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Message from the Editor in Chief

Dear readers,

The previous issue of the African Conservation Telegraph (ACT) was published in 2023, two years ago. Over the past two years, the Society for Conservation Biology in Africa has implemented numerous exciting activities. For instance, in July 2023, Africa hosted the International Congress of Conservation Biology (ICCB) in Kigali, Rwanda, which drew over 1500 participants. The feedback from many attendees indicated it was one of the most well-organised ICCBs in recent times. As Africans, we are proud of this achievement and many others. This, along with the conservation work we are undertaking on the continent, highlights Africa's strategic position in the conservation value chain, where Africans were previously excluded. The role of ACT in this journey is to amplify and promote the voices of young African conservationists.

As we roll out volume 19 of 1, here at ACT, we have the utmost pleasure of congratulating Badru Mugerwa Mwezi, the former president of the Society of Conservation Biology (SCB) African region, who has been elected as the current president of the International Society of Conservation Biology. We are grateful for his loyal service to Africa, and we are confident that in his new position, he will continue advancing African conservation at the global level. In the same spirit, we congratulate and welcome the new president of the SBC, Africa region, Dr Adedotun Onoyinka Afolayan.

The nineteenth volume of the ACT is a treasure trove of diverse and collaborative conservation work across the African continent. It features scientific articles and inspiring stories from West Africa to East Africa and Madagascar. The content is rich and varied, from harnessing Traditional Ecological Knowledge in conservation, to an alliance of over 20 young Africans leading Community Based Conservation on the continent, to community livelihoods and conservation on the beautiful Island of Madagascar, to Elephant conservation and inspiring stories of growing grassroots conservation organisations and careers in Nigeria and Uganda. There is something for every reader, including our French audience, promising to educate, inspire, and foster collaboration. As the Chief Editor, I am humbled and grateful to be part of this impactful issue we are publishing after two years.

I am deeply grateful to the reviewers who generously shared their time and expertise to guide the authors through the publication process. Your invaluable contributions have significantly enhanced the quality of the content. To the authors, I extend my heartfelt thanks for your dedication and for sharing your work with the rest of the world.



A species range-wide community-led conservation strategy to mitigate human threats and their impact on the African golden cat

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Abstract

The African golden cat (*Caracal aurata*, hereafter “AGC”) is a wild field endemic to the tropical equatorial forests of Africa. Listed as Vulnerable by the IUCN, the AGC faces increasing threats from destructive human activities. The African Golden Cat Conservation Alliance (AGCCA), established in 2019, is a network of 46 conservationists implementing standardized, community-led conservation programs across the AGC’s range.

Currently active in 30 habitats across 19 of the 21 AGC range countries, AGCCA has mobilized 7,785 local families to address key drivers of habitat loss and bush meat hunting while improving livelihoods. To date, 11,000 native trees have been planted to restore degraded AGC habitat. The Livestock for Bush meat initiative has donated 1,247 livestock to smallholder farmers, providing alternative sources of income and protein while reducing reliance on bush meat. The Conservation Pesa program has established small loan and savings groups, benefiting 920 families through income diversification. The Smile for Conservation program has delivered free dental care, treatment, and education to 1,721 families in exchange for their support of AGC conservation efforts.

A standardized, long-term camera trap monitoring protocol has been developed to track AGC populations and evaluate the effectiveness of community interventions. Despite challenges— including limited funding, livestock diseases, civil unrest, and occasional non-compliance—the AGCCA’s approach demonstrates that community-led conservation is both effective and essential for achieving sustainable outcomes for wildlife and local communities.

Keywords: African golden cat, habitat loss, bush meat hunting, community-led conservation, livelihoods, camera trap monitoring



The African golden cat (*Caracal aurata* hereafter “AGC”) is Africa’s least-studied wild feline (Brodie, 2009). It is listed as Vulnerable by the IUCN (Bahaa-el-din et al., 2015; AGCCA, in review). The AGC primarily inhabits the tropical rainforests of equatorial Africa (Bahaa-el-din et al., 2015) (Plate 1). As a forest specialist that naturally occurs at low densities, the AGC populations are threatened by habitat loss, capture as bycatch in wire snares, unsustainable targeted hunting, and roadkill (Mugerwa et al., 2013; Bahaa-el-din et al., 2016; Hatfield et al., 2019; Mills et al., 2019; Simo et al., 2024). These anthropogenic pressures are likely driving local extirpations and population declines of the AGC in some parts of its range (AGCCA, in review), as it has been reported for its sympatric leopard (*Panthera pardus*).

The African Golden Cat Conservation Alliance (AGCCA) was established in 2019 to comprehensively address these threats to the species. This network of 46 conservationists has developed a long-term strategy to implement community-led conservation initiatives to mitigate human threats and reduce their impact on AGC populations across the species’ range. The AGCCA implements a standardized community-led, livelihood improvement, and species monitoring conservation program geared towards addressing key drivers of destructive human activities through a network of in situ conservation partners. Currently, AGCCA members run AGC-focused community conservation initiatives at 30 sites across 19 range countries (Plate 2). In exchange for project benefits, communities living adjacent to AGC forests pledge to (1) stop destructive human activities that threaten the long-term survival of the species, including habitat destruction, unsustainable hunting using indiscriminate methods, and human-wildlife conflict-related retaliatory persecution of the AGC, and (2) support AGC conservation by encouraging their neighbors to do the same, creating the additional social pressure to curb destructive human activities.

1) Hunters to Protectors (H2P): a community mobilization program for AGC conservation

Since 2010 we have engaged local communities in AGC conservation through our Hunters to Protectors (H2P) program. This community mobilization initiative leverages our relationships with, and experience in mobilizing, local communities to organize village meetings through focus group discussions. We engage with local communities on equal terms to introduce practices that, in the long run, bring about social and behavioral change (Israel et al., 1998). This approach is necessary when working with populations that experience marginalization — akin to those living at the frontline of AGC forests — because it supports the establishment of respectful relationships among all parties (Cargo & Mercer, 2008). To date, a total of 7,785 local families in 19 countries have been mobilized to actively engage in conservation activities with the AGCCA.



2) Livestock for Bush meat (L4B): a smallholder livestock husbandry program

This program helps local families establish smallholder livestock farms as a sustainable alternative to bush meat hunting, providing a source of family animal protein and income. Built on indigenous traditional livestock husbandry practices, the activity is structured as a "livestock seed bank." A female reproductive animal is the "seed" livestock provided, along with necessary training and a livestock farming manual, to a family ("the seed family"), which pledges to stop destructive human activity. When that animal has offspring, at least one female offspring is given to the nearest household (regardless of whether it partakes in destructive human activity or not) in exchange for voluntary community policing against human threats to AGC (and wildlife in general). Since 2010, the AGCCA has donated 1,247 animals to establish seed banks at all 30 AGC project sites.

3) Smile for Conservation (S4C): a free oral health care and treatment provision program

Through this program, mobile dental clinics visit local families living at the frontline of AGC forests, providing free oral health check-ups, pain-relieving procedures, and oral health education. The success of this project is thanks to the enthusiastic participation of experienced dentists who have volunteered their services. The outcome of this activity is improved health and well-being for all age classes, women and men, and increased awareness about the importance of AGC both nationally and internationally. Since 2021, we have provided free dental care and treatment, primarily extractions and hygiene education, to 1,721 local community members in two countries.

4) Conservation Pesa (CPesa): a small loan and credit initiative

The small loan and credit initiative is implemented through our Conservation Pesa (CPesa) program, akin to Savings and Credit Cooperatives (SACCOs). The CPesa program diversifies family income through soft loans for income-generating activities, while also promoting a savings culture, in exchange for ending destructive human practices. Currently, 27 CPesa groups are benefiting 920 local families in four countries.

5) Tree planting

As a forest-dependent species, AGCs are extirpated when tropical forest is cleared. Protecting and restoring habitat is therefore critical to AGC conservation. Community-led tree planting initiatives aim to alleviate the main pressures from local communities on AGC habitat: firewood collection and timber harvesting. Since 2021, over 11,000 native trees have been



planted in 1,129 households' backyards in two countries. These trees provide sustainable sources of timber, firewood, and building materials, offering a viable alternative to deforestation.

6) Monitoring AGC population status

In order to determine the status of key AGC populations, quantify the impact of key threats, and evaluate the impact of our community conservation initiatives, we have created a standardized protocol to establish permanent, systematic camera trap monitoring grids. This allows the AGCCA to monitor and compare AGC distribution patterns, local abundance, population trends, threat impacts, and the results of our community-led conservation interventions across the entire AGC range. Furthermore, it has significantly advanced our understanding of the species' distribution with new records in Angola, Côte d'Ivoire, Equatorial Guinea, Kenya, Tanzania, South Sudan, etc. Since 2013, we have conducted four camera trap surveys to confirm AGC presence in key forests and have acquired 200 additional camera traps that will be deployed across seven countries to confirm AGC range and calculate local population densities.

