

Biodiversity Loss and the Challenge of Implementing Nature Conservation Laws in Africa

Daniel Ogunniyi

Wilberforce Institute & Law School, University of Hull, UK

d.ogunniyi@hull.ac.uk

Angela Azeta

Redeemers University, Nigeria

angeyazeta@gmail.com

Abstract

Despite global multilateral efforts to improve biodiversity conservation, African biodiversity range are increasingly facing existential threats. The Red List of Threatened Species (RLTS) adopted by the International Union for the Conservation of Nature (IUCN) to protect relevant species is not effectively implemented in many African countries. In this study, we identify the legal mechanisms for protecting biodiversity at regional and national levels, focusing specifically on Liberia and Nigeria. We also identify the specific drivers of biodiversity loss in Sub-Saharan Africa as a framework for formulating context-specific laws. The study highlights the importance of prioritising legislative action reflecting IUCN's red list of threatened species and the need to develop local solutions to the more contextual challenges. The added relevance of creating specialised agencies to address the crisis of biodiversity loss is also discussed.

Keywords

Biodiversity – conservation – wildlife – endangered species – Africa – Nigeria – Liberia

1. Introduction

Although Africa is home to a quarter of all mammal and avian species on earth,¹ many of these species are now threatened with extinction and many more are likely to face a similar threat in the decades ahead. Violent conflicts in many parts of Africa have contributed to a decline in the continent's biodiversity range. Between 1946 and 2010, around 70% of Africa's protected areas were affected by war.² In countries such as Angola, Ivory Coast, and the Democratic Republic of Congo, giraffes, elephants, hippos, and other large mammals did not escape the violent conflicts that have occurred at different times. Many starving populations have killed the animals for their meat or for their market value. As such, despite its rich potential, Africa's biodiversity has been in steep decline in recent years. The World Wildlife Fund (WWF) notes that the African elephant population will likely disappear by 2040 due to poaching.³ One elephant is estimated to die on the continent every 25 minutes – the majority are killed for their ivory tusks.⁴ Further, 50% of Africa's

¹ Africa is used in this paper to generally refer to sub-Saharan Africa and does not include countries in North Africa. The continent has an estimated 1,100 mammals, 2,500 birds, over 3,000 freshwater fish and 50,000–73,000 plants, or one-quarter of all species in the world. Colin A Chapman and others, 'The Future of Sub-Saharan Africa's Biodiversity in the Face of Climate and Societal Change' (2022) 10 *Frontiers in Ecology and Evolution* 790552 <<https://www.frontiersin.org/articles/10.3389/fevo.2022.790552/full>> accessed 29 September 2022.

² Morgan Kelly, 'The Ecological Costs of War in Africa' (*Princeton Environmental Institute*, 10 January 2018) <www.princeton.edu/news/2018/01/10/ecological-costs-war-africa> accessed 29 September 2022.

³ Tom Hale, 'African Elephants Will Be Extinct By 2040 If We Don't Act, Says WWF' (*IFLScience*, 22 November 2019) <www.iflscience.com/african-elephants-will-be-extinct-by-2040-if-we-dont-act-says-wwf-54291> accessed 29 September 2022.

⁴ Tanya Steele, 'An African Elephant Killed Every 25 Minutes - Why the UK Must Shut Down Its Ivory Trade' (Huff Post, 7 February 2018) <www.huffingtonpost.co.uk/tanya-steele/an-african-elephant-kill_b_14631030.html> accessed 29 September 2022.

mammal and bird species may disappear by 2100.⁵ Across the African continent, elephant numbers have decreased by 30% over the past decade,⁶ black rhinos have largely disappeared,⁷ giraffe numbers have dropped by approximately 56% in the past 30 years,⁸ and cheetah numbers have shrunk by 20% over the past 20 years.⁹ In West, Central and East Africa, lions have declined by nearly 50% during the past 24 years.¹⁰ For the most part, these losses are linked to anthropocentric factors, even though they have significant implications for species and ecosystems that sustain planetary life.

In this study, we assess the current challenge of biodiversity conservation in Africa, including the drivers of biodiversity loss and the legal mechanisms for achieving conservation at the regional level. We also assess the specific legal strategies for nature conservation in Nigeria

⁵ Boris Ngounou, 'Biodiversity in Africa: 10 Figures, 10 Challenges' (*Afrik 21*, 31 May 2021)

<www.afrik21.africa/en/biodiversity-in-africa-10-figures-10-challenges> accessed 29 September 2022.

⁶ Michael J Chase and others, 'Continent-Wide Survey Reveals Massive Decline in African Savannah Elephants' (2016) 4 PeerJ e2354 <<https://doi.org/10.7717/peerj.2354>> accessed 29 September 2022.

⁷ R Emslie, 'Dicerus Bicornis' (2020) The IUCN Red List of Threatened Species e.T6557A152728945 <<https://dx.doi.org/10.2305/IUCN.UK.2020-1.RLTS.T6557A152728945.en>> accessed 29 September 2022.

⁸ A Muneza and others, 'Giraffa Camelopardalis ssp. Reticulata' (2018) The IUCN Red List of Threatened Species e.T88420717A88420720 <<http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T88420717A88420720.en>> accessed 29 September 2022.

⁹ Sarah M Durant and others, 'The Global Decline of Cheetah *Acinonyx Jubatus* and What It Means for Conservation' (2017) 114 Proceedings of the National Academy of Sciences 528 <<https://pnas.org/doi/full/10.1073/pnas.1611122114>> accessed 29 September 2022.

¹⁰ Hans Bauer and others, 'Lion (*Panthera Leo*) Populations Are Declining Rapidