## 3.3 Protected areas and the biodiversity economy

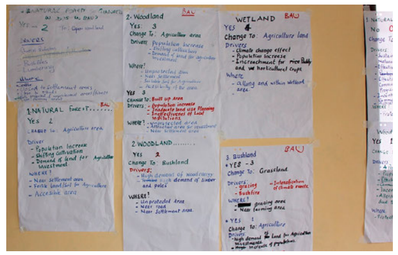
### 3.3.1 Carbon revenues to finance protected areas

Africa's huge potential for unlocking finance related to climate regulation is still largely untapped. Revenue from carbon credits may provide a sustainable source of financing for frequently underfunded Africa protected areas.

The Kunming–Montreal Global Biodiversity Framework set an ambitious new target of increasing the coverage of the protected and conserved areas. However, inadequate funding remains a major impediment to effective protected area management and wildlife conservation throughout sub-Saharan Africa. The continent has only shown modest financial capacity to address its biodiversity priorities, so additional international funding from new sources is needed[1]. Trade in carbon credits is one of several innovative approaches that are either already in use or currently under development, which promise to finance nature conservation more broadly, and protected areas in particular[2].

Africa has huge potential for finance related to climate change regulation and carbon emissions reduction. However, to date the continent only represents a very low share of international carbon markets, estimated at just 2%. Credits are traded on international carbon markets in response to state regulatory (i.e. regulatory carbon credits) or non-regulatory reasons (i.e. voluntary carbon credits). A carbon credit corresponds to one tonne of carbon dioxide (or an equivalent amount of greenhouse gas, $CO_2e$) removed from the atmosphere, either through carbon sequestration or by eliminating reasonably anticipated carbon emissions. The activities can be combined in carbon offsets projects, which aim to prevent, minimise, or eliminate carbon emissions from the atmosphere to offset emissions that exceed predetermined thresholds[3].

Carbon emissions reduction projects tend to be framed under the triple win narrative, whereby they should generate positive outcomes for climate regulation, biodiversity conservation, and community development simultaneously. However, such multiple-win ambitions do not always match project realities. For example, certain forest projects in Africa faced community contestation and violent conflicts during the implementation phase[7]. For this reason, participatory approaches are key for co-designing and co-planning emission reduction projects[8]. Many carbon projects include a biodiversity safeguard for projects targeting agriculture, forest, or land use. But such safeguards are framed as having 'no harm', which risks retaining the biodiversity status quo without necessarily improving conservation outcomes. Schemes that focus on planting trees may not necessarily lead to positive outcomes for other aspect of biodiversity. This risks overlooking carbon services from wildlife, which can be both direct or indirect[9]. Elephants can increase carbon stocks in forests by reducing plant density and stimulating new growth. Grazing by large herbivores can reduce fuel loads and lower the risk of wildfires. These examples affect above and below ground carbon stocks positively. Therefore, investments into the conservation and restoration of species could be a way to bridge the biodiversity-financing gap, although such approaches are still in their infancy[9].




**Participatory planning for emissions reductions.**

Participatory approaches are key for co-designing and co-planning emission reduction projects in Africa. In the context of a national project for REDD+ readiness in Tanzania, workshop settings allow stakeholders to openly discuss direct and indirect drivers of land use change, and identify challenges and opportunities for reducing deforestation and forest degradation.

Source: Claudia Capitani, with permission, all rights reserved.

The opportunities for trading in carbon credits generated from ecosystem management is largely underexploited in Africa. In 2017, only 17 of 192 African projects under the Clean Development Mechanism established by UNFCCC for the regulatory market focused on afforestation and reforestation[4]. The rest focused on reductions from modified industrial processes[4]. Initiatives in non-forested ecosystems were generally overlooked.

Barriers to the uptake of mitigation activities include general investment barriers, as well as time lags between planning activities, establishing necessary institutional frameworks, and certifying reduced emissions. Further, the generally low and scattered sources of emissions create up-front costs that are relatively high compared to the expected revenues[5].

Most of Africa's carbon trading initiatives have contributed to voluntary carbon markets, particularly in the framework of the REDD+ programme (Reducing emissions from deforestation and forest degradation in developing countries). The Berkeley Carbon Trading Project's Voluntary Registry Offsets Database contains records of carbon offset projects listed globally by four major voluntary offset project registries: American Carbon Registry (ACR), Climate Action Reserve (CAR), Gold Standard, and Verra (VCS)[6].

Gabon was the first African country to receive results-based payments through the Central African Forest Initiative (CAFI) under a 10-year REDD+ deal. The CAFI transferred US$ 17 million to Gabon in 2019; the first tranche of a deal valued at US$ 150 million. In return, Gabon committed to protecting its forests from deforestation. Similarly, the organisation Wildlife Works uses a community-centred conservation model in the Democratic Republic of the Congo and in Kenya to generate carbon credits from avoided deforestation, which are being sold on voluntary markets.

**Charcoal and local livelihoods.**

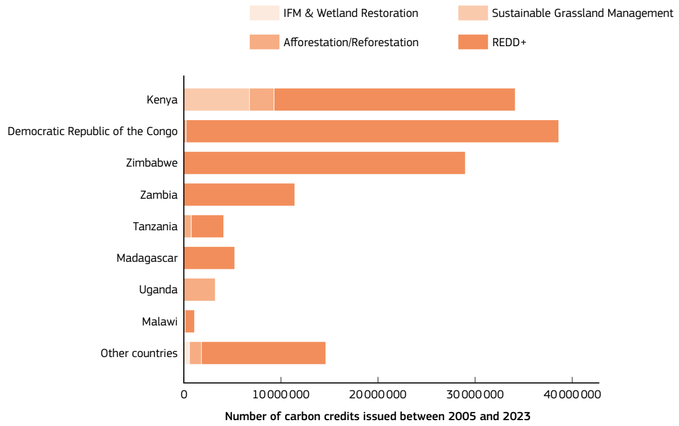
Charcoal production is one of the main drivers of land degradation in Africa. Carbon market opportunities encourage ways of replacing or improving the efficiency of charcoal production.

Source: Claudia Capitani, with permission, all rights reserved.

Compared to forested landscapes, there has been little to no investment for carbon finance in open ecosystems (e.g. grasslands, rangelands, or savannahs). Though Central Africa hosts the second largest moist forest in the world, most land in Africa is covered by non-forested ecosystems. While these ecosystems store less carbon than forests, their storage potential is still considerable. Following best practices in land management can unlock this potential.

African savannahs depend on prescribed burning regimes to reduce fire risk. Most global savannah fires are in Africa – including protected areas across Eastern and Southern Africa – and these fires are responsible for approximately 71% of global savannah $CO_2$ emissions[10]. However, shifting fires from the late to the early dry season could reduce emission substantially without undermining prescribed fire management. One study focusing specifically on protected areas with lions[11] found that the potential annual carbon revenues from fire management are in the order of US$ 60–656 million at a market price of US$ 5/ton, and up to US$ 155–1 700 million at a market price of US$ 13/ton. A related study estimated the existing finance gap for these protected areas as US$ 0.9–$2.1 billion[12], suggesting that carbon revenues can contribute to closing finance gaps significantly.

However, as shown in the map, the potential for emission reductions from fire management vary geographically across protected areas. Implementing these practices in the most promising protected areas may have significant impacts on both wildlife populations and national conservation budgets. This will depend on reliable methods frameworks to quantify emissions reductions and carbon sequestration through traditional savanna fire management, and then verify the avoided emissions of improved practices.




