentives for pastoralist communities to maintain healthy, connected, communal rangelands.

Opportunities for wildlife conservation by overcoming threats to livestock

Before colonial changes in livestock policy, the Maasai in southern Kenya managed their livestock over vast areas using principles they call "*eramatere*". The rules on where to graze, and for how long, were enforced through close social ties that tightly linked people and their extended families together. It's much harder to break the rules when it jeopardises the well-being of a close friend or family member. This compelled individuals to make decisions that benefited the whole community.

But cultures are changing, and so too are these principles. It is now vital to understand how we can support or rekindle indigenous management practices as a way to sustain landscapes that support both wildlife and livestock. For instance, in Kenya's South Rift Valley, communities are working with the South Rift Association of Land Owners (SORALO) to overcome these challenges by adapting and improving traditional governance systems, and reinforcing social ties all across multiple scales. This improves the ability to manage livestock at a landscape-scale and, consequently, preserves rangeland health. In doing so, the communities are indirectly preserving the resources and mobility that wildlife too needs to survive.

To achieve this, SORALO works with local governance bodies to map, plan, and monitor the foraging of livestock. Spatial planning helps communities to plan the future use of their land and balance the trade-offs with competing interests of agriculture and urban development. SORALO also supports traditional governance institutions to adapt to the modern legal systems and gives them the rights to support their management choices. They support networking and planning with neighbouring groups of herders and their governing bodies. At a time when there is increasing pressure to stay in one place, these efforts help to ensure that the crucial mobility to follow rain and resources can continue.

In doing so, decisions made about livestock grazing benefit the entire community, not just certain individuals. Grazing can happen at a scale that is large enough to access erratic vegetation and water, and to rest those patches of grass which have been overgrazed or that need to be preserved for prolonged drought. This means that people have healthier livestock, which are less likely to die during droughts.

Indeed, research from southern Kenya's rangelands shows that a combination of effective traditional livestock management, which includes mobility and access to wet and dry season grazing areas, can help to maintain resilience and ensure that a diverse and abundant wildlife community can coexist with people and livestock in these landscapes.

Healthy rangelands with livestock and wildlife also allow for the possibility of supplementary and diversified revenue. This includes equitable eco-tourism partnerships, payment for ecosystem services—like the Chyulu Hills Conservation Trust's carbon credit project, which pays local landowners to manage and restore their rangelands—and sale of rangeland products, such as plants, honey, and other food. All of these can increase the economic value of livestock-wildlife landscapes, and thus help to reduce the threat of land degradation, fragmentation, and conversion to urban development, crop agriculture or land speculation. And by generating sufficient economic returns, people may not feel that they need alternative income streams to support their families. In all this, livestock—the most valuable product in rangelands—are key, and conservation efforts need to be founded on improving rangeland management and productivity, which will in turn benefit wildlife.

Building conservation from a community world view

By focussing on the potential of livestock, communities can preserve rangeland health, prevent rangeland fragmentation, and build pride in their landscapes, an approach we have termed "inside-out" conservation. In other words, by improving the cultural, economic and ecological sustainability of livestock production systems in rangelands—including both traditional and commercial production systems—wildlife can also benefit. Best of all, this approach doesn't require large sums of money to incentivise landowners to change their livelihoods or lifestyles, and it doesn't require governments or conservation NGOs to impose top-down rules and regulations on herders that can lead to conflict. By drawing on lessons from the past and from current systems that function well, such an approach reminds us of the possibility of coexistence across landscapes.

Although these approaches are critical to the future of East Africa's rangelands, they still face challenges. Livestock and their products are the most important revenue generator in rangelands. We need to find more ways to generate greater economic returns from them. We need to do more to ensure that benefits from ecotourism or payments for ecosystem services are equitably distributed and reach the people who are doing the most to conserve their living resources. And beyond economics, we need to ensure that the rights, knowledge, and experiences of people living and managing these rangelands are recognised as vital in any conservation activities. We need to do more to maintain or restore the cultural pride of healthy landscapes, livestock, and wildlife. Without the "place" for wildlife in people's lives, the "space" created for them may not matter.

Further reading:

Russell, S., P. Tyrrell and D. Western. 2018. Seasonal interactions of pastoralists and wildlife in relation to pasture in an African savanna ecosystem. *Journal of Arid Environments* 154: 70–81. https://doi.org/10.1016/j.jaridenv.2018.03.007

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Dr. Peter Tyrrell *has recently finished his PhD at the University of Oxford focusing on the interplay between livestock, wildlife and conservation in the South Rift, Kenya.*

Dr. Peadar Brehony's *interests lie in understanding the impact of conservation efforts on social–ecological systems, resilience, pastoralism and conservation in working landscapes.*

John Kamanga *is a Maasai community leader and the director of the South Rift Association of Landowners in southern Kenya.*

Anarya *is a freelance illustrator and art educator based in Delhi. She works as Programmes Manager for Artreach India.*