Challenges

Unlike most conservation initiatives that concentrate on a single site or community, the AGCCA has brought together conservationists and local partners across the species' entire range to implement coordinated, community-led conservation interventions and standardized species monitoring. This ambitious approach has the potential to generate actionable information at an unprecedented scale, while simultaneously strengthening local stewardship across multiple countries. However, implementing and sustaining conservation at this scale requires consistent, long-term funding that matches the ambition of the initiative. While current donor support has been essential to establishing this foundation, ensuring lasting impact will depend on securing broader, sustainable financing mechanisms that can sustain range-wide action.

Conclusion

The AGCCA has significantly advanced our understanding of the AGC, particularly the species' distribution and the human threats it faces. The community-led conservation initiatives spearheaded by the AGCCA give us hope that conservation outcomes can be achieved through active, inclusive, and fair community engagement. Supporting such initiatives not only safeguards vulnerable species, such as the AGC, but also enhances coexistence and strengthens the social fabric necessary for peaceful and prosperous communities, delivering



tangible benefits for both wildlife and local communities. Given its wide distribution across the tropical forest belt, persistence in areas where chimpanzees and leopards are no longer present, and strict dependence on intact forest, the AGC could serve as a flagship species for tropical forest conservation. Positioning AGC as a focal species has the potential to catalyze tropical forest conservation efforts that benefit a wide range of forest-dependent taxa.

Acknowledgement

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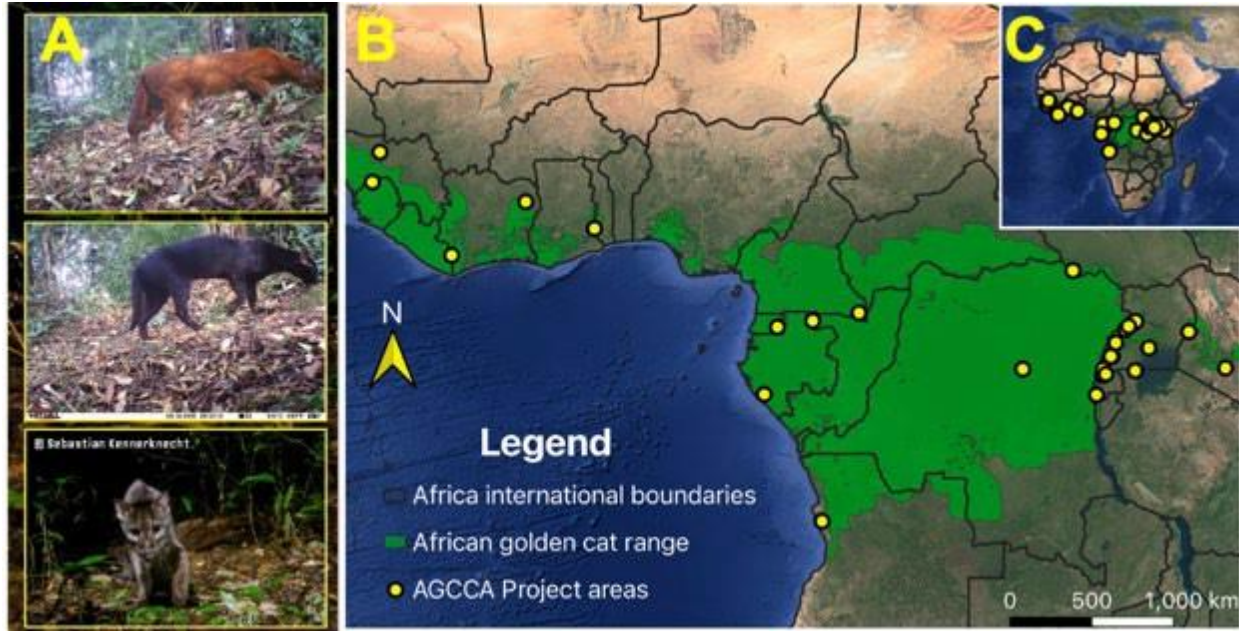


Plate 1: (A) African golden cat and its three color morphs: From top to bottom (golden brown, melanistic, and grey). (B) African golden cat geographical range and location of AGCCA conservation project areas. (C) Map of Africa inset. African golden cat Photo credits from top to bottom: Mwezi Mugerwa/Embaka, Mwezi Mugerwa/Embaka, Sebastian Kennerchnecht/Panthera.



Plate 2: AGCCA Community-led conservation initiatives: H2P (B, D, E, F, and I); L4B (A, C, G, H, J, L, and N); S4C (O); CPesa (M), and tree planting (K).



Harnessing African Traditional Ecological Knowledge for Sustainable Biodiversity Conservation

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Abstract

Africa's biodiversity is vital to the continent's ecological stability, food security, and cultural identity. However, challenges linked to population growth—such as habitat destruction, climate change, overexploitation, and socio-economic pressures—threaten its ecosystems. Africa's Traditional Ecological Knowledge (TEK), developed over generations by Indigenous and local communities, offers sustainable and culturally relevant conservation practices that complement modern scientific approaches.

This discussion paper examines TEK's role in biodiversity conservation across Africa, with applications in forest management, agroecology, wildlife conservation, and marine ecosystem protection. Sacred groves like Boabeng-Fiema in Ghana and Osun-Osogbo in Nigeria protect endemic species through spiritual reverence. In Ethiopia's Gedeo Zone, traditional agroforestry enhances soil health and biodiversity by integrating trees with crops. The Maasai in Tanzania's Ngorongoro Conservation Area use rotational grazing to regenerate grasslands. Community marine reserves like Velondriake in Madagascar preserve coral reefs and fisheries through locally governed no-take zones.

Despite its effectiveness, TEK remains underutilized in formal conservation policies, often overlooked in favor of Western scientific methods. Cultural erosion, land tenure conflicts, and limited policy integration hinder broader application. To maximize TEK's potential, greater recognition, documentation, and incorporation into national and international conservation strategies are needed. This paper advocates for participatory models that bridge TEK with scientific knowledge, fostering collaboration between communities, policymakers, and researchers. Integrating TEK into formal planning will help Africa build more sustainable and inclusive conservation frameworks that protect biodiversity while empowering Indigenous communities.

Keywords: sacred groves, wildlife conservation, participatory conservation, community-based conservation, cultural heritage



Introduction

Africa is home to an extraordinary wealth of biodiversity, encompassing many ecosystems, species, and genetic diversity. This biodiversity is critical for ecological balance and the livelihoods and cultural identities of many African communities. However, Africa faces significant conservation challenges, including habitat destruction, climate change, overexploitation of resources, and the impacts of invasive species. For instance, in the Congo Basin, logging and agricultural expansion have led to widespread deforestation, while in South Africa's fynbos biome, invasive species like *Acacia* sp. have severely disrupted native plant communities and water availability (Tyukavina et al. 2018; Rejili et al. 2024). These challenges are exacerbated by socio-economic factors such as poverty, land tenure issues, and political instability, which often hinder effective conservation efforts (Ogwu et al., 2022; Sinthumule, 2023). The urgent need for sustainable biodiversity conservation strategies has led to increased interest in integrating Traditional Ecological Knowledge (TEK) with modern conservation practices.

TEK refers to the knowledge, innovations, and practices developed by indigenous and local communities over generations, which are closely tied to their cultural and environmental contexts (Gómez-Baggethun et al., 2013; Finn et al., 2017). This knowledge system encompasses understanding local ecosystems, species interactions, and sustainable resource management practices that have been honed through long-term observation and experience (Ogwu and Osawaru, 2022; Sinthumule, 2023). The importance of TEK in Africa's biodiversity conservation cannot be overstated, as it offers valuable insights into sustainable practices that are often overlooked by conventional scientific approaches. For example, the Gedeo agroforestry system in Ethiopia maintains high biodiversity while supporting food security; the rotational grazing practices of the Maasai in Kenya and Tanzania promote grassland regeneration; and sacred groves like Osun-Osogbo in Nigeria preserve rare species through culturally enforced protection (Tebkwe et al. 2023; Hezron et al., 2024; Onyekwelu et al., 2024). The integration of TEK with modern conservation practices presents a promising avenue for addressing biodiversity loss in Africa. Research objectives in this area include exploring how TEK can complement scientific knowledge, identifying best practices for collaboration between indigenous communities and conservationists, and assessing the effectiveness of TEK-based strategies in enhancing biodiversity conservation outcomes. The significance of this integration lies in its potential to foster more inclusive and culturally relevant conservation strategies that not only protect biodiversity but also empower local communities and uphold their rights (Brondízio et al., 2021). Furthermore, integrating TEK with modern conservation practices can facilitate the development of culturally relevant policies that respect the rights and knowledge of indigenous communities.



This approach empowers local communities and fosters a sense of stewardship and responsibility towards biodiversity conservation. Recognizing the value of TEK in conservation efforts can also contribute to the broader goals of social equity and environmental justice, ensuring that the voices of marginalized communities are heard and respected in conservation dialogues (Brondízio et al., 2021).