**Carbon credits issued from African countries.**

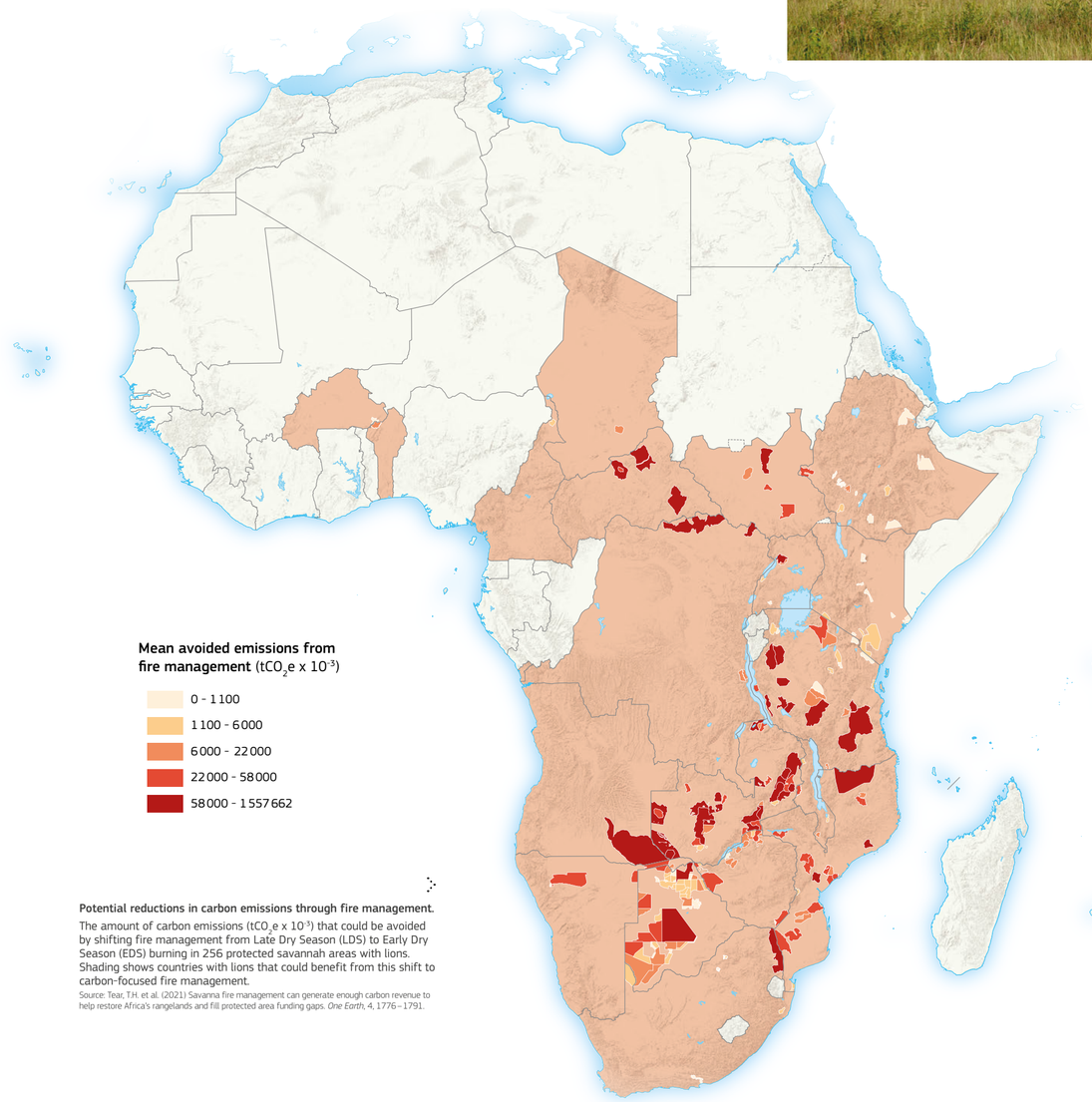
Carbon credits issued between 2005 and 2023 in the Forestry and Land use sectors for 135 projects in Africa. (IFM: Improved forest management).

Source: So, I.S. et al. (2023, December). Voluntary Registry Offsets Database v9, Berkeley Carbon Trading Project, University of California, Berkeley. Available from: https://gspp.berkeley.edu/faculty-and-impact/centers/cepp/projects/berkeley-carbon-trading-project/offsets-database.

**Savannah ecosystems have the potential to store large amounts of carbon.**

Effective management of savannahs can play a critical role in reducing carbon emissions in Africa. Managing mammal herbivore populations can regulate carbon storage, and adjusting seasonal patterns for prescribed fires can reduce carbon emissions.

Source: Claudia Capitani, with permission, all rights reserved.




**Potential reductions in carbon emissions through fire management.**

The amount of carbon emissions ($tCO_2e \times 10^{-3}$) that could be avoided by shifting fire management from Late Dry Season (LDS) to Early Dry Season (EDS) burning in 256 protected savannah areas with lions. Shading shows countries with lions that could benefit from this shift to carbon-focused fire management.

Source: Tear, T.H. et al. (2021) Savanna fire management can generate enough carbon revenue to help restore Africa's rangelands and fill protected area funding gaps. *One Earth*, 4, 1776–1791.

## References


[1] Chapmann, C.A., et al. (2022) The future of sub-Saharan Africa's biodiversity in the face of climate and societal change. Frontiers in Ecology and Evolution, Conservation and Restoration Ecology, 10, https://doi.org/10.3389/fevo.2022.790552

[2] Bishop, J., et al. (2006) Sustainable financing of protected areas: a global review of challenges and options. IUCN Monograph Series 013. Gland, Switzerland.

[3] Okot Anyango, E.M., (2023) Carbon markets: a false or real solution to Africa's development challenges in the context of the African continental free trade area (AFCTA)[online: https://africa.landcoalition.org/en/newsroom/carbon-markets-a-false-or-real-solution-to-africas-development-challenges-in-the-context-of-the-african-continental-free-trade-area-afcfta/] 4

[4] Feyertag, I., et al. (2022) Financing for natural capital in Africa. Financial Sector Deepening Africa. Nairobi, Kenya.

[5] Krebich, N., et al. (2017) An update on the Clean Development Mechanism in Africa in times of market crisis. Climate and Development, 9, 178-190.

[6] So, I.S., et al. (2023, December). Voluntary Registry Offsets Database v9, Berkeley Carbon Trading Project, University of California, Berkeley. Available from: https://gspp.berkeley.edu/faculty-and-impact/centers/cepp/projects/berkeley-carbon-trading-project/offsets-database

[7] Schmid D.V., (2023) Are forest carbon projects in Africa green but mean? A mixed-method analysis. Climate and Development, 15, 45-59.

[8] Capitani, C. et al. (2016) From local scenarios to national maps: a participatory framework for envisioning the future of Tanzania. Ecology and Society, 21, art.4

[9] Berzaghi, F., et al. (2022) Value wild animals' carbon services to fill the biodiversity financing gap. Nature Climate Change, 12, 598-601.

[10] Maraseni, T.N. et al. (2016) Savanna burning methodology for fire management and emissions reduction: a critical review of influencing factors. Carbon Balance and Management, 11, art. 25.

[11] Tear, T.H., et al. (2021) Savanna fire management can generate enough carbon revenue to help restore Africa's rangelands and fill protected area funding gap. One Earth, 4, 1776-1791

[12] Lindsay, P.A. et al. (2018) More than $1 billion needed annually to secure Africa's protected areas with lions Proceedings of the National Academy of Science, USA, 115, E10788-E10796.

## 3.3.2 Tourist visitation to protected areas

The full value of protected areas often cannot be measured directly, so has to be estimated using proxies. The numbers of visitors to protected areas is a useful proxy for the revenues generated from protected areas. Visitation information can guide protected area authorities on ways tourism revenue can close the financing gap for protected areas and contribute to rural economic development.