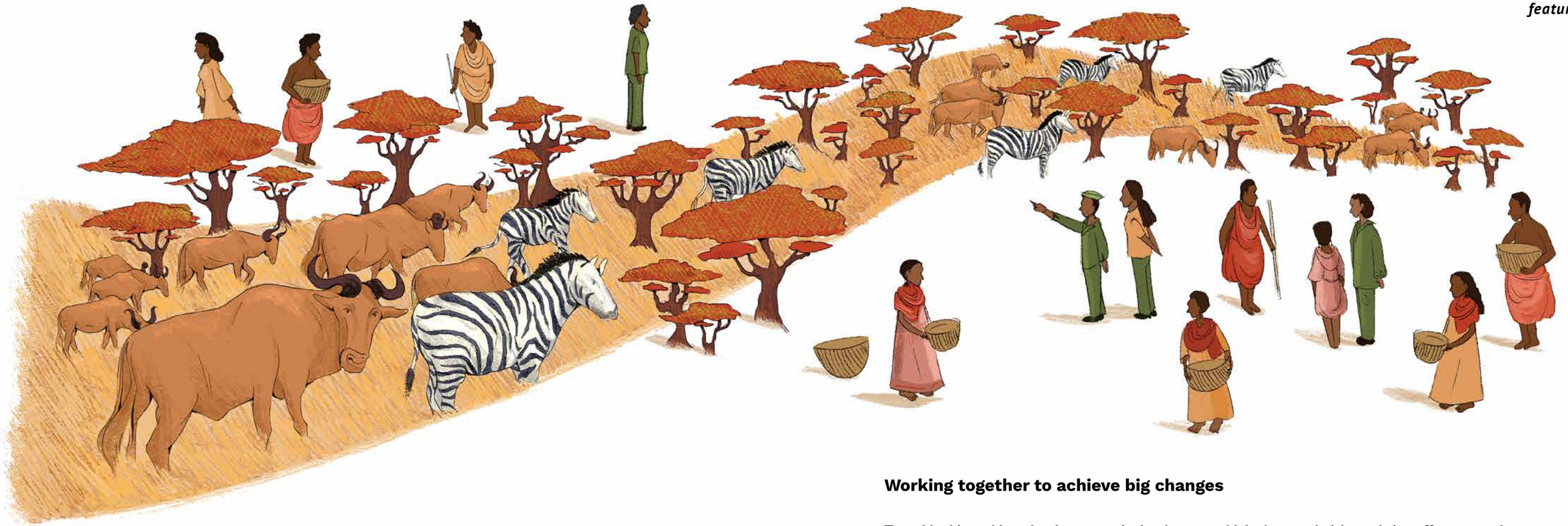
Working towards a common purpose in northern Tanzania

Author **Alphonce Mallya** | *Illustrator* **Divya Ribeiro**

Not long ago, I was walking in a place that I have visited many times before in northern Tanzania—the Randilen Wildlife Management Area. This is a community-owned and run conservation area that forms a key refuge for wildlife during seasonal movements between Tarangire National Park and Lake Manyara National Park, two of Tanzania's most famous protected areas. It is used by elephants, zebras, wildebeests, giraffes, lions, and several other animals that move across the park boundaries onto surrounding lands.

But that day in Randilen was my first time spotting six lions all together in that area. I had never observed lions there before, but now suddenly I was seeing six in a single place, and on foot no less. It was a thrilling encounter and a marker of real conservation progress on the ground. Randilen is just one example of wildlife population recovery thanks to local action and leadership, supported by collaborations at the landscape scale. Moreover, the return of wildlife is happening alongside improvements in well-being and economic security for the local communities.

For the Northern Tanzania Rangelands Initiative (NTRI), a collaboration of different organisations working across the landscape, this is what successful conservation is all about. NTRI works to support local leadership and forge stronger links between different organizations around a shared, common vision for the landscape. In Randilen, community management efforts are being supported by two NGOs—The Nature Conservancy and Honeyguide, an innovative Tanzanian organization that specializes in improving local management and business planning so people can benefit from their wildlife and resources.



A threatened landscape

The northern Tanzania rangelands are witness to some of the world's largest mammal migrations, including thousands of zebra, wildebeest, and other species that migrate between famous protected areas like the Ngorongoro Crater, Tarangire National Park or the Mt Kilimanjaro National Park. The rangelands are also home to the Maasai pastoral communities that have resided here for countless generations. Their lifestyle and norms guided them to use natural resources sustainably, meaning that there was a healthy balance between levels of resource consumption and regeneration.

Now with development pressures increasing across the landscape, including the construction of new roads and power lines, major towns like Arusha have spread into surrounding rangelands. Consequently, these areas have started to witness an influx of people and increasing competition for natural resources. This has created many conflicting resource interests: more people need land for farming and settlement, others need pasture to graze livestock, and occupying the same space is the wildlife that supports a billion-dollar tourism industry in northern Tanzania. As resources decreased, we began to see an increase in conflict.