Africa's biodiversity is characterized by its unique ecosystems, ranging from tropical rainforests and savannas to deserts and wetlands. This diversity is home to a significant proportion of the world's flora and fauna, including many endemic species. However, the continent's biodiversity is under severe threat due to anthropogenic pressures. Habitat loss due to agriculture, urbanization, and infrastructure development is one of the primary drivers of biodiversity decline. The expansion of agricultural land, particularly for cash crops, has led to significant deforestation and habitat fragmentation, affecting species survival and ecosystem services (Huang et al., 2024; Sinthumule, 2023). Climate change poses another critical challenge to biodiversity conservation in Africa. Rising temperatures altered precipitation patterns, and increased frequency of extreme weather events are impacting ecosystems and species distributions. For instance, studies have shown that climate change is exacerbating the vulnerability of already threatened species, leading to shifts in their habitats and increased competition for resources (Ogwu, 2019; Huang et al., 2024). Additionally, invasive species, often introduced through global trade and travel, are further complicating conservation efforts by outcompeting native species and altering ecosystem dynamics (Yin, 2023). Socio-economic factors also play a significant role in the conservation landscape. Many African communities rely on natural resources for their livelihoods, leading to overexploitation and unsustainable practices. Poverty and lack of access to education and resources hinder local communities' ability to engage in sustainable practices and participate in conservation efforts (Huang et al., 2024; Sinthumule, 2023). Furthermore, political instability and governance issues can impede the implementation of effective conservation policies, leading to a cycle of degradation and loss of biodiversity (Huang et al., 2024; Sinthumule, 2023).

This discussion aims to highlight the roles of TEK in biodiversity conservation across Africa, highlighting its significance, applications, and integration with modern conservation strategies. This paper emphasizes the value of TEK in fostering sustainable and culturally relevant conservation approaches.

Critical Reflection on the Dominance of Western Conservation Models in Africa

The dominance of Western conservation models in Africa is rooted deeply in colonial legacies and presents significant challenges to biodiversity conservation efforts and the rights of Indigenous communities. The historical imposition of Western frameworks of environmental management, often described as "fortress conservation," emphasizes the creation of protected areas that frequently exclude local people (Montgomery et al., 2020; Huang et al., 2024). This approach reflects Euro-American and Global North ideals of wilderness, often disregarding the ecological



knowledge and cultural practices of Indigenous populations (King, 2010; Domínguez and Luoma, 2020). Research indicates that such conservation strategies have led to the marginalization of these communities, pushing them away from their ancestral lands and criminalizing their traditional practices and resource management strategies (Wolmer, 2003; Barrett et al., 2013). For example, the establishment of national parks during colonial times facilitated the expropriation of land, prioritizing wildlife over the rights and livelihoods of local populations, a pattern that has persisted into the present day (Barrett et al., 2013; Osawaru et al., 2013)

Despite extensive critique, many conservation policies in contemporary African nations still mirror these colonial ideologies. The ongoing reliance on externally derived frameworks often results in top-down interventions that overlook local cultures, knowledge systems, and stewardship practices (Nunn, 2007; Barrett et al., 2013). The combination of a continued colonial mindset in governance with a lack of legitimate involvement from local communities perpetuates structural inequalities (Ogwu and Osawaru 2020; 2022; 2023; Ogwu 2023). These inequalities are exacerbated when conservation authorities ignore the spiritual and customary land-use rights of Indigenous people, leading to conflicts and a failure to achieve meaningful conservation outcomes (Barrett et al., 2013; Englebert, 2000). Consequently, this disenfranchisement undermines not only the socio-cultural fabric of local communities but also the effectiveness of conservation strategies themselves, as local ecological knowledge is overlooked (King, 2010). To address these issues, there must be a recognition of alternative conservation epistemologies that draw from African worldviews like TEK and practices, emphasizing relationality, stewardship, and coexistence with nature. These model advocate for community-based natural resource management and inclusive governance practices that incorporate TEK (Senanayake, 2006). Such approaches acknowledge the validity of diverse knowledge systems and promote pluralistic conservation strategies that bridge scientific and Indigenous perspectives (Senanayake, 2006; Osei et al., 2020). Studies have illustrated the potential of integrating Africa TEK and practices into conservation frameworks, which could lead to more resilient and adaptive strategies for environmental governance (Osei et al., 2020; Egeruoh-Adindu, 2022). Recognizing the dynamic nature of TEK is crucial for developing sustainable practices that reflect the lived experiences and cultural contexts of local communities (Senanayake, 2006).

Additionally, embracing pluriversal approaches can help reconcile the tensions between scientific and Indigenous worldviews in conservation practices. These approaches acknowledge that no single worldview holds authority over truth and advocate for intercultural dialogue and collaborative governance (Englebert, 2000; Egeruoh-Adindu, 2022). Transitioning to these inclusive methods necessitates comprehensive changes in policy, funding, and institutional attitudes toward conservation. This shift could transform existing governance frameworks, fostering a more equitable partnership between conservation authorities and Indigenous communities (Englebert, 2000; Egeruoh-Adindu, 2022). Moreover, instilling the values of stewardship and environmental ethics derived from Indigenous cultures into both policy development and on-the-ground



conservation efforts could lead to culturally grounded and socially just outcomes (Michalopoulos & Papaioannou, 2020; (Englebert, 2000). Nonetheless, the path toward decolonizing conservation in Africa is fraught with challenges, as institutional inertia and prevailing power dynamics often hinder meaningful change (Wolmer, 2003). Many conservation organizations operate under a neocolonial framework that prioritizes profit and ecological objectives over local rights and governance (Nunn, 2007). This reality reflects broader global inequalities, where Western NGOs and conservation entities often dictate the terms of engagement with local communities, sidelining their voices and redundantly reinforcing existing power hierarchies (Nunn, 2007). This approach undermines the autonomy of Indigenous stewarding practices and can lead to the failure of conservation projects that do not engage with local ecological realities or communities (Englebert, 2000).

Africa's Traditional Ecological Knowledge

TEK in Africa encompasses the knowledge, practices, and beliefs of indigenous and local communities regarding their interactions with the environment (Table 1). TEK is historically significant as it has been developed over generations, reflecting a deep understanding of local ecosystems and biodiversity. This knowledge is often transmitted orally and is integral to the cultural identity of communities, influencing their resource management practices and conservation strategies (Irakiza et al., 2016; Berkes et al., 2000; Laudari, 2011). The historical significance of TEK in Africa is underscored by its role in sustainable land use, agricultural practices, and the conservation of biodiversity, which have been essential for the survival and resilience of these communities in the face of environmental changes (Irakiza et al., 2016; Berkes et al., 2000).

Examples of TEK applied in biodiversity conservation across the African continent are numerous and varied. For instance, in Rwanda, the Buhanga Sacred Forest is managed based on traditional beliefs and practices that emphasize the sacredness of the land, leading to the preservation of numerous plant species and habitats (Irakiza et al., 2016; Imarhiagbe and Ogwu, 2022). Similarly, in various regions, indigenous practices such as rotational grazing, controlled burning, and the use of traditional medicinal plants have been shown to enhance biodiversity and ecosystem health (Susanti and Zuhud, 2019; Susanto et al., 2024). These practices not only maintain ecological balance but also provide essential resources for local communities, demonstrating the interdependence of cultural practices and biodiversity conservation (Rasmussen, 2023). When comparing TEK with Western scientific conservation approaches, several distinctions emerge. TEK is often holistic, integrating ecological, cultural, and spiritual dimensions, whereas Western approaches tend to be more reductionist, focusing on quantifiable metrics and scientific methodologies (Fraser et al., 2006; Aswani et al., 2018). For example, while Western conservation strategies may prioritize specific species or habitats based on ecological data, TEK encompasses



a broader understanding of ecological relationships and community needs, which can lead to more sustainable outcomes (Berkes et al., 2000; Leiper et al., 2018). The integration of TEK into conservation efforts has been advocated as a means to enhance the effectiveness of biodiversity management, as it brings local knowledge and practices into dialogue with scientific approaches (Girondot and Rizzo, 2015; McElwee et al., 2020). The role of indigenous and local communities in sustaining biodiversity is paramount. These communities often possess extensive knowledge of their local ecosystems, which is critical for effective conservation efforts (Irakiza et al., 2016; Rasmussen, 2023). Their active participation in biodiversity management not only ensures the preservation of traditional practices but also fosters a sense of stewardship over natural resources (Peters, 2003). The resilience of the communities and the ecosystems they rely on can also be improved by incorporating local communities in conservation efforts, which can result in more equitable and culturally relevant management practices (Lindsey et al., 2018). The recognition of TEK as a valuable resource in biodiversity conservation underscores the need for collaborative approaches that respect and integrate indigenous knowledge systems with scientific research (Strickland et al., 2024).