Protected areas house significant natural and cultural resources. Their designation and maintenance frequently correspond with the need for economic opportunities for the surrounding, often rural, communities. This is especially the case in low-income countries, which face stronger pressure to leverage protected areas for non-conservation uses that alleviate poverty and improve livelihoods. Similarly, many protected areas need ways to generate income to close financing gaps.

Tourism has the potential to generate revenue for protected areas while creating economic multipliers for surrounding communities. Tourists contribute directly to protected areas through entrance fees, and the use of amenities (i.e. accommodation, picnic sites), services (i.e. guides, drivers), and products (i.e. refreshments, souvenirs). Often, the expenditures flow to surrounding communities, who benefit from the protected area through concessions or the geographical proximity of their businesses. Therefore, tourist visitation can be used as an indicator of potential visitor spending to illustrate the economic contribution and impact of tourism in protected areas[1].

**The economic impact of tourism on local communities.**

Tourists buying traditional beaded jewellery in a Maasai boma at Mkuru, Tanzania. Safari tours to popular national parks often include visits to community-led initiatives that sell local handicrafts, such as pottery or jewellery; or produce, like coffee or fruit. Tourist spending leads to economic multipliers, which share the benefits from nature-based tourism with those people who usually bear the burden of living around wildlife areas.

Source: Claudia Capitani, with permission, all rights reserved.

Because visitor counting is a key dimension of the economic impact of tourism in a protected area, it should follow appropriate standards. The "*Visitors Count! guidelines*" provide a standardised way for national stakeholders, protected area managers, and researchers to count visitors and estimate the economic impacts of tourism in protected areas[1].

Building on previous studies[2,3], the BIOPAMA programme collated data on visitors' numbers and expenditures in protected areas across Africa. This feature map shows the average annual visitation to 255 protected areas in 29 countries. The geographical visitation patterns partly reflect the historical legacy of protected areas in Eastern and Southern Africa, where game reserves were originally established to encourage game viewing. The more open grasslands and savannahs also meant that wildlife are more visible to visitors compared to the forested areas of Western and Central Africa, which traditionally focused more on research than tourism.

The data presented here can potentially be used to identify the factors affecting tourism. Preliminary analyses suggest that tourist visitation is not limited to protected areas with specific management categories and governance types. Instead, factors affecting visitation rates likely include popularity, accessibility, the availability of tourism facilities, and perceptions of regional security. Similarly, clusters of protected areas may also attract more visitors when they are well connected and form part of multi-park tours.

**Tourism pressure on wildlife.**

The dozen game viewing vehicles surrounding three cheetahs in Masai Mara, Kenya, illustrate how tourists' desire for rare sightings can interfere with the natural behaviour of wild species.

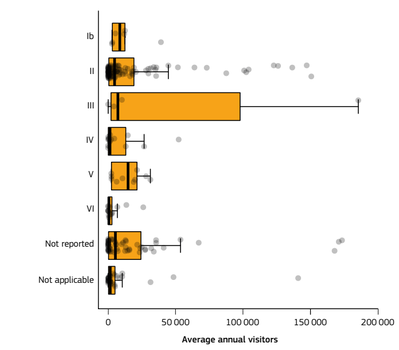
Source: Grégoire Dubois, with permission, all rights reserved.

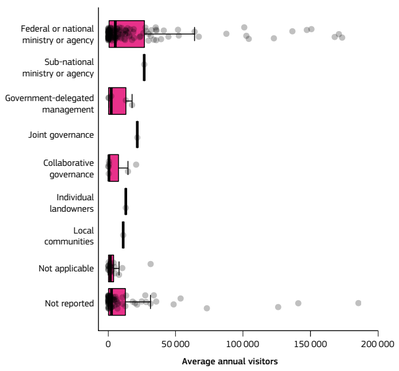
| | |
|---|---|
| What to count | • **Entrants** are the people that go into the protected area for any purpose. While this can be easy to measure, counting the total number entrants may overestimate the number of people using the park for recreation, particularly when entrance is free or when staff members use public entrances.<br>• **Visitors** are individuals visiting the protected area for recreational purposes. When a person enters a protected multiple times in a day, this counts as one visitor.<br>• **Visits** refer to the number of times an individual enters a protected area for recreational purposes. When a person enters a protected multiple times in a day, this counts as multiple visits.<br>• **Visitor days** are the total number of days that a visitor stays in a protected area. |
| How to count | • **Direct counts** rely on researchers actively counting observations made at the site, from video recordings, or remotely (e.g. by drone).<br>• **Indirect counts** infer on-site estimates from secondary sources, such as counting parking or entrance fees, permits or licenses, guest records at accommodation, entries in guest books, trail logs, signs of use, and social media posts.<br>• **Automatic counts** use mechanical and electronic devices to quantify the numbers of visitors through traffic counters, turnstiles, or video counters. |
| How to sample | • When complete counts are practically infeasible, an alternative sampling approach should ensure that decisions on **where to count, how many sites to count, and when to count** are statistically representative. |
| How to estimate the total annual visitation | • Incomplete samples of data (from a limited number of sites or time periods) need to be aggregated, upscaled, interpolated, or extrapolated to reflect annual averages of protected areas (or networks of protected areas). |

**Key questions for designing systematic visitor counts in protected areas.**

The choices of how to count visitors depend on the specific contexts of the protected areas. For many African parks, access is controlled and often entrance fees can only be paid in advance through bank transfers or tour operators. Centralisation like this facilitates data collection. However, when fees are collected through centralised systems, it makes it difficult to disaggregate visitor counts to individual protected areas.

Source: Spenceley, A., et al. (2021) Visitors count! Guidance for protected areas on the economic analysis of visitation. United Nations Educational, Scientific and Cultural Organization, Paris, France and German Federal Agency for Nature Conservation, Bonn, Germany.




**Top: Protected area visitation based on IUCN management categories.**

Tourists visit protected areas with all types of management. Here, points denote individual protected areas, and boxes show minimum, median, maximum, and inter-quartile range for each IUCN management category.

Source: Unpublished data collated from various sources through the BIOPAMA project, European Commission Joint Research Centre.

**Bottom: Protected area visitation based on the type of governance.**

Tourists visit protected areas with all forms of governance, though available data is disproportionately from protected areas governed by federal or national ministries. Here, points denote individual protected areas, and boxes show minimum, median, maximum, and inter-quartile range for each IUCN management category.

Source: Unpublished data collated from various sources through the BIOPAMA project, European Commission Joint Research Centre.

Tourism in protected areas should not be taken for granted. To unlock its potential value, there is a need to invest in infrastructure to enhance the tourist experience. This includes infrastructure for accommodation, refreshments, game drives, guided walks, and viewing points, to name some examples. Because infrastructure requires upfront investment, authorities need to weigh up whether they take responsibility on themselves through insourcing, or whether they outsource this responsibility to third-party tourism operators[4]. A decision framework can support these choices in a systematic and transparent way.