Working together to achieve big changes

To tackle this problem, local conservationists began to think about optimising existing efforts to work with communities, with the help of additional resources, increased coordination, and collaboration. For example, local organizations like Honeyguide, the Ujamaa Community Resource Team (winner of the Goldman Environmental Prize in 2016), and Tanzania People & Wildlife were already working to develop new approaches for promoting coexistence between people and wildlife. Meanwhile, international conservation groups like Wildlife Conservation Society (WCS) and The Nature Conservancy (TNC) were supporting these efforts as well as working with the government.

Given the range and scale of conservation challenges, it became evident that an individual or an organisation could not hope to address them alone. We began to view the landscape as one large system, with wildlife moving from one national park to another through communal lands and farmed areas and settlements. Thus, we realized the need to operate collectively at the landscape level, while acknowledging that most organisations at the time were operating independently in silos.

Those insights led to the formation of the NTRI in 2011. It is a consortium of ten organisations: Oikos, Tanzania People & Wildlife, Carbon Tanzania, Honeyguide, WCS, Dorobo Fund, Ujamaa Community Resource Team (UCRT), Pathfinder International, Maliasili, and TNC. We are united around a common goal and vision, with different backgrounds, skill sets, and resource access, coming together with a common strategic approach to work with indigenous peoples and local communities in the rangelands to tackle these challenges.

NTRI partners pursue several key strategies to address conservation challenges in the landscape. A key one is to help the communities with land use planning as well as securing ownership of their land and rights to its resources, in order to protect both the land and people's rights, and keep the landscape connected to allow livestock and wildlife to continue moving freely across it.

Second, we support and strengthen management and governance strategies that address the drivers of habitat degradation and fragmentation. Third, we work to add economic value to livestock and wildlife enterprises to incentivise sustainable land use and promote equitable sharing of benefits.

Working as a consortium brings many advantages. For example, in addition to the conservation organisations, one of the partners, Pathfinder International, brings expertise in addressing health and environmental conservation in an integrated way, further enhancing the group's ability to bring in expertise, experience and resources from different angles.

Working as a consortium has also allowed us to support innovative approaches to benefit both people and nature in the landscape. Makame, another community-owned and managed Wildlife Management Area (WMA), has weathered the total loss of tourism earnings caused by COVID-19 because it has a new and growing revenue stream selling carbon offsets.

Multiple efforts from multiple angles are needed for a project like that to succeed: law enforcement to protect the community's assets, in this case the vegetation storing the carbon; community buy-in to conserve a portion of land and avoid deforestation in that area; strong governance and management; revenue to carry out all the necessary carbon assessments, and a partner who would enable the communities to access carbon financing. Collaboration between NTRI partners such as Carbon Tanzania, UCRT, TNC, and Honeyguide has been key to this pioneering initiative that is now helping restore and protect over 350,000 hectares of rugged woodland and savannah.

The combined impact of all our partner organisations working together is greater than the sum of its parts. Through the NTRI partnership, over 900,000 hectares are now under improved natural resource management, with a little over 15 percent of degraded rangelands already in a better condition, and the functionality of two crucial wildlife corridors maintained, giving wildlife access to 440,000 hectares of connected habitat. By sustainably managing rangeland resources, two WMAs and 48 villages have improved their ability to adapt to challenges resulting from climate change.

Approximately 47,000 people have benefitted from various conservation activities, including beekeeping, leather crafts, village game scouts, crop protection, rangeland monitoring and management, holistic grazing management, and early work for invasive species control and management. We have helped establish 80 COCOBAs (community savings banks) in 21 program villages with 2,221 members who have a total benefit share collection to date of more than $500,000.

Lessons learned

The NTRI partners have learned many lessons so far about how to develop and sustain collaborations amongst different types of organizations in a complex, dynamic, and changing landscape.

First, for effective cooperation between multiple stakeholders at different levels, there must be an acceptance of collaboration as a way forward, guided by effective and concrete ways of engaging them. There must be tangible benefits to the collaboration for all the parties involved.

Second, developing a common vision that everyone buys into is key for working towards shared objectives.

Third, partnerships succeed when, in addition to shared goals, plans, data, and other information, partners deliberately align or adjust their actions to achieve mutually agreed on objectives.

Finally, it is important to recognise that organisations work at different paces as well as value individual contributions, regardless of the magnitude. Every partner has a role to play as a piece in the puzzle, and diverse pieces are needed to solve the challenges of landscape-scale conservation in East Africa today.

Alphonce Mallya *is an MBA alumnus from ESAMI and a program Director for The Nature Conservancy in northern Tanzania*

Divya Ribeiro *is an illustrator and designer from Goa. She is currently a student at the Srishti Institute of Art, Design and Technology pursuing Visual Communication.*

Putting local communities at the centre of African conservation:

A tribute to Professor Marshall Murphree

Author **Fred Nelson** | *Illustrator* **Pari Satarkar**

As this special thematic issue of Current Conservation was being finalized in late October, we received news of the passing of Professor Marshall Murphree at the age of 90 in his home country of Zimbabwe.