Table 1: Some sub-Saharan African TEK practices in biodiversity conservation

TEK Practice	Application	Country Examples with Named Areas
Sacred Groves Conservation	Communities protect forested areas, which are considered sacred, preventing deforestation and conserving biodiversity.	Ghana (Boabeng-Fiema), Benin (Kouffo), Nigeria (Osun-Osogbo Sacred Grove), Rwanda (Buhanga Sacred Grove), etc.
Traditional Agroforestry	Intercropping trees with crops to enhance soil fertility, reduce erosion, and support wildlife habitats.	Ethiopia (Gedeo Zone), Uganda (Mount Elgon), Kenya (Kakamega Forest), etc.
Rotational Grazing	Livestock movement follows seasonal cycles, preventing overgrazing and promoting grassland regeneration.	Kenya (Laikipia), Tanzania (Ngorongoro Conservation Area), etc.
Community Marine Reserves	Local fishing communities establish no-take zones to protect fish populations and coral reefs.	Madagascar (Velondriake), Mozambique (Quirimbas Archipelago), Senegal (Joal-Fadiouth), etc.
Indigenous Pest Control	Use of natural plant-based pesticides and companion planting to control pests without chemical inputs.	Benin (Zinvie), Nigeria (Nsukka), Cameroon (Northwest Region), etc.
Seasonal Hunting and Fishing	Hunting and fishing are restricted during breeding seasons to allow	Namibia (Zambezi Region), Zambia (Bangweulu



Regulations	population recovery.	Wetlands), South Africa (Eastern Cape), etc.
Soil Fertility Management	Use of composting, mulching, and crop rotation to maintain soil fertility and reduce dependence on chemical fertilizers.	Mali (Sikasso), Senegal (Niayes Zone), Burkina Faso (Centre-Ouest Region), etc.
Water Harvesting and Management	Construction of earth dams, terraces, and water retention basins to support sustainable agriculture.	Niger (Tillabéri), Ethiopia (Tigray Highlands), Sudan (Kassala State), etc.
Fire Management Practices	Controlled burning techniques to prevent large-scale wildfires and promote ecosystem regeneration.	Botswana (Okavango Delta), Zimbabwe (Matobo), South Africa (Kruger National Park), etc.
Ethnobotanical Knowledge for Medicinal Plant Conservation	Sustainable harvesting and protection of medicinal plants based on indigenous knowledge.	South Africa (KwaZulu-Natal), DR Congo (Ituri Forest), Ghana (Atewa Range Forest Reserve), etc.

Case Studies of African TEK in Conservation Efforts

The wisdom, practices, and beliefs developed by Indigenous and local communities over generations through direct interaction with the environment are reflected in TEK. Across Africa, TEK serve as a repository of environmental insight and a vital system of stewardship embedded in cultural, spiritual, and social structures. Some of these TEK practices include sacred forests to rotational grazing systems, and from seasonal fishing bans to botanical pest control, and they have shaped sustainable resource management practices that align closely with contemporary conservation goals. The following case studies informs TEK conservation efforts in four ecological domains—**forests and land, agriculture, wildlife, and marine ecosystems**—across diverse African contexts.

Forests and Land Management

Location: Ghana and Nigeria

TEK Practice: Sacred groves and community-managed forests are long-standing conservation practices in many West African cultures. In Ghana and Nigeria, sacred groves are mainly forest patches protected for their spiritual and cultural significance. They are preserved through local customs, taboos, and traditional leadership structures (Imarhiagbe and Ogwu, 2022). In Nigeria, communities also use customary laws and clan-based land tenure systems to regulate access to forest resources.

Outcome and Impact: These sacred groves act as biodiversity hotspots and natural refugia for threatened species. In Ghana, groves are revered as homes of deities and spirits, discouraging



logging, hunting, or cultivation (Sarfo-Mensah et al., 2010). In Nigeria, community-managed forests under indigenous tenure experience lower deforestation rates than those under government or private control due to greater community stewardship (Bhagwat and Rutte, 2006; Parthasarathy and Babu, 2019).

Relevance: These culturally grounded systems offer powerful models for forest conservation, biodiversity protection, and climate resilience. They highlight how Indigenous values and ecological knowledge align with local and international environmental goals.

Sustainable Agriculture

Location: Ethiopia and Kenya

TEK Practice: Farmers in these regions employ various traditional agro ecological practices such as intercropping, agroforestry, soil fertility management, and botanical pest control using locally sourced plants like neem. In Nigeria, indigenous cropping systems such as “compound farms” integrate multiple crop species, trees, and livestock on the same land unit, enhancing productivity and resilience.

Outcome and Impact: These systems increase biodiversity, maintain soil health, and reduce the need for synthetic inputs. In Ethiopia, mixed cropping reduces pest outbreaks and erosion, while in Nigeria, compound farms improve household food security and nutrient cycling. Neem-based pesticides, common across all three countries, are effective and environmentally friendly (Niassy et al., 2023; Grzywacz et al., 2013). Integration of these practices has been key in managing pests like the fall armyworm across Sub-Saharan Africa.

Relevance: These agricultural traditions exemplify how TEK contributes to sustainable food systems, climate resilience, and agroecological innovation. They also provide scalable models for integrating Indigenous and scientific knowledge.

Wildlife Conservation

Location: Maasai communities in Kenya and Tanzania

TEK Practice: The Maasai rely on traditional ecological knowledge to manage rangelands and wildlife interactions through rotational grazing, communal wildlife conservation areas, and ancestral animal tracking methods. Cultural norms promote coexistence with wildlife rather than exclusion. Also, community-led conflict resolution mechanisms are rooted in cultural practices that aim to foster cooperation between wildlife conservation efforts and local livelihoods (Kabir, 2023). These mechanisms are grounded in traditional governance systems such as *Laibon* councils and *Elder Councils*, which mediate access to shared rangelands, especially during periods of drought or seasonal migration.

Outcome and Impact: These practices reduce overgrazing and mitigate conflict with wildlife, especially near protected areas. Maasai herders use animal tracking to anticipate the movements of elephants or predators, helping avoid encounters and losses. Ecotourism ventures grounded in Maasai culture bring conservation and economic benefits (Kabir, 2023). **Relevance:** The Maasai model illustrates the vital role of TEK in aligning biodiversity protection with



community livelihoods. It shows how Indigenous governance can be incorporated into formal conservation frameworks.

Marine and Freshwater Ecosystems

Location: Madagascar and Senegal

TEK Practice: Communities use traditional fishing calendars, seasonal bans, and marine protected areas informed by generations of experience with local ecosystems. These are often enforced through customary laws and taboos regarding fish breeding cycles and sacred coastal zones.

Outcome and Impact: In Madagascar, community-managed marine reserves have led to a recovery of fish stocks and improved coral health. Seasonal closures based on traditional ecological indicators ensure that fish harvesting is aligned with reproduction cycles, maintaining long-term viability (Kabir, 2023).

Relevance: These TEK-based systems are critical for marine biodiversity conservation, particularly in regions with limited access to formal scientific monitoring. They align closely with Sustainable Development Goal 14 (Life Below Water) and offer community-led, scalable solutions.

These place-based systems are ecologically effective and culturally resilient, embedding environmental stewardship into the moral and spiritual fabric of communities. Recognizing and integrating TEK into national and regional conservation strategies enhances ecological outcomes and promotes justice, equity, and cultural continuity. Strengthening partnerships between TEK holders and scientists offers a pathway toward more inclusive and resilient environmental governance across the continent.

Challenges and Limitations of TEK in Africa's Biodiversity Conservation

TEK in Africa faces several challenges and limitations that hinder its effectiveness in biodiversity conservation. These challenges stem from modernisation, conflicts with formal conservation policies, and the need for proper documentation and recognition of TEK within policy frameworks. One of the most significant challenges to TEK in Africa is the loss of traditional knowledge due to modernisation and cultural shifts, which vary by region. In North Africa, urbanisation and formal education have distanced youth from nomadic traditions (Assad et al. 2020). In West Africa, cash crop expansion and globalisation undermine indigenous farming systems (Akinola et al. 2020). East and Central Africa (e.g., Kenya, Tanzania, and DR Congo) faces tourism-led conservation that often excludes local TEK, as well as conflict and displacement that disrupt knowledge transmission (Mudzengi et al., 2021). Southern Africa (e.g., Botswana, South Africa) contends with land privatisation eroding communal stewardship practices (Slayi et al. 2024). As communities become increasingly integrated into global economies and modern education systems, there is a marked decline in the transmission of traditional ecological practices and beliefs (McCarter et



al., 2014; Ianni et al., 2015). This erosion of knowledge is particularly pronounced among younger generations, who may prioritize formal education over traditional practices, leading to a disconnect from their cultural heritage (Ianni et al., 2015). The transition to market-oriented economies often undermines the value of local knowledge systems, as communities adopt practices that prioritize short-term economic gains over sustainable resource management (McCarter et al., 2014). Consequently, this shift not only threatens biodiversity but also diminishes the cultural identity of indigenous communities (Susanti and Zuhud, 2019).

Conflicts often arise between TEK and formal conservation policies, which can undermine local practices and knowledge systems. Many conservation policies are designed without adequate input from indigenous communities, leading to regulations that may not align with traditional practices (McPherson et al., 2016). For instance, in some regions, in regions such as the Zambezi Valley in Zimbabwe and the Omo Valley in Ethiopia, formal conservation efforts may impose restrictions that conflict with local customs, such as hunting or resource use, resulting in resentment and resistance from local populations (McPherson et al., 2016). These conflicts can exacerbate tensions between conservation authorities and indigenous communities, ultimately hindering effective biodiversity conservation (Winterbach et al., 2012). Furthermore, the lack of recognition of TEK in formal conservation frameworks often leads to the marginalization of indigenous voices in decision-making processes, which can result in ineffective or unsustainable conservation outcomes (Berkes, 2004). It also undermines the legitimacy and equity of conservation efforts and can lead to ineffective or ecologically unsustainable outcomes. For instance, in Kenya's Loita Forest, the exclusion of the Maasai community from forest management planning led to tensions and reduced community stewardship, ultimately accelerating deforestation and biodiversity loss (Otieno et al. 2023). Only after community co- management was reintroduced did forest conservation efforts begin to stabilize, demonstrating the essential role of Indigenous knowledge and participation in effective biodiversity governance.