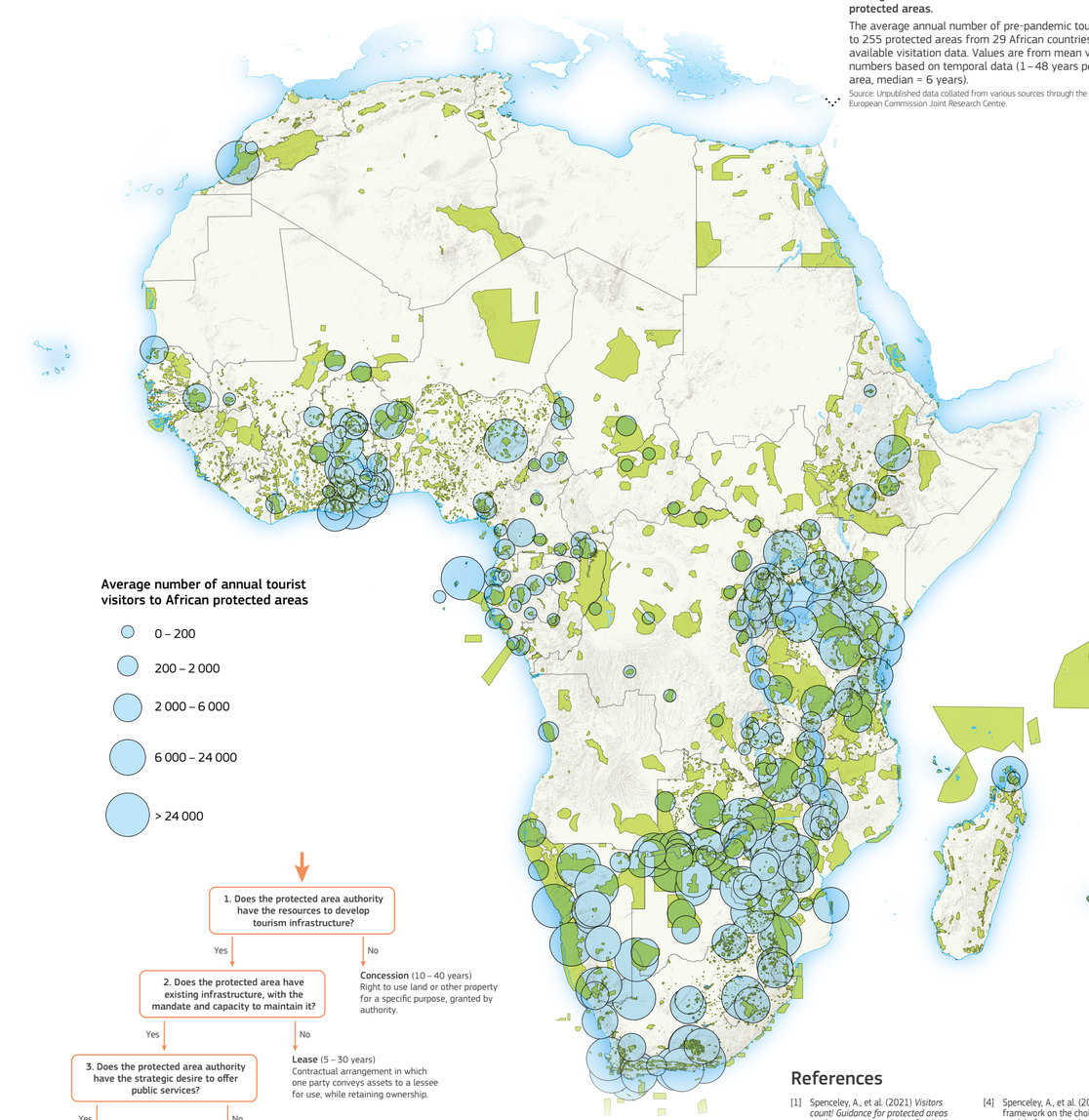
Although the benefits of tourism are clear, it may also have a downside. Excessive tourism can have direct negative impacts on wildlife, particularly at sites (e.g. nesting sites) or during seasons (e.g. during breeding seasons) that are particularly important for wildlife. Visitors' behaviour could also disturb wildlife by approaching too closely, crowding with their vehicles, being too loud, picking flowers, or feeding animals inappropriately. Indirectly, high visitation numbers may lead to uncontrolled development of tourism facilities, which could lead to land use change, waste generation, and excessive use of water and energy. This could ultimately jeopardise local communities' livelihoods[5]. Tracking visitor numbers is, therefore, also important for avoiding and mitigating the negative and, to some extent, inevitable effects of tourism[5].

Tourism based around protected areas can bring significant benefits to African economies. This significance is reflected by the African Union's Green Recovery Action Plan, which calls for *"immediate support for ecotourism… [because]… eco-tourism in Africa has been hit hard by COVID-19"*[6]. The Plan continues by describing how environmentally and socially responsible tourism is beneficial to the socio-economic involvement of local people[6]. Therefore, detailed and up-to-date information on protected area visitation is an important component of what is clearly a policy priority for the continent.

**Average number of annual tourist visitors to African protected areas.**

The average annual number of pre-pandemic tourist visitors to 255 protected areas from 29 African countries with publicly available visitation data. Values are from mean visitation numbers based on temporal data (1 – 48 years per protected area, median = 6 years).

Source: Unpublished data collated from various sources through the BIOPAMA project, European Commission Joint Research Centre.







**A decision framework for tourism services in protected areas.**

Protected areas can either develop tourism services themselves (through insourcing), or by outsource responsibility using a variety of legal instruments (concessions, leases, licenses, or permits).

Source: Designed based on the framework described by: Spenceley, A., et al. (2019) A decision framework on the choice of management models for park and protected area tourism services. *Journal of Outdoor Recreation and Tourism*, 26, 72-80.

## References


[1] Spenceley, A., et al. (2021) *Visitors count! Guidance for protected areas on the economic analysis of visitation.* United Nations Educational, Scientific and Cultural Organization, Paris, France and German Federal Agency for Nature Conservation, Bonn, Germany.

[2] Balmford, A. et al. (2015) Walk on the wild side: estimating the global magnitude of visits to protected areas. *PLoS Biology*, 13, e1002074.

[3] Naidoo, R. et al. (2016) Estimating economic losses to tourism in Africa from the illegal killing of elephants. *Nature Communications*, 7, 13379.

[4] Spenceley, A., et al. (2019) A decision framework on the choice of management models for park and protected area tourism services. *Journal of Outdoor Recreation and Tourism*, 26, 72-80.

[5] Leung, Y.-F., et al. (eds.) (2018). *Tourism and visitor management in protected areas: Guidelines for sustainability.* Best Practice Protected Area Guidelines Series No. 27. IUCN. Gland, Switzerland

[6] AU (2021) *African Union Green Recovery Action Plan 2021 – 2027.* African Union. Addis Ababa, Ethiopia.

## 3.3.3 Wildlife-watching species richness in Africa

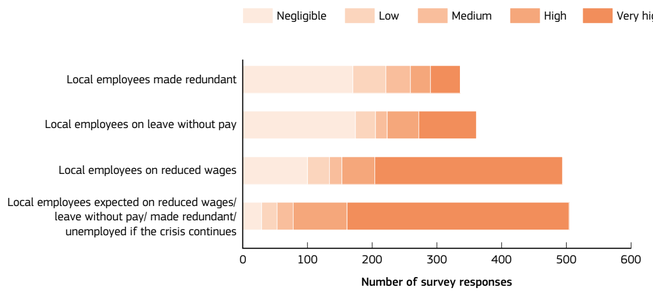
It is estimated that every year more than 30 million tourists visit Africa on safari, a Kiswahili word associated with wildlife tourism. Wildlife-watching represents around 80% of the total annual sales of tourism to Africa[1]. The richness of charismatic wildlife-watching animal species is one of the most important assets driving this sector, and the spatial distribution of charismatic species across African countries and protected areas can identify areas where the economy could benefit from or support conservation.

The main feature map shows the wildlife-watching species richness index[2], which reflects the spatial ranges of a selection of highly charismatic megafauna, including the Big 5 (rhinos, elephants, lions, leopards, and buffalo), giraffe, apes (lowland and mountain gorilla, chimpanzees, and bonobo), colobus monkeys and lemurs (sifaka, ringtails, Aye-aye, and mouse lemurs). These species were selected following evidence that charismatic mammals are flagships responsible for attracting most tourists to protected areas. However, this selection is not representative for north Africa and oceanic small island countries. The index is calculated from the IUCN Red List species' geographical ranges[3], whereby the occurrence of each species or group is weighted by it attractiveness and visibility, as scored by a team of experts, and then summed up by for specific localities[1]. The distributions of charismatic wildlife species is influenced by habitat conditions, but also by conservation effectiveness.