During the past year, one of the foremost themes in conservation has been the marked surge in support for what are now termed 'IPLC' (Indigenous Peoples and Local Communities) conservation efforts. In the African context, no individual had a greater influence on the thinking around community management and governance of natural resources, and the implications for conservation policy and practice, than Marshall Muphree.

Murphree became a key figure, with ultimately a global influence on conservation, starting in the 1980s when Zimbabwe was pioneering new ideas and field-level management experiments in wildlife management. From his academic home at the University of Zimbabwe's Center for Applied Social Sciences (CASS), which he led starting in 1970, he provided much of the key design thinking behind Zimbabwe's CAMPFIRE (Communal Areas Management Programme for Indignenous Resources). CAMPFIRE's aim, drawing on earlier experiments with devolving ownership of wildlife on private ranches in Zimbabwe, was to create a new paradigm of community-driven conservation, based on community-level ownership of wildlife and the resource's economic value.

These new ideas and management experiments in Zimbabwe would ripple throughout Africa and indeed the world during the 1990s, largely because Murphree was able to connect academic theory, particularly in the new field of common property scholarship (then also being pioneered on a wider global scale by future Nobel Laureate, Elinor Ostrom), with practical management realities in African rural communities. His work provided rigour to the emerging 'new paradigm' of community-based conservation, as well as fueling a growing community of scholars and practitioners from across southern Africa, many of whom studied at CASS and collaborated with Murphree on a profusion of papers and research projects during that time. By connecting southern Africa with parallel ideas and initiatives taking place elsewhere, through new networks such as the International Association for the Study of Common Property (IASC) and the IUCN Sustainable Use Specialist Group, which Murphree helped found, these efforts had a huge role in changing global conservation in ways that are only today seemingly coming to fruition.

Murphree's work was both highly collaborative and politically charged. At the heart of his work was recognition that community-based conservation was not primarily about wildlife, but concerned with the political dimensions of shifting power to marginalized rural communities.

He said what few other conservationists were able or willing to state: that community-based conservation ultimately was tied to "a potential agrarian revolution" and " a largely unrecognised struggle over property rights in rural Africa." To put it more plainly, it could be said that 'power to the people' was the underlying theme of all of Murphree's work and conservation agenda.

Murphree fully recognized that the community conservation experiments of the 90s had only just started to make headway in this larger, critical political project. He used the memorable phrase 'aborted devolution' to describe the limitations that government figures tended to place on reform efforts, often undermining the key tenets of community conservation.

Are conservation efforts in Africa and around the world now finally starting to overcome those vested interests and put more meaningful rights in the hands of the local communities and Indigenous Peoples who live on the land? Time will tell, but Murphree's ideas and vision will continue to provide a core foundation for the efforts of activists and scholar-practitioners for years to come.

Further Reading

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Fred Nelson *is CEO of Maliasili, which works to support leading local conservation and natural resource organizations, primarily in Africa and Madagascar, to help them grow their work and impact.*

Pari Satarkar *is an animator and illustrator who weaves narratives through visuals. She enjoys storytelling, sketching the world around her, and going on adventures with her dogs.*

Promoting local leadership and networking in African primatology

Author **Inza Koné, Gladys Kalema-Zikusoka & Russell A. Mittermeier**
Illustrator **Swati Addanki**

The African region (including Madagascar) has the highest concentration of nonhuman primate diversity on Earth. In all, the continent is home to 42 percent of the world's 713 primate species and subspecies and more than half of all primate genera. Five of the top 12 countries on Earth for primate diversity are African—Madagascar, Democratic Republic of Congo, Tanzania, Cameroon, and Nigeria. Madagascar alone is second on the world list and has the highest number of endemic primate taxa of any country on Earth. Also of considerable interest is the fact that we continue to discover new species and subspecies of primates. 97 species and subspecies were described for the first time in the past two decades, and more than half of them are from Africa—50 lemurs from Madagascar, and three prosimians (two galagos and a potto) and four monkeys, including a new genus, *Rungwecebus* (the Kipunji), from mainland Africa.

African primates play an important role in our research on numerous aspects of human biology and the cognitive sciences, as well as in understanding the threats of emerging diseases. Arguably more fundamental and critical is their role in sustaining the healthy ecosystems vital for human livelihoods and in their presence in the cultures and folklore of many African societies. Sadly, as is the case in all other parts of the tropical world, the primates of Africa, and Madagascar in particular, are severely threatened. The latest IUCN Species Survival Commission Red List assessments carried out between 2012 and 2016, showed that 63 percent of all primates worldwide are threatened—the highest degree of threat for any of the larger groups of mammals—and with many of the Critically Endangered species literally on the verge of extinction.