To address the challenges faced by TEK in biodiversity conservation, there is a pressing need for documentation, validation, and policy recognition of traditional knowledge systems. Proper documentation of TEK can help preserve valuable ecological insights and practices that have been developed over generations (Sinthumule, 2023). Additionally, validating this knowledge through scientific research can enhance its credibility and facilitate its integration into formal conservation strategies (Huang et al., 2024). Policymakers must recognize the importance of TEK and create frameworks that incorporate traditional knowledge into National Biodiversity Strategies and Action Plans. This recognition can foster collaborative approaches that empower local communities and enhance the effectiveness of conservation initiatives (Berkes, 2004).



Integrating African TEK with Modern Conservation Approaches

Integrating TEK with modern conservation approaches in Africa is essential for enhancing biodiversity conservation efforts. This integration can be achieved through participatory conservation models, progressive policy recommendations, and collaborative governance frameworks that bridge the gap between scientists, policymakers, and Indigenous communities. Instruments such as the *Convention on Biological Diversity* (particularly Article 8(j)), the *UN Declaration on the Rights of Indigenous Peoples* (UNDRIP), and national laws like Kenya's *Community Land Act (2016)* provide legal pathways for recognizing and embedding TEK into formal conservation systems. Participatory conservation and co-management models have emerged as effective strategies for integrating TEK into biodiversity conservation. These approaches emphasize the involvement of local communities in the management of natural resources, recognizing their rights and knowledge as critical components of successful conservation efforts (Oldekop et al., 2015; Gorenflo and Romaine, 2021). For instance, community-conserved areas have demonstrated positive ecological outcomes while also addressing social needs, thereby fostering a sense of ownership and stewardship among local populations (Oldekop et al., 2015). Such community-conserved areas exist in countries such as Namibia, Kenya, and Tanzania and have demonstrated positive ecological outcomes while also addressing social needs, thereby fostering a strong sense of ownership and stewardship among local populations. In Namibia, the Communal Conservancy Program has led to the recovery of wildlife populations such as black rhinos and elephants while also generating income from tourism and sustainable hunting. In Kenya, community conservancies like those under the Northern Rangelands Trust have helped reduce poaching, increased wildlife numbers, and provided local communities with revenue and grazing rights. Similarly, in Tanzania, the Wildlife Management Areas model empowers communities to manage wildlife resources, resulting in improved biodiversity conservation and enhanced local governance. The co-management approach, which shares authority and responsibilities between government entities and local resource users, has been shown to yield significant benefits for both conservation and community livelihoods (Gnansounou et al., 2021; Gnansounou et al., 2022). This model not only enhances the effectiveness of conservation strategies but also ensures that local knowledge is respected and utilized in decision-making processes (Oldekop et al., 2015; Gnansounou et al., 2022).

To effectively incorporate TEK into national conservation frameworks, several policy recommendations can be made. First, there is a need for the formal recognition of TEK within legal and policy frameworks governing biodiversity conservation. This recognition can be achieved through the development of policies that explicitly acknowledge the rights of indigenous communities to manage their resources and the importance of their knowledge systems (Galvin et al., 2018; Mureithi et al., 2019). Second, governments should invest in the



systematic documentation, validation, and integration of TEK, ensuring that traditional practices that are relevant and beneficial are preserved and embedded into modern conservation strategies (Galvin et al., 2018). This requires the allocation of dedicated budget lines within national and subnational conservation and research programs to support field-based documentation, community engagement, intergenerational knowledge transfer, and collaborative knowledge platforms. This can involve collaboration with local communities to create databases of traditional practices and ecological knowledge that can inform conservation planning (Galvin et al., 2018). Lastly, training programs that enhance the capacity of local communities to engage in conservation efforts should be established, promoting the exchange of knowledge between indigenous and scientific communities (Galvin et al., 2018; Mureithi et al., 2019).

Collaboration among scientists, policymakers, and indigenous communities is crucial for bridging the gap between traditional and modern conservation approaches. Effective collaboration can be fostered through participatory research initiatives that involve local communities in data collection and analysis, ensuring that their perspectives and knowledge are integrated into scientific research (Oldekop et al., 2015; Gorenflo and Romaine, 2021). Additionally, creating dialogue and knowledge exchange platforms can facilitate mutual learning and understanding among stakeholders, leading to more holistic conservation strategies (Galvin et al., 2018; Mureithi et al., 2019). To ensure TEK-based conservation is both impactful and accountable, it is crucial to develop co-created indicators that capture ecological and cultural outcomes. These may include biodiversity-based metrics (e.g., species richness, regeneration rates), spatial indicators (e.g., land-use change, habitat connectivity), cultural indicators (e.g., intergenerational knowledge transmission, sacred site preservation), and qualitative assessments of community well-being and stewardship. Collaboratively defining these indicators with Indigenous knowledge holders enhances local relevance and scientific rigor. This approach aligns with global frameworks such as the Convention on Biological Diversity's Aichi Targets and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services framework, which emphasize the integration of diverse knowledge systems and participatory monitoring. Initiatives that bring scientists and Indigenous leaders together to co-develop these tools have shown improved conservation effectiveness and equity (Oldekop et al., 2015; Gorenflo and Romaine, 2021). Furthermore, recognizing and valuing the contributions of indigenous knowledge in scientific discourse can help legitimize TEK and promote its integration into broader conservation frameworks.



Lessons from Exclusion: How Ignoring TEK Undermines Conservation in Africa

In Africa, numerous conservation efforts have faltered largely due to the exclusion of TEK and local communities from decision-making processes. This oversight has led to ecological failures and aggravated conflicts and socioeconomic hardships for indigenous populations. One prominent example is the "fortress conservation" model that has been prevalent in various regions, notably in Tanzania and Zimbabwe. Here, the emphasis on creating protected areas often ignored the cultural and knowledge systems of local communities, marginalizing their involvement in conservation efforts (Matseketsa et al. 2019). Goldman (2003) highlights that despite the rhetoric surrounding community-based conservation (CBC), implementation frequently reverts to a top-down approach, neglecting the unique socio-ecological knowledge possessed by local communities. Such exclusion has often resulted in local resistance and conflict, illustrating the ineffectiveness of actions that do not incorporate the insights and needs of indigenous peoples.

The case of the Baka Pygmies in Cameroon also underscores this issue clearly. Titang (2019) explains that the establishment of national parks in southeastern Cameroon has severely restricted Baka access to their customary lands, threatening their livelihoods and cultural practices. This exemplifies how fortress conservation, which takes a protective stance often at the expense of local communities, leads to undesirable outcomes in both social and environmental dimensions (Titang, 2019). Similarly, McPherson et al. (2016) indicate that conflicts can arise when traditional practices that are essential for local cultural identity are deemed incompatible with conservation goals. One significant fault in many conservation strategies is the failure to acknowledge the ecological expertise embedded within indigenous communities. Kinyili (2023) emphasizes how indigenous knowledge systems play a pivotal role in forest conservation and climate change management, advocating for a more integrated approach that leverages both modern scientific methods and TEK. This argument is further echoed by Chanda and Kapepe (2025), who call for ethical integration of indigenous and scientific knowledge systems, highlighting the wealth of environmental wisdom that has been cultivated over generations.

Moreover, the loss of biodiversity linked to the undervaluation of TEK is illustrated by alarming reports of environmental degradation near sacred natural sites in regions like Northern South Africa. Pikirayi and Magoma (2021) argue that the encroachment of agriculture and commercial activities threatens these areas, often disregarding the intangible heritage and ecological knowledge held by local communities, which impairs both their cultural survival and environmental integrity. Models that prioritize biodiversity without considering the wisdom and needs of local populations ultimately fail, demonstrating that successful conservation must be fundamentally collaborative and inclusive. This pattern of exclusion reflects a broader disregard



for the lived experiences and ecological stewardship of Indigenous communities, whose knowledge systems have sustained biodiversity for generations.

Conclusion and Recommendations

TEK has played a crucial role in African biodiversity conservation, offering sustainable, community-driven solutions for managing forests, wildlife, agriculture, and water resources. Drawing from generations of Indigenous wisdom, TEK has contributed significantly to ecosystem resilience, species protection, and sustainable resource use. Deeply intertwined with cultural identity and livelihoods, TEK offers context-specific strategies that address contemporary environmental challenges across the continent. However, TEK remains underrepresented in mainstream conservation policies, often marginalized in favor of conventional scientific approaches. To strengthen biodiversity conservation efforts, there is a pressing need for the formal recognition, documentation, and integration of TEK into national and international strategies. Governments, conservation organizations, and researchers must actively partner with Indigenous communities to ensure that their knowledge systems are respected, preserved, and used to inform sustainable development pathways. Future research should not only focus on bridging the gap between TEK and scientific conservation methods through participatory and interdisciplinary approaches but also examine how TEK systems evolve in response to **urbanization, climate change, and shifting socio-political landscapes**. Developing adaptive frameworks that integrate TEK into formal conservation planning while addressing issues like cultural erosion and land tenure insecurity will be essential for building inclusive, resilient, and culturally grounded conservation futures in Africa.