In the past, tourism operations tended to depend heavily on charismatic megafauna, which in some cases may have led to distorted management priorities of wildlife areas to the detriment of wider biodiversity conservation. However, species diversity is also an important criterion for selecting safari destinations and there could be a potential to derive ecotourism benefits for many areas in the absence of some of the charismatic mega-fauna that appeal to mass-market tourists.

The recent COVID-19 pandemic and the associated banning on travel revealed both the dependency on tourism revenues of conservation sites and the lack of information on their ability to withstand economic shocks. The geographical distribution of tourism operations that responded to a survey on the impacts of COVID-19 during 2020 provides a proxy of the importance of these economic activities at the country and site level in Africa[4].

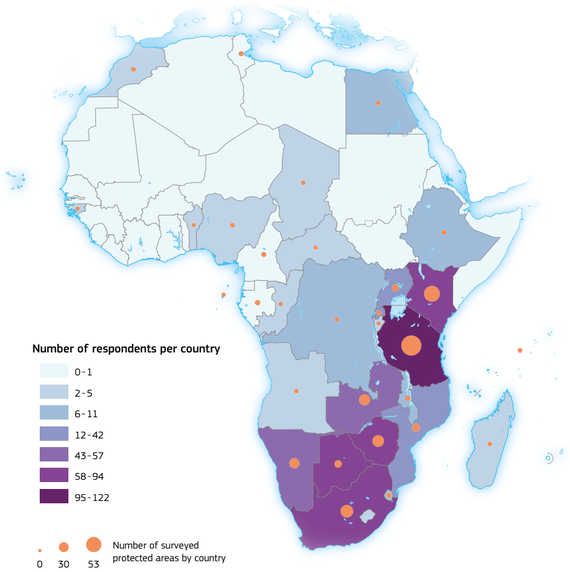
Tourism initiatives built around flagship species also contribute to conserving whole ecosystems and more broadly to community development and livelihood improvement in the respective regions. Besides funding activities in conservation sites, tourism operations sometimes affect the way protected areas are managed. Park management practices often enhance opportunities for visitors to spot wildlife, by opening vegetation, maintaining water holes where wildlife gather during the dry season, or by habituating animal groups to human presence.




**Changes in local employment due to COVID-19 during 2020**

Changes in local employment due to COVID-19 during 2020 for 543 African tourism operators reporting their staff numbers, the majority of which are local people*. (Negligible: < 1% of staff affected, Low: 1 – 24% of staff affected, Medium 2 – 49% of staff affected, High: 50 – 74% of staff affected, Very High: >75% of staff affected).

Source: European Commission (2021) *COVID-19 and protected area tourism – A spotlight on impacts and options in Africa*, Publications Office of the European Union, Luxembourg.




**Spatial patterns of the number of operations responding to a survey on the impact of COVID-19 pandemic on tourism in 2020.**

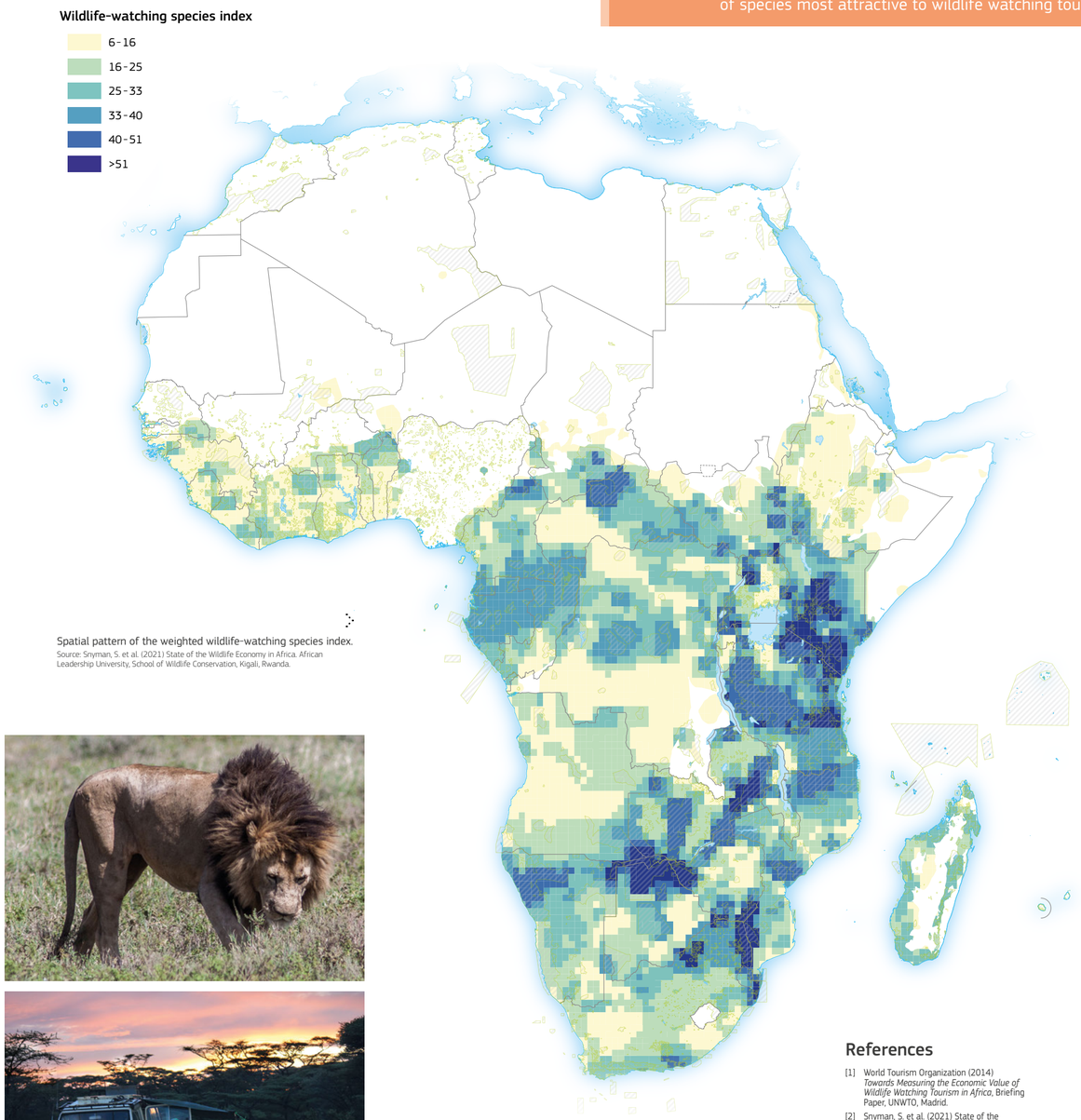
Source: European Commission (2021) *COVID-19 and protected area tourism – A spotlight on impacts and options in Africa*, Publications Office of the European Union, Luxembourg.

**Wildlife photography on a safari.**

A picture of the Big 5 is a must, even if only by mobile phone.

Source: Claudia Capitani, with permission, all rights reserved.

Site-level data on visitors, revenue, and active tourism operations are scarce for many African protected areas. This creates an information gap on how protected areas relate to the tourism industry. One solution for filling this gap is mapping the distributions of species most attractive to wildlife watching tourists.




Spatial pattern of the weighted wildlife-watching species index.

Source: Snyman, S. et al. (2021) State of the Wildlife Economy in Africa. African Leadership University, School of Wildlife Conservation, Kigali, Rwanda.



**The safari experience.**

Top: An adult male lion snarls at tourists' camera lenses in Ngorongoro Conservation Area, Tanzania; bottom: camping into the wild never fails to surprise.