There are several reasons for this decline in primate populations. Foremost is habitat destruction and fragmentation, mostly as a result of logging, large-scale mining, and agroindustry (notably oil palm and soy plantations), but with many other factors at play as well. In West and Central Africa, for example, bushmeat hunting is a major cause of primate declines, and the same is true for Madagascar. Primates are also killed for medicinal purposes, for the ornamental use of various body parts (for example, black-and-white colobus, geladas), and as crop pests (for example, baboons, vervets). Outbreaks of major diseases in Africa can also be of serious concern, both for nonhuman primates and humans, with recent Ebola outbreaks having killed large numbers of gorillas and chimps in certain countries (such as Congo-Brazzaville).

In recognition of the importance of primates in Africa and to further stimulate the development of concerted domestic efforts to curb the threats to their continued survival, a number of African primatologists worked to advance the establishment of a primate-focused group—the African Primatological Society (APS). This group would provide a platform for sharing data, information, tools, and technical assistance to support Africa's preparedness and domestic efforts in primate research and conservation, as well as to encourage greater participation and leadership of African primatologists. This initiative began as a genuine attempt to increase the robustness of African involvement in international primatological meetings and in decision-making bodies; enriching their capacity to engage and influence stakeholders and policies within their home country; and improving the quality of their scientific inputs and roles in major dialogues or activities relating to African primates.

The APS was formally established during an inaugural Congress in Abidjan, Côte d'Ivoire in July 2017. The congress brought together about 150 experts, including aspiring primatologists, researchers, conservation practitioners, tourism stakeholders, and policy makers from 22 African countries, along with a few dozen people from other countries across the globe.

Two years later, the second congress of the APS was held in Entebbe, Uganda in September 2019. The event was a resounding success, bringing together over 300 primate experts to discuss the theme 'Challenges and Opportunities in Primate Conservation in Africa', and to find ways to promote active participation of native African primatologists in the international primatological arena. With 250 out of 312 delegates hailing from 24 different African countries, the APS more than achieved its goal of providing an accessible platform for African primatologists to collaborate, network, and discuss pressing challenges and issues, opportunities, and potential solutions towards protecting Africa's primates and their habitats.

The two congresses benefitted from the avid support of various stakeholders in academia, non-governmental organizations, civil society groups, national and local governments, funding agencies, public and industry scientists, local, national and international media, and delegates from all regions of Africa (North, West, Central, East, Southern Africa, and Madagascar).

The added value to the congresses was the deliberate inclusive approach, which involved students from African institutions working on primates for their dissertations. This bottom-up or 'catch-them-young' initiative will help us also focus on prospective primatologists across age and gender. It was also gratifying to see how we were able to mobilize the international community and governments to play their role to advance and support the goals and objectives of African primatology at large.

One main recommendation that was emphasized during the congress was for members to not only have a greater level of commitment to the new society, but also to promote public dialogue and effective policy advocacy within their own sphere of influence. Genuine inclusivity was also highlighted as a way to boost the participation of all primatological expertise and interests on the continent.

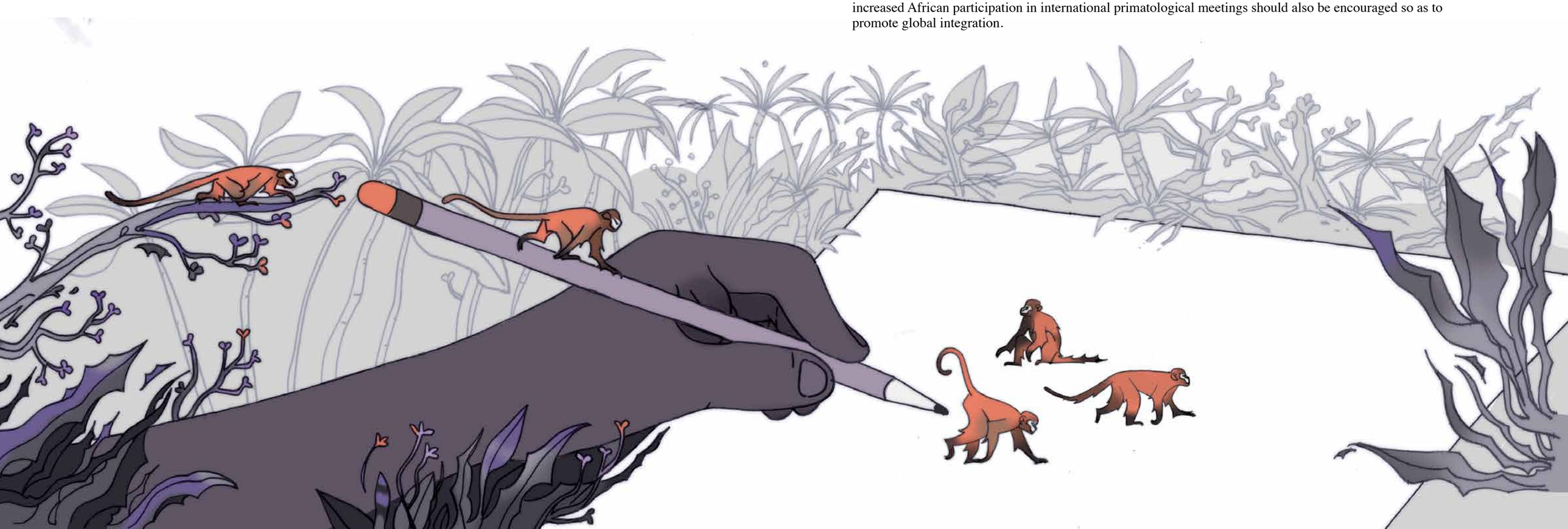
The congresses have underscored the following action points and agenda to inform the work needed to be done for the effective conservation of African primates and for the development of African primatologists in the wake of the establishment of the African Primatological Society:

Africa-based training programs needed

In general, African countries are faced with major challenges concerning the lack of adequate resources, equipment, dynamic institutions, and governance. A well-designed training program and infrastructure will play an important role in enabling many African primatologists to learn from best practices of peers, and to obtain continuous input on their performance. The turnout of African participants at the congresses has shown that the region has a high proportion of people conducting research on or working for the conservation of African primates. However, to promote growth, enhance the quality of their work, and increase the level of their involvement in primatological communities, there must be some structural training and environment that will empower them. To achieve this, leadership-based training that is grounded in a robust scientific curriculum is required to build and equip both experienced and upcoming primatologists.

Strengthen regional and global integration of african primatologists

Regional and global integration is needed to overcome the limitations of Africa's small but growing mass of primatologists, and also to give the continent a stronger voice in the conservation and management of its primates. Until the birth of the APS, many African primatologists and primatological groups, such as the *Groupe d'Etude et de Recherche sur les Primates de Madagascar* (GERP) and the Primate Ecology and Genetic Group (PEGG), South Africa, have been working in isolation from the rest of the larger community of Africans and non-Africans working on primates. The African Primatological Consortium (APC) headquartered in Uganda is an excellent example of regional integration to create a forum for a collaborative research community for primatologists in Africa. The impact of these fragmented communities or individual primatologists on the conservation and management of primates has, however, been limited in addressing many of the conservation development issues on the continent. Active and increased African participation in international primatological meetings should also be encouraged so as to promote global integration.



Develop a red colobus action plan

Certain groups of African primates besides the great apes—man's closest living relatives—are of particular concern. Of these the red colobus monkeys of the genus *Piliocolobus* are a prime example. 18 species and one subspecies are currently recognized and all are threatened, with seven being in the Critically Endangered category. Workshops were organized during the two congresses to develop an action plan for the conservation of these remarkable animals, which involved a large network of red colobus researchers and conservationists. The action plan was launched at the 2018 Congress of the International Primatological Society in Nairobi, Kenya. It focuses on site-specific activities, but also uses common themes to leverage efficiencies of scale.

Develop and/or revise other action plans

Other primate groups, such as the lemurs of Madagascar, are in urgent need of attention. A lemur action plan for 2013–2016 was successfully funded, but there is much that still needs to be done. A Red-Listing Workshop for Lemurs was held in Madagascar in November 2017, with the objective of updating our knowledge of these species and revising the action plan. Action plans for other taxa and regions are also needed, and a major initiative is underway for the 16 mangabeys and mandrills, 13 of which are currently threatened.

Finally, it is vital that African primatologists engage in a multi-sectoral approach to promote conservation efforts that include governments, local communities, the private sector and NGOs.

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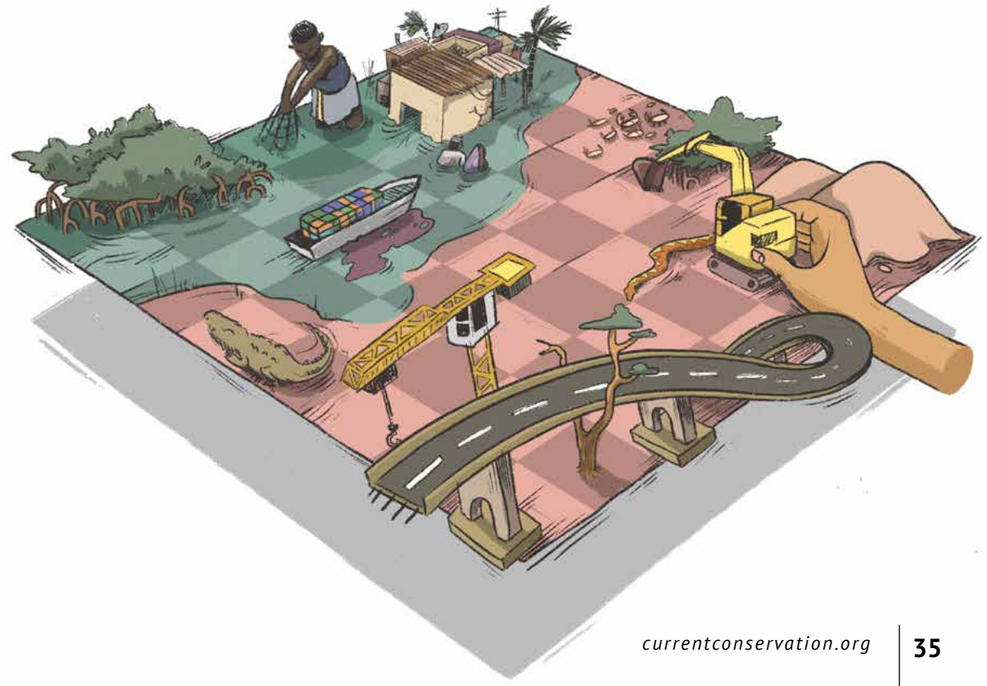
Adapting the what, where, when, why and who of nature conservation to be more effective in a changing climate