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Importance de l'implication des communautés locales dans la conservation de la biodiversité dans la Réserve Spéciale de Bezà Mahafaly

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Abstract

La région Sud-Ouest de Madagascar abrite une diversité d'écosystèmes semi-arides, caractérisés par des précipitations irrégulières influençant la végétation (Hervé et al., 2015 ; Harrington et al., 2021). La Réserve Spéciale Bezà Mahafaly (Figure 1), couvrant 4 200 ha, est un site protégé unique, renfermant des vestiges de forêts sèches et de forêts galeries. Ce refuge est essentiel pour de nombreuses espèces endémiques, cruciales pour l'équilibre de leur écosystème (Ranaivonasy et al., 2016). C'est la seule Aire Protégée présentant un gradient forestier allant de la forêt galerie à la forêt sèche, puis à la forêt xérophytique de l'écorégion Sud. Elle abrite une riche biodiversité, notamment des lémuriens, reptiles et oiseaux spécifiques à cette région, facilement observables par les visiteurs. Grâce à sa biodiversité, la Réserve est l'un des sites les plus propices à la recherche scientifique à Madagascar (Ranaivoarisoa, 2008), et constitue un lieu de formation pour l'École Supérieure des Sciences Agronomiques (ESSA) Depuis plus de 30 ans, une collaboration étroite avec les 12 villages voisins (Figure 1) assure la préservation de cette richesse naturelle, soulignant l'importance de la participation communautaire (Richard & Ratsirarson, 2013). Cette collaboration se traduit par l'implication active des populations locales dans les patrouilles, l'application du Dina, et la restauration de la forêt dégradée. Elle mobilise divers acteurs : l'ESSA, le MNP (Madagascar National Parks), le MEDD via le Cantonnement forestier de Betioky Atsimo, la gendarmerie locale, le MEN à travers les écoles environnantes, et la commune rurale d'Ankazombalala. Les associations villageoises sont de plus en plus actives, et les effets positifs sur l'état de la forêt sont visibles.



Les activités de suivi menées à Bezà Mahafaly

Des suivis écologiques basés sur des transects permanents des principaux indicateurs de la santé de la forêt, comme le lémurien *Propithecus verreauxi* (sifaka), les oiseaux *Coua gigas* (eoke), et les tortues radiées *Astrochelys radiata* (sokake) y sont effectués, tout en tenant compte des paramètres climatiques jouant un rôle crucial dans la zone (Rasamimanana *et al.*, 2016). Ces suivis offrent une vision précise de l'état de santé de la forêt, permettant d'évaluer avec rigueur l'efficacité des stratégies et actions de conservation mises en œuvre. Ainsi, des inventaires mensuels de la population des *Propithecus verreauxi*, *Coua gigas*, et *Astrochelys radiata* sont réalisés dans le noyau dur de la Réserve ainsi que dans les environs immédiats. De plus, des données climatiques, telles que la température et les précipitations, sont également collectées quotidiennement afin de mieux comprendre l'impact de ces facteurs sur la biodiversité. Pour renforcer les patrouilles et contrôler efficacement les exploitations illicites, une convention coutumière locale, appelée « *Dina* » a été mise en place. Cette convention établit des règles définissant les activités autorisées ou interdites au sein de la Réserve. Grâce à des réunions régulières visant à rappeler et renforcer son application, le *Dina* demeure largement accepté et respecté par les communautés villageoises.

Implication de la communauté locale

Par ailleurs, une autre collaboration avec les villageois est établie à travers les associations locales. Ces associations effectuent des patrouilles hebdomadaires bénévoles, en utilisant l'application SMART (*Spatial Monitoring and Reporting Tool*, Figure 2), un outil de suivi et de reportage conçu pour lutter contre les braconnages potentiels dans les aires protégées (ABCG *et al.*, 2015). Étant géoréférencé, cette application permet la collecte, le stockage, et l'évaluation des données de patrouilles, notamment pour déterminer les niveaux de menaces et faciliter la prise de décision pour une gestion efficace des aires de conservation, incluant la capture de photographies. Une équipe locale a été formée au développement et à l'utilisation de l'application SMART sur téléphone mobile, au traitement des données collectées ainsi qu'à leur analyse. Par ailleurs, une plateforme adaptée en langue locale a été conçue afin de simplifier son usage par les villageois. Plusieurs sessions de formations ont été organisées pour initier les paysans volontaires à l'utilisation de cette application. Grâce à une collaboration étroite et soutenue avec la communauté villageoise au cours des cinq dernières années, une amélioration significative de la santé de la forêt a été observée. En effet, entre 2018 et 2022, malgré une réduction préoccupante des précipitations annuelles et du nombre de jours de pluie, ainsi qu'une forte augmentation des jours très chauds (jusqu'à plus de 100 jours) (Ratsirarson & Raminintsoa, 2023), la période 2022-2023 a enregistré une évolution surprenante. Les précipitations ont atteint



977 mm, le niveau le plus élevé depuis 1999, tandis que le nombre de jours très chauds a diminué à seulement 21 jours. Cette amélioration climatique bénéficie à la fois à la forêt et aux activités quotidiennes des habitants, notamment l'agriculture et l'élevage, contribuant ainsi à réduire les pressions et les menaces sur l'écosystème forestier. Quant à la biodiversité, le nombre de groupe de *Propithecus verreauxi* (sifaka) est resté stable, aux alentours de 25 groupes, entre 2022 et 2023. Cette stabilité s'accompagne cependant d'une croissance des effectifs : passant de 109 à 119 individus, tandis que le nombre de nouveau-nés est passé de 19 à 24, fortement influencé par les précipitations annuelles (Ratsirarson *et al.*, 2025). De plus, l'oiseau endémique *Coua gigas* est de plus en plus observé depuis plus de 5 ans, passant de 26 observations en 2018-2019 à 85 observations en 2022-2023. Cette croissance reflète une amélioration générale de la santé de la forêt.

Pour la tortue radiée, le taux de recapture est resté globalement stable depuis 2008. Une légère baisse a été observée entre 2015 et 2018, suivie d'une augmentation jusqu'à 41 % en 2023. Ce taux stable indique que les individus capturés sont régulièrement recapturés après plusieurs années, reflétant à la fois l'amélioration de l'état de la forêt et de l'efficacité des méthodes de gestion de la biodiversité mises en œuvre dans la Réserve.

Enfin, la reforestation annuelle, réalisée par les paysans au cours de trois dernières années, a connu une nette amélioration grâce à l'accompagnement de l'équipe locale, qui a transmis des techniques et pratiques mieux adaptées aux zones semi-arides (Ratsirarson *et al.*, 2021). En conséquence, le taux de survie des plants est passé de 31 % à 43 % entre 2021 et 2022 (Ratsirarson *et al.*, 2024).

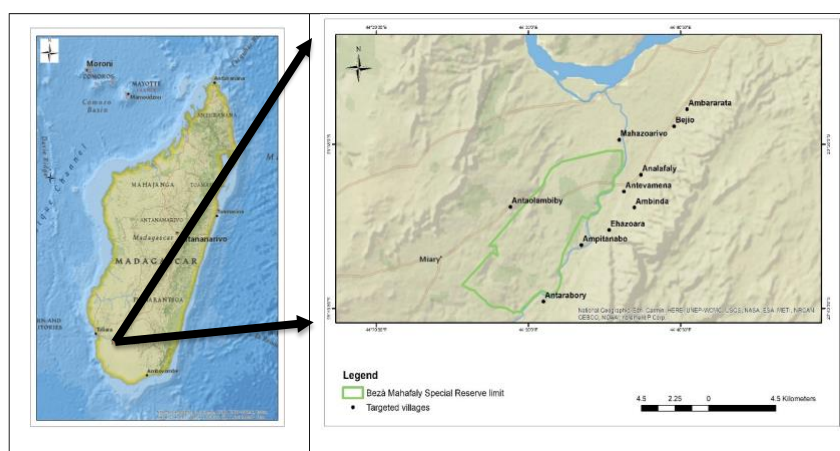


Figure 1. Localisation de la Réserve Spéciale Bezà Mahafaly et des 12 villages environnants (2024 – © ESSA Bezà Mahafaly)



Figure 2 : Application sur l'utilisation de SMART pour la patrouille dans la forêt par les villageois (2024 – © ESSA Bezà Mahafaly)

Conclusion

Il apparaît clairement que la collaboration étroite avec la communauté villageoise, particulièrement renforcée ces dernières années, porte ses fruits en matière d'amélioration de la performance de gestion de la Réserve Spéciale de Bezà Mahafaly. Les indicateurs positifs, tels que la stabilité du nombre de groupes de sifaka dans le noyau dur, l'extension de leur territoire, ainsi que l'augmentation de la densité et de l'abondance des *Coua* géants et des tortues radiées, témoignent du succès de ces efforts. La protection concertée de la forêt, menée en collaboration avec la communauté locale, et appuyée par des suivis réguliers des espèces indicatrices de la santé de l'écosystème, s'est révélée être la stratégie la plus efficace pour comprendre et préserver la richesse unique de cette région du Sud-Ouest de Madagascar, malgré les défis climatiques, environnementaux et socio-économiques persistants.