Source: Claudia Capitani, with permission, all rights reserved.

## References


[1] World Tourism Organization (2014) *Towards Measuring the Economic Value of Wildlife Watching Tourism in Africa*, Briefing Paper, UNWTO, Madrid.

[2] Snyman, S. et al. (2021) State of the Wildlife Economy in Africa. African Leadership University, School of Wildlife Conservation, Kigali, Rwanda.

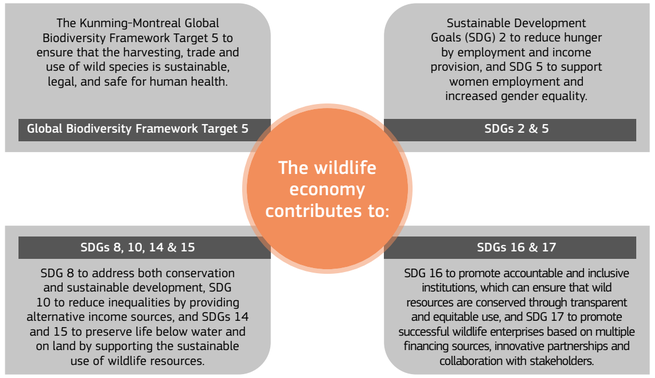
[3] IUCN Red List IUCN (2020), The IUCN Red List of Threatened Species. Version 2020-2. https://www.iucnredlist.org. Downloaded in July 2020.

[4] European Commission (2021) *COVID-19 and protected area tourism – A spotlight on impacts and options in Africa*, Publications Office of the European Union, Luxembourg.

## 3.3.4 Wildlife economy

The wildlife economy is the system of economic activities that rely on plants and animals as assets to create value. The top five wildlife economy activities in Africa are ecotourism, hunting and fishing, wildlife ranching, carbon markets, and non-timber forest products.

When the wildlife economy's values align with conservation goals and promote both sustainable growth and economic development, they can play an important role in protecting Africa's biodiversity.



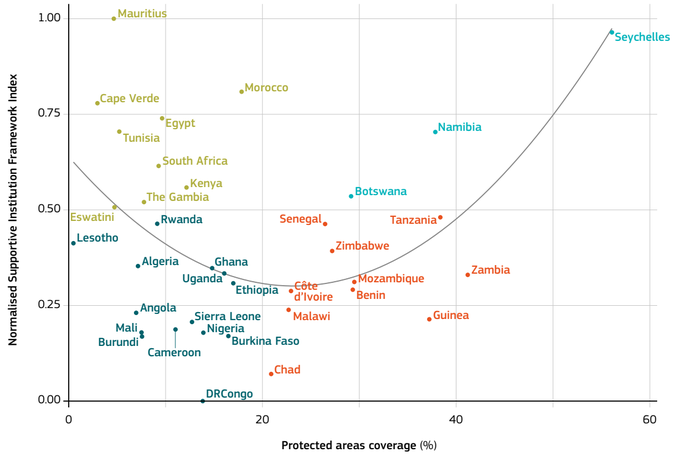

**The Wildlife Economy contribution to global sustainability and conservation goals.**

The wildlife economy implies the sustainable utilisation of indigenous wildlife to support economic development, while still contributing to conservation. This diagram highlights the contribution of Wildlife Economy to Sustainable Development Goals and the Kunming-Montreal Global Biodiversity Framework.

Source: Snyman, S. et al. (2021) State of the Wildlife Economy in Africa. African Leadership University, School of Wildlife Conservation, Kigali, Rwanda.

The development of the wildlife economy is supported by factors such as policy frameworks that safeguard natural assets and create conditions for investment. In the chart, an index of political and institutional support for the tourism industry[1] is plotted against protected areas coverage[2].

The chart represents the normalised index of supportive institutions and policy for tourism industry compared to protected area coverage (%). In an ideal situation, countries would aspire to occupy the top-right corner of the charts: a situation where biodiversity is protected and the wildlife economy is supported by a robust institutional framework.




**Conservation effort versus institutional support to tourism.**

The mismatch between institutional support to tourism sector and protected areas coverage across African countries highlights opportunities to expand the wildlife economy (red) or enhance its alignment with conservation goals (olive green) or both (emerald) toward successful coupled conservation and economic development achievements (turquoise). In the chart, country points are coloured by applying a threshold of 0.5 to the institutional support index and of 17% to protected areas coverage, in line with the global Aichi biodiversity target 11 for 2020.

Source: Calderwood, L.U., Soshkin, M. (2019) The travel and tourism competitiveness report 2019. World Economic Forum. UNEP-WCMC and IUCN (2023) Protected Planet: The World Database on Protected Areas (WDPA), October/2023, Cambridge, UK: UNEP-WCMC and IUCN.

**Examples of non-timber forest products in the wildlife economy.**

Clockwise from top left:

Keeping traditional beehives in the tree canopy is less productive than other beekeeping approaches, but it is compatible with forest conservation. This sector is currently only 12% on its potential in Africa, so there is an opportunity to grow the sector and expand the range of honey products.

Source: Claudia Capitani, with permission, all rights reserved.

Gum arabic produced by acacia tree species *Senegalia senegal* and *Vachellia seyal* is harvested across Sahel and used in many products.

Source: Fatima Ali, with permission, all rights reserved.

Coffee naturally growing in the forest understory is an important livelihood resource for communities of Jimma highlands, west-southern Ethiopia.

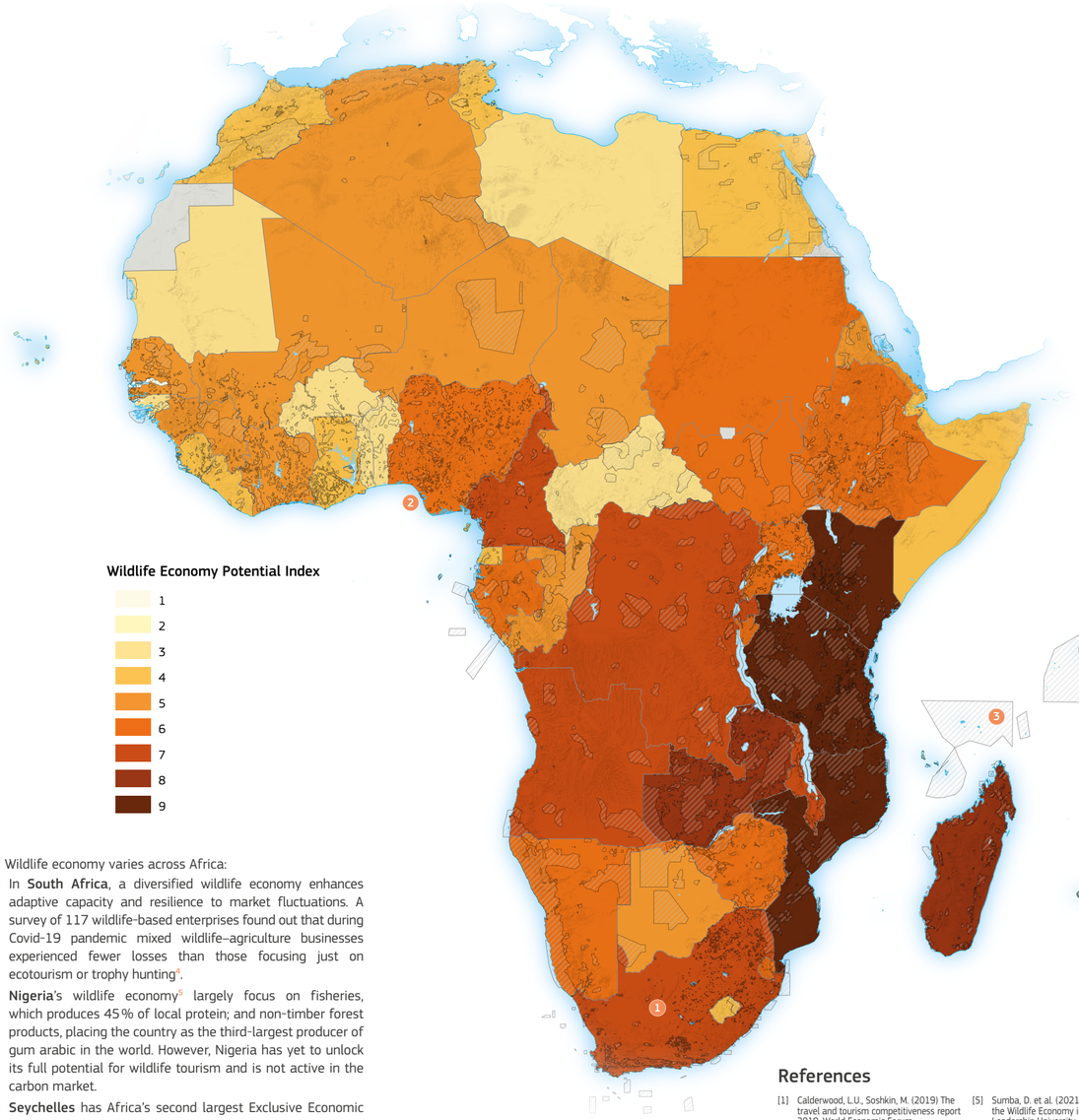
Source: Claudia Capitani, with permission, all rights reserved.