Author **Molly S. Cross & Lauren E. Oakes** | *Illustrator* **Karunya Baskar**

The realities of climate change are forcing conservation practitioners around the globe to take a closer look at how they design nature conservation strategies and actions. Business-as-usual approaches are at risk of failing over time. For example, rising seas can drown out coastal conservation easements and refuges intended to protect salt marsh ecosystems and species. Ignoring these climate-related risks could lead to wasted conservation investments at a time when awareness of humanity's dependence on healthy ecosystems—to support people's livelihoods and well-being, stabilize the climate system, and protect against pandemics—is ever increasing.

As conservation practitioners and funders begin to accept this new reality, they are faced with the challenges of how to make their investments "climate-smart". In our new paper, Rapid assessment to facilitate climate-informed conservation and nature-based solutions, we present an accessible framework for addressing the question of what, if anything, do we need to do differently about conservation work to be effective in a changing climate? Our framework prompts users to consider the common refrain of "What, When, Where, Why and Who"—or the "5Ws"—to determine if strategic adjustments in these dimensions of a conservation project will increase the likelihood of desirable outcomes as the climate changes.

"What" refers to the need to consider modifying current actions or taking new actions to ensure their long-term effectiveness, for example by re-designing culverts and road crossings to allow for fish passage during larger flood events that are expected to become more frequent. A project might adjust the "Where" by selecting implementation sites that are projected to remain suitable for a target species or support specific ecosystem services into the future. The "Who" of a project can relate to how climate change might alter with whom the work needs to be conducted, who is likely to benefit, and who might bear potential unintended harm or tradeoffs.



The 5Ws rapid assessment emerged from a decade of climate-informed conservation grantmaking through the Wildlife Conservation Society's Climate Adaptation Fund. Since 2011, the Climate Adaptation Fund has invested over $21 million in over 110 conservation projects across the United States that have designed their goals and actions to address climate risks. This portfolio offers numerous examples of conservationists shifting the paradigm of conservation practice. Over time, a clear framework for making climate-informed modifications emerged as altering the What, When, Where, Why, and Who of their work.

As climate change accelerates, the need for proactive, climate-informed conservation action in ecosystems across the planet is imperative. By translating lessons from these funded projects into a rapid assessment tool, we aim to provide a practical entry point to help newcomers to climate adaptation get started on the path to safeguarding conservation investments from a changing climate.

Original paper

Oakes, L. E., M. S. Cross and E. S. Zavaleta. 2021. Rapid assessment to facilitate climate-informed conservation and nature-based solutions. *Conservation Science and Practice* 3 (8): e472. https://doi.org/10.1111/csp2.472

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Author **Kartel Shockington** | *Illustrator* **Amit Kaikini**

We are not the Lorax. But we speak for the trees anyway.

There have been a number of disturbing papers published recently about re-afforestation. These have suggested that we need to be careful about where we plant trees, that we might even not want to plant trees in some places, and that there are rules for wise tree planting.

We would like here to restore the balance of affairs and put trees in their proper place, which, lets face it, is just about anywhere on the planet. The Earth may be molten in the middle, but Gaia is wooden at her core. Trees are the highest life form. The fact that evolution did not stop there was the result of truly selfish actions by some renegade genes which are now profoundly sorry for their misbehaviour. There is only one rule for tree-planting: if it's a tree, then plant it.

To avoid confusion, we'd like to define what we mean by 'tree'. (And you know how bad a debate is when you have to write such a sentence). A tree, to be clear, is a tall plant with a trunk and branches, and generally woody. Amongst other things, it is not a human. It does not cut itself down. A tree is a thing which a human isn't. And, ergo, if you can see a tree occupying a space then a person is not in that same space. They are mutually exclusive (despite what we may have said in a previous column).