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Community-Based Conservation of Elephants in Northern Kenya

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Abstract

Wildlife, including elephants, continues to face a myriad of threats to their natural habitats as human populations expand and infrastructure development accelerates. The result has been increased pressure on people, wildlife, and livestock as they share the landscape and other available resources. As part of our mission to secure a future for the world's largest land mammal, Save the Elephants (STE) teamed up with the Wyss Academy for Nature to safeguard wildlife and livestock movement corridors in northern Kenya. The goal is to prevent further fragmentation of this fast-changing landscape and ensure connectivity across the different elephant rangelands. A scientific analysis of more than 20 years of radio-collar tracking data from more than two hundred tracked elephants, STE has been able to identify major migratory routes used by elephants, which now risk being blocked due to human population pressures. A key focus of STE's work involves engaging with local communities about the importance of these corridors and working with them and other stakeholders, such as government and conservation partners, towards sustainable ways of protecting them. The goal is to have them gazetted and protected by law with the support of the County Governments and the National Government led by the National Lands Commission.



Balancing Our Future: Communities, Corridors, and Coexistence

Our future on this planet depends on achieving a balance between humans and the natural world. This means finding ways for people and wildlife to coexist in harmony. Central to this mission is giving the communities that live alongside wildlife the tools that they need to continue being the stewards of their natural heritage in a dynamic world.

In the heart of northern Kenya, the challenges of coexistence between people and wildlife are growing by the day. Wildlife, including elephants, are facing threats to their natural habitats as human populations expand and infrastructure development accelerates. As a result, there is increased pressure on people, wildlife, and livestock to share the landscape and available resources.



Figure 1: Pressure is mounting on people, elephants, and livestock to coexist and share limited space and resources. © David Letitiya / Save the Elephants

Yet amid these challenges, local communities are stepping up to protect their natural heritage, and leading the way are individuals like Benjamin Loloju, whose work exemplifies the power of homegrown conservation. Benjamin grew up in the remote village of Oldonyiro in Isiolo County, where tending livestock was part of daily life and elephants were distant giants, whose footprints marked the land. Today, he is



a leading figure at STE, managing a project that protects corridors – ancient migratory routes used by wild elephants, some of which pass directly through his hometown. These corridors are lifelines for elephants, linking protected areas like Samburu National Reserve to the wider landscape. But they are increasingly under threat from expanding settlements, agriculture, and infrastructure.

“When corridors are blocked, elephants have no choice but to navigate a human dominated landscape which often results in conflict. But, when elephants can roam freely between landscapes in search of food, water and mates, there is peace. Everyone benefits,” says Loloju.

Fragmented landscapes intensify human–elephant conflict and drive biodiversity loss. To ensure a sustainable future for elephants and other wildlife species, STE integrates their movement patterns into landscape planning.

“We’re essentially listening to the elephants,” says Benjamin. “They’re telling us what they need and we’re using that knowledge to help people plan better for the future.”

Using more than 20 years of tracking data from over 200 collars, Save the Elephants has identified crucial corridors and is working with local communities and the Wyss Academy for Nature to secure key migratory corridors in northern Kenya by ensuring they are discussed, defined, monitored and legally protected. But maps and data alone aren’t enough. Real protection happens on the ground, led by local communities who know and depend on the land just as much as the elephants do. That’s why STE partners closely with community members, leaders, and local authorities to make conservation a shared responsibility.

“Creating successful connectivity depends on local support,” says Loloju. “Corridors must provide real benefits to communities to be valued and protected.”

So far, STE has engaged over 1,000 community members in corridor meetings, and eight key corridors have been defined. These corridors are now closely monitored by the Mama Tembos – local women chosen by their communities and supported by Save the Elephants to patrol and defend both wildlife and livestock routes. Equipped with GPS devices and data folders, they collect data on wildlife presence, flag early signs of encroachment, and report illegal activities, like unauthorised bomas (homesteads), that could disrupt the free movement of wildlife and livestock.



Figure 4: Mama Tembos on patrol in the field © Jane Wynyard / Save the Elephants

Beyond monitoring, they also play a key role in community outreach, raising awareness about the importance of keeping corridors open and safe for elephants and other species.

"These women are trusted voices in their communities," says Benjamin. "They help people understand why it matters to protect these corridors – not just for elephants, but for livestock too."

In 2022, after a series of community meetings facilitated by STE and the Wyss Academy for Nature, a major breakthrough was achieved. Communities from three conservancies – Westgate, Kalama, and Namunyak – came together and agreed to support the formal protection of corridors across their conservancies that eventually lead to and join the Oldonyiro/Kipsing corridor, a 70-kilometre migratory route connecting Samburu with Laikipia. Patrols by the Mama Tembos were expanded, and awareness campaigns helped spread the word about the corridor's significance.

Oldonyiro/Kipsing corridor is also in the final agreement stage by Oldonyiro communities and two sections of the corridor are officially marked with pillars, making its boundaries visible to all. The Oldonyiro/Kipsing corridor is one of several major migratory routes under threat from human settlement and infrastructure that STE is actively working to protect. But its success serves as a model for other regions. With community buy-in, strong leadership, and the right tools, coexistence is not only possible, it's already happening.



"It's amazing to be part of this work," says Benjamin. "My hope is that our efforts lead to the gazettelement of this corridor and others across Kenya. That would mean permanent legal protection and a future where elephants and people can both thrive."

In northern Kenya, elephants still roam paths their ancestors walked. With the help of people like Benjamin, the Mama Tembos, and committed local communities, we can keep those paths open for elephants, for nature, and for generations to come.



Reminiscences of Lake Mburo National Park– Revisiting my Wild Home

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It is Easter 2025, and I decided to take my children, aged 18, 17, and 12, through Lake Mburo National Park (LMNP) on our way to visit relatives in Isingiro District, Western Uganda. Since the park was on our route, it's was an excellent opportunity for the kids to explore a new place, and that holds special significance for me, as it is where my conservation journey began. My eldest was just 7 months old when I started working with the Uganda Wildlife Authority (UWA), a position I held for over two years. Those years were some of the best years of my life. As I entered through the Nshara Gate, I am reminded of my last visit, over 16 years ago.

Although I'm not a trained scientist, my passion for conservation stems from personal experiences. In my lifetime of less than 50 years, I have witnessed significant declines in various species and ecological losses in my home area of Kigezi, previously known as the "Switzerland of Uganda." I worry about how much more will be lost by the time my children and their future generations grow up. This concern pushed me to consider what I could do, however small, to address environmental mismanagement, and joining UWA was a step in that direction.

I will share a vivid example from my childhood—a lullaby we used to sing that expressed the idea that it was okay to reclaim wetlands. It went like this:

Original Rukiga' Version	English Translation
Yegambire Temiteeho	Go on and speak (make the sound) Timothy
Abajungu bakatubeiha,	The Whiteman lied to us; they attempted to mislead us
Ngu tutaahing' Orufuunjo,	That we should not reclaim and cultivate the swampy wetlands
Twayanga twaruhinga!	We triumphantly and scornfully refused and went ahead to reclaim and cultivate the wetlands
Biriibwa byemihaate	Ah! The sweet potatoes they produce
Yegambire Temiteeho!	Go on and speak (make the sound), Timothy!

Rukiga is one of the local languages spoken in Southwestern Uganda

For example wetlands were once filled with boggy marshes, papyrus reeds about 10 cm in diameter, and rhizomic roots that helped keep fires burning overnight, making matchboxes unnecessary. The thorny thickets that provided a vital ecosystem for various animals have now vanished, replaced by farmlands and bare hillsides. Long pink earthworms, once a feast for a specific species of ibis, have also disappeared. These



changes are evident, but many smaller plants, animals, and insects have likely been overlooked. My only natural science training before joining UWA came from my mother in her gardens, where she taught me about various plants and their uses, referring to it as "Nature study." At nine, I didn't grasp the full meaning; I only learned names and uses in my mother tongue. I briefly revisited these topics in secondary school agriculture lessons but didn't delve deeply. My mother often spoke of local insects and birds, and wildlife featured in the folk stories she shared.

Though I chanted her lullabies, it wasn't until I was older that I noticed how my community's landscape had changed.

My first visit to a national park was in high school on a class trip to Queen Elizabeth National Park (QENP). The journey in an old school truck was bumpy; we sat on the floor as it lacked seats, because it was intended for carrying goods, not school children. Our driver, Mr. Rwakasore, appeared as old as the truck and had vitiligo, which left patches on his skin. He was a man of few words, and kids joked he only knew how to drive and five other words. He would say "school truck, Rwakasore..." at police checkpoints, allowing us to pass without further questions.