Measuring the potential of the wildlife economy is not an easy task because it depends on multiple components. The Wildlife Economy Potential (WEP) Index represented by this map is a composite indicator targeting ecotourism assets[3], which are to some extent related to the distribution of protected areas. The WEP is obtained by linearly combining scalar indicators of wildlife-watching species richness, biomes richness, and presence of mountain ranges, lakes and coral reefs. As a consequence, this map represents terrestrial assets disproportionately to coastal and marine wildlife assets.

**Potential for ecotourism in Africa.**

The Wildlife Economy Potential Index shows the spatial distribution of ecotourism-related assets. It is composed by three additive dimensions, each scoring from 1 to 3, therefore the index scores from 1 to 9.

Source: Snyman, S. et al. (2021) State of the Wildlife Economy in Africa. African Leadership University, School of Wildlife Conservation, Kigali, Rwanda.




Wildlife economy varies across Africa:

1. In **South Africa**, a diversified wildlife economy enhances adaptive capacity and resilience to market fluctuations. A survey of 117 wildlife-based enterprises found out that during Covid-19 pandemic mixed wildlife–agriculture businesses experienced fewer losses than those focusing just on ecotourism or trophy hunting[4].
2. **Nigeria**'s wildlife economy[5] largely focus on fisheries, which produces 45% of local protein; and non-timber forest products, placing the country as the third-largest producer of gum arabic in the world. However, Nigeria has yet to unlock its full potential for wildlife tourism and is not active in the carbon market.
3. **Seychelles** has Africa's second largest Exclusive Economic Zone, and its blue economy was estimated to represent 27.4% of GDP and 48% of employment in 2020[6]. The accommodation and food services sectors were the largest contributors to economic gross value added. In 2020, the Republic of Seychelles and European Union signed a 6-year sustainable fisheries partnership agreement (SFPA) with the EU financial contribution of €5 million per year.

## References


[1] Calderwood, L.U., Soshkin, M. (2019) The travel and tourism competitiveness report 2019. World Economic Forum.

[2] UNEP-WCMC and IUCN (2023) Protected Planet: The World Database on Protected Areas (WDPA), October/2023, Cambridge, UK.

[3] Snyman, S. et al. (2021) State of the Wildlife Economy in Africa. African Leadership University, School of Wildlife Conservation, Kigali, Rwanda.

[4] Clements, H.S. et al. (2022) Lessons from COVID-19 for wildlife ranching in a changing world, *Nature Sustainability* 5, 1040–1048.

[5] Sumba, D. et al. (2021) The State of the Wildlife Economy in Nigeria. African Leadership University, School of Wildlife Conservation, Kigali, Rwanda.

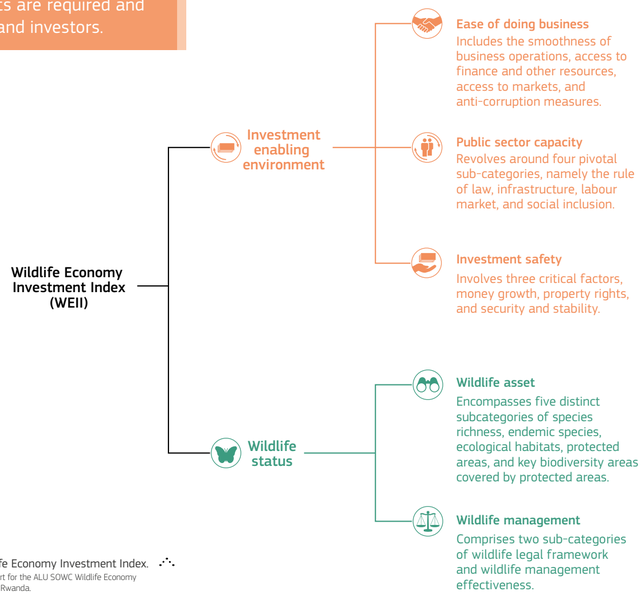
[6] United Nation Economic Commission for Africa, Sub-Regional Office for Eastern Africa (2021), The Blue Economy in Seychelles. Socio-economic and ecological assessment of the Blue Economy in Seychelles, Kigali, Rwanda.

## 3.3.5 Investing in the wildlife economy

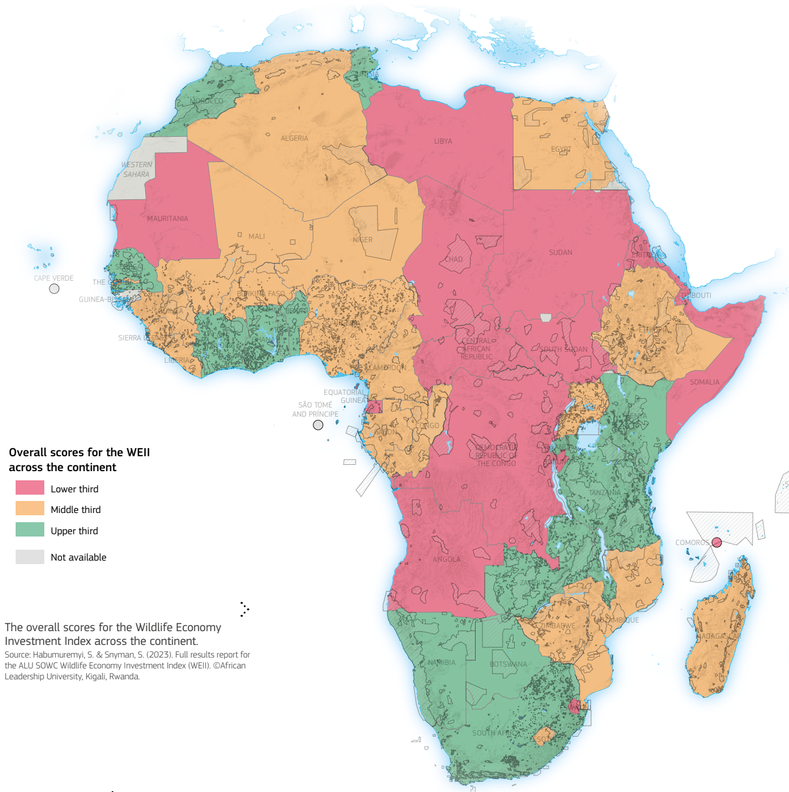
Striking a balance between publicly funding wildlife conservation as a strategic national asset and creating environments that enable private investment to develop the wildlife economy, is key for long term sustainability. Investors would benefit from guidance on which kinds of investments are required and where these can have the biggest impact for both nature and investors.