It follows from this (we are almost somewhat certain) that places with lots of trees should not have people. 'Forest-dwelling people' is, therefore, an oxymoron, and has as little chance of succeeding as a proton and an antiproton sharing a motel room. All this talk about talking to people about where forests should grow just proliferates a myth that is nothing like true forest at all.

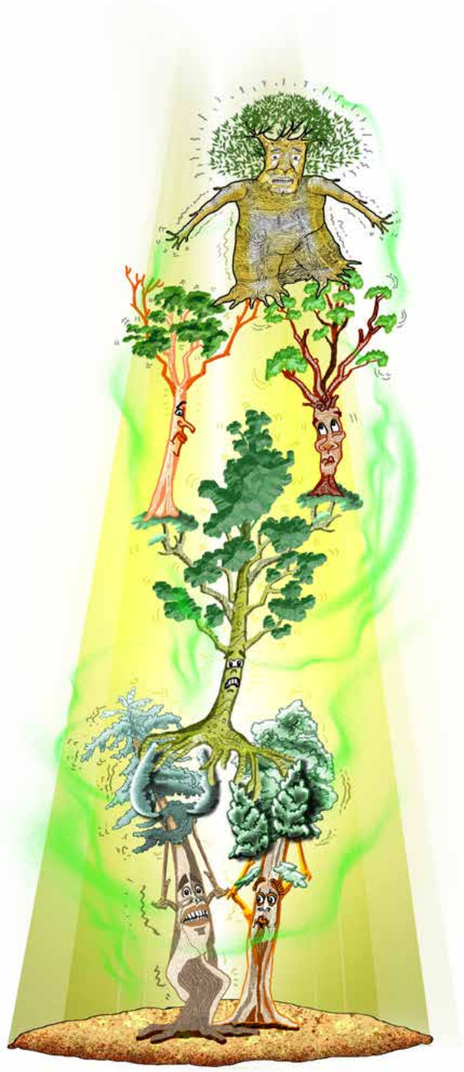
To avoid confusion, we would like to direct readers to recent welcome attempts published in the highest quality journals, including the Great One whose 'I's we are not worthy to dot, which have begun to hint at the true miracles that might be possible were we seriously to get serious about tree planting. Indeed, the only thing wrong with these authors' plans is that they do not go far enough. They omit a host of places where trees could, and should, be planted in order more effectively to sequester carbon. These are:

Trees in lakes, and trees in seas: If you look at any map of the world then the obvious constraint to a world covered in forests is that far too much of it is covered in water. And the obvious, and if we may say so, ingenious, response to this is to plant trees which are more water and salt tolerant. It won't be too difficult, we just need taller mangrove trees. We have recently patented the idea of crossing a mangrove with a redwood and expect to be planting forests right up to the edge of the continental shelf.

Antarctic trees: Antarctica is a huge wasted tree-planting opportunity. It's a massive continent which has shown a rather lazy preference to grow ice, when it should be growing trees. Fortunately, current global warming trends mean that we should be able to get a healthy plantation of Scots pine growing their fairly soon. A bit of gene splicing with polar bears or penguins (Ed—which is the one that lives down there?) should make them more tolerant.

Trees in space: We have been lax about terraforming nearby planets to house us in due course and trees are obviously the best way of doing this. And think how much carbon the moon could absorb once we worked out how to get it there.

Trees on trees: The prevailing philosophy seems to be that once you've planted a tree and it is growing, then your job is done. But what about all that extra space created by trees when they grow? Again, with appropriate gene editing other trees could be encouraged to plant themselves on each other and grow sideways of their fellows. We'd just need to make sure they were evenly positioned for balance. Currently trees themselves are being rather selfish about this. They tend to dominate space, and compete for light, rather than sharing it. But with a bit of group therapy for the aggressive species, and new thermal powered, LED UV ground-lighting, forests could be lit from anywhere, and tree space extend some 2–3 kilometres into the sky.



Trees in motion: One of the main problems with trees is that they simply refuse to move. An evolutionary glitch in an otherwise excellent conception. Once again, through appropriate gene therapy, we believe that trees that can shuffle around the neighbourhood, and occupy football fields and vacant lots when they are not being used. Why, some could learn to fly, flapping away with large leaves—imagine a flock of trees soaring above, munching away at all that Carbon in our atmosphere.

Conservation is sometimes accused of inventing the landscapes and places it wants to exist. Conservationists conserve their idea of what things should look like, rather than the living, evolving landscapes that exist.

And what a load of cobblers that base and foolish accusation is! As should be plainly apparent in our wise words above, conservation is about restoring things that were lost back to their proper state. We could not be more confident that when trees once more rule the planet—as in the great golden Carboniferous age, before the Mesozoic came along and ruined everything—then we will have restored the greatest forest ever to have ruled.

Kartel Shockington *is a failed comic book creation with special powers of rapid hair loss. He sometimes appears as Kartik Shanker, and at other times as Dan Brockington.*

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