In front of the truck sat two geography teachers, one of whom was the Deputy Head Teacher, nicknamed BZ. Despite being aloof, students liked him as long as they didn't disturb him. He set two rules for our trip: keep quiet and avoid hanging onto the truck's rails. We set off on a game drive at dawn, discovering wonders around every turn. However, late in the evening, some older boys defied BZ's second rule and climbed onto the truck's rails. As dusk fell, they didn't notice BZ watching in the side mirror. Suddenly, the truck halted, and BZ called out their names. "Please come down," he instructed. "You can walk back to the dormitory." After the drove off, silence filled the truck as we wondered about the boys' fate amidst the lurking dangers of the wild. About a kilometer later, we stopped and saw the boys running back, climbing aboard and sitting on the floor without a word until we reached the dormitory. What should have been an epic experience was overshadowed by BZ's harsh decision, leaving me disinterested in national parks and conservation.

Many years later, at my friend's urging, I joined UWA, applying for a position and interviewing just days later. In an interesting turn of events, I agreed to accompany the Technical Advisor on a field visit to the Rwenzori Mountains and Lake Mburo National Parks. I returned to Kampala and signed a contract without fully understanding what I had signed up for. The job involved demanding work—hiking, interacting with communities that often hid from UWA's presence. I had to find ways to build relationships, drawing from their culture and values to foster understanding. In time, I formed lasting connections that showed me how UWA could support conservation efforts through community engagement.



During the pilot phase of the project in both Lake Mburo National Park (LMNP) and Rwenzori Mountains National Park (RMNP), I alternated one-week allocations between the two parks. Prior to joining UWA, I had never imagined working in conservation or with cultural values, which were often overlooked. I consistently explained the project's objectives at UWA to promote community involvement in conservation, believing it could reduce poaching and human-wildlife conflict while benefiting local livelihoods. Wildlife was more visible in LMNP, and I felt anxious, especially since we were working with cattle keepers who wanted their Ankole cows to graze in the park. During a community meeting, after declining milk offered to me, a representative expressed disbelief, questioning how I could conserve what I didn't understand. This motivated me to prove myself.

Through these efforts, I joined the Society for Conservation Biology and encouraged colleagues to participate in discussions about conservation. However, when I submitted my resignation, community representatives urged me to stay, but it was too late. Leaving UWA and the bonds I had formed was heartbreaking, especially since we had made significant progress. The decision was difficult; my health took precedence as I prepared for a baby. Eight months later, we welcomed a chubby boy, naming him Rwenzori in honor of the Rwenzori Mountains.



Clare's first-born Rwenzori

The project had established two community associations: the Ankole Cow Conservation Association (ACCA) in the Lake Mburo area and the Rwenzori Mountains Community Conservation Association (RweMCCA) in the Rwenzori region. ACCA managed a community conservation project within Lake Mburo National Park, promoting cultural tourism. We set up a Hima household to showcase activities related to cows, such as milking and caring for them. Local communities also donated purebred Ankole cows to the UWA kraal. During my first months in Lake Mburo National Park (LMNP), I faced a steep learning curve. One evening, I spotted an abandoned foal while driving to the park headquarters. Despite my driver's warnings that it would likely die, I insisted on taking the foal with us, determined to intervene in nature.



Upon reaching the park headquarters, I placed the foal on my veranda, but I quickly realized I had no way to care for it properly. I bought milk but did not succeed in feeding it and ended up placing the foal in a bathroom stall with grass and water. It hadn't been taught how to eat or drink, as its mother was absent. I recognised my mistake as the other staff looked at me in disbelief. I learned an important lesson: we cannot outdo or replace nature; we can only learn from it and adapt. From that incident that occurred in the park, I was nicknamed a "black mzungu," referring to someone of African descent who shows behaviours typical of white people. The ranger I worked with remarked on my unusual enthusiasm for wildlife, which sparked an idea to establish a sanctuary for abandoned or orphaned animals. The chief warden supported this, and an enclosure was built. However, on this recent visit, there was no sign of it, likely because management chose to let nature take its course.

From that experience, I felt I had found my true calling. I was happiest in places like the Rwenzoris or at Lake Mburo's Rwakobo Rock. I learned to identify the sounds of various animals, including the happy song of Maria the elephant after she drank local brew. While in the field, I would gather herbs for wounds and collect wild berries when we got hungry. It was pure bliss. I worked with Bahima pastoralists and the Bakonjo in different parks, where I learned a lot about local plants and their uses. Friends often joke that I'm a non-professional herbalist. The trauma from my earlier visit to Queen Elizabeth National Park had faded, perhaps preparing me for my future role.

During this visit, at Nshara Gate in LMNP, a woman ran over and hugged me excitedly when she saw me. I didn't recognize her at first, but I politely asked for her name and where we had last met. She reminded me that I left UWA when she was just two weeks old, after sharing the Culture and Values project with the QECA staff. I recalled a memorable meeting where the Chief Warden of QENP gave me a standing ovation and expressed his support for the Culture and Conservation project, mentioning that with my dedication, I could become the first female chief warden in UWA's history—a milestone yet to be achieved.

On this special afternoon, nearly 17 years later, entering the Nshara gate brought back vivid memories. I remembered the earthy scent of the park, the welcoming songs of the weaver birds, the playful monkeys, and the wild pigs that kept their distance. At the water hole, the buffalo seemed to be having a meeting, while the hippos remained calm. I even spotted two families of Egyptian geese, a new addition since I left. The populations of bushbuck, impala, warthogs, buffalo, and waterbuck are impressive. The topi remain shy, while the shiny and curious impalas and antelopes are numerous. The zebras are abundant, enjoying the lush grass and plentiful water, appearing as if they're in zebra heaven with bright stripes and well-groomed coats. I can't help but wonder if any of them are relatives of the little foal I couldn't save 16 years ago.



a) The UWA staff and Clare were happy to meet each other again. b) Clare and children in LMNP

Suddenly, giraffes appear nearby, seeming almost trained to pose for photos. With the ranger's permission, I step out of the car, exhilarated by the experience. They walk away leisurely, reminding me to keep my distance, yet I find them even more stunning and majestic than I remembered. I wish I could stay and share a moment with them, reminiscing about the past. Sixteen years ago, there were no giraffes in LMNP; they were introduced in July 2015 and have since thrived, enhancing the park's beauty. Everyone should experience this wonder.



Zebras and the Majestic giraffes of LMNP

The Easter of 2025, driving through LMNP, surrounded by familiar faces, lush greenery, and lively wildlife. It felt like a return to a place I had discovered 17 years ago—one that felt like home. My kids were excited! As we left the park, one of them said, “I think working with wildlife is the best job in the world. Why did you leave it?” We fist bumped, and I agreed, sharing the story behind his name: Rwenzori. I hope that his children will also get to see and protect these animals. He fell asleep with a big grin on his face, and I felt a sense of fulfillment—it was all worth it. The connections and memories made during this visit reminded me of the seeds of conservation I had planted in them.

Leaving the park with a full heart, I knew LMNP would always be my wild home, a place filled with wonder. For some, it’s just a job or a tourist destination, but for me, it’s home. For now, it’s adieu, LMNP; the youngest member of our team is herding the giraffes. I’m looking forward to heading to the Rwenzoris and seeing what has changed since I left.



My Environment Wellbeing Initiative (Mewin) – Empowering Nigeria’s Upcoming Generation For A Sustainable And Greener Future:

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My Environment Well-being Initiative (MEWIn) is an NGO established to promote sustainable environmental stewardship, founded by Dr. Adedotun Onoyinka Afolayan and guided by a Board of Trustees led by Dr. Salamatu FADA. Our motto is "Empowering Environmental Stewardship, Inspiring Change," and our slogan is "...making the environment better one action at a time."

MEWIn focuses on engaging stakeholders, particularly the youth, in biodiversity conservation activities like community reforestation, school greening initiatives, and environmental clean-ups. We are committed to fostering sustainable development and envision a future where biodiversity flourishes.



Dr. Adedotun Onoyinka Afolayan

Our Youth Engagement and Empowerment Activities (YEEA), such as the MEWIn Green-culture and Sensitisation Initiatives (MGCSI), aim to educate primary and secondary school students on conservation and sustainable practices, turning them into "eco-champions." Recently, in collaboration with organisations like the Nigerian Society for Conservation Biology, MEWIn celebrated the International Day of Biodiversity by establishing school gardens and planting various fruit trees at the UI Staff School in Ibadan. Feedback from students has been positive, with increased involvement in gardening activities and a newfound appreciation for beautifying their school.



Students in a tree planting exercise

Through these initiatives, MEWIn hopes to instill lifelong environmental stewardship attitudes in students, highlighting the importance of biodiversity management and sustainable practices.

The MGCSI initiative offers several benefits, including:

1. Environmental education and awareness
2. Hands-on learning experiences for students
3. Promotion of sustainable practices
4. Increased food security and improved nutrition
5. A more enhanced school environment

These activities are made possible by the generous support, donations, and funding from our donors, sponsors, and volunteers, who provide the resources needed to inspire the next generation of environmental stewards through our initiatives.



a) Ibadan University staff. b) Volunteers and some board members

Many of our current donors and sponsors are philanthropists who want to see our environment restored and improved. These individuals are friends and colleagues who believe in the vision, mission, and objectives of our NGO. We invite you to join our efforts through your generous donations and support. If you would like to help drive this initiative, please **reach out to us at mewin2024@gmail.com or +23480247**



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