Researchers at the African Leadership University School of Wildlife Conservation developed a framework highlighting opportunities and challenges of investing in the wildlife economy at national levels. Their efforts are presented through the Wildlife Economy Investment Index (WEII)[1].

The WEII is a composite index that aggregates 280 sub-indicators hierarchically. The first primary component represents a '**wildlife status**' sub-index, which is composed of 60 sub-indicators grouped into two main sub-categories for '**wildlife assets**' and '**wildlife management**'. The second primary component quantifies an '**investment enabling environment**' sub-index, which is made up of 220 indicators grouped by main sub-categories of the '**ease of doing business**', '**public sector capacity**', and '**investment safety**'.



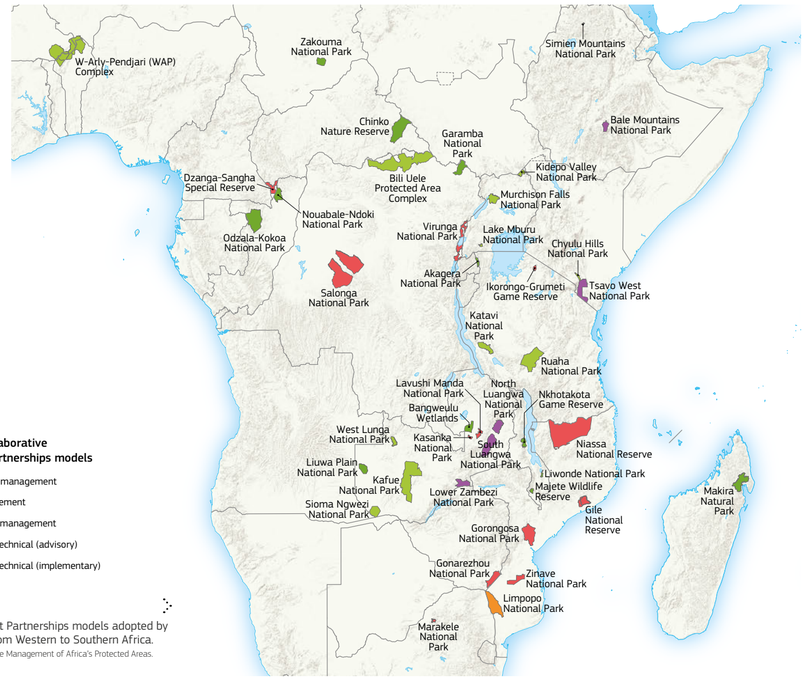

Hierarchical structure of the composite Wildlife Economy Investment Index.
Source: Habumuremyi, S. & Snyman, S. (2023). Full results report for the ALU SOWC Wildlife Economy Investment Index (WEII). ©African Leadership University, Kigali, Rwanda.



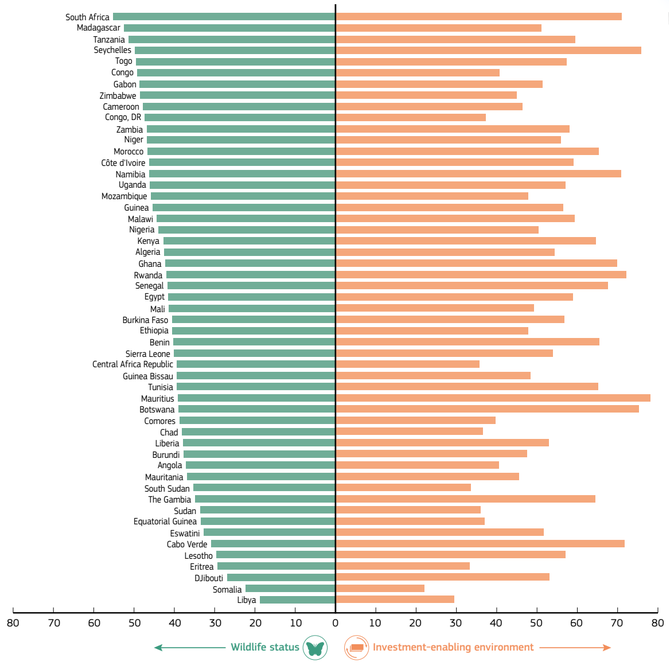

The overall scores for the Wildlife Economy Investment Index across the continent.
Source: Habumuremyi, S. & Snyman, S. (2023). Full results report for the ALU SOWC Wildlife Economy Investment Index (WEII). ©African Leadership University, Kigali, Rwanda.

At the level of protected areas, effective management is a key element of conservation success. Collaborative Management Partnerships (CMPs) are legal frameworks for private-public partnerships in protected area management. In some contexts, they proved successful in improving management effectiveness and in attracting investments in under-funded protected areas[2].

This map shows the diversity of CMPs models that have been implemented from Western to Southern Africa[3]. Researchers identified three possible CMP structures after interviewing 69 experts from state institutions and non-governmental organisation (NGOs) in 43 protected areas in 16 African countries. First, financial and technical support applies when an NGO assists the state with aspects of management without gaining any formal decision-making authority. Second, co-management occurs in instances where an NGO shares governance and management responsibility with the state. Third, delegated management refers to cases where NGOs share governance responsibility with the state and is delegated management responsibility. Some governments have shown interest in forming partnerships for protected area management, often motivated by the potential to address funding gaps and develop activities such as tourism[4].




The diversity of Collaborative Management Partnerships models adopted by 43 protected areas across 16 countries from Western to Southern Africa.
Source: Baghai, M. et al. (2018) Models for the Collaborative Management of Africa's Protected Areas. *Biological Conservation*, 218, pp. 73-8.




Wildlife Status sub-index versus Investment-Enabling Environment sub-index score.
Source: Habumuremyi, S. & Snyman, S. (2023). Full results report for the ALU SOWC Wildlife Economy Investment Index (WEII). ©African Leadership University, Kigali, Rwanda.

At the continental level, the WEII shows that Africa has performed slightly better at creating an environment favourable for investments than at maintaining and managing wildlife status. Specific interventions targeting endemic species and key biodiversity areas seem to be urgent, along with enhancement of management effectiveness of protected areas. Yet, private investment could be further encouraged by improving access to markets and finance, enhancing law enforcement, and eradicating corruption.

Further, the WEII highlights clusters of countries that have different needs. For example, countries like the Democratic Republic of the Congo or Madagascar score relatively highly in terms of 'wildlife status', but they lag behind in their 'enabling environment score'. In such countries, investments that make business easier, improve public sector capacity, or secure investment may be relatively more impactful. By contrast, countries like Mauritius or Cabo Verde score well on the 'enabling environment' but have a relatively low 'wildlife status'. In countries like these, investment into improving the status of and access to natural features may lead to greater improvements.

## References


[1] Habumuremyi, S. & Snyman, S. (2023) Full results report for the ALU SOWC Wildlife Economy Investment Index (WEII). ©African Leadership University, Kigali, Rwanda.

[2] Lindsey et al. (2021) Attracting investment for Africa's protected areas by creating enabling environments for collaborative management partnerships, *Biological Conservation*, 255, Article 108979

[3] Baghai, M. et al. (2018) Models for the collaborative management of Africa's protected areas. *Biological Conservation*, 218, pp. 73-8

[4] Fitzgerald, K. and Maleki, D. (2021) Collaborative management partnerships: How PPPs help advance conservation & development in Africa (worldbank.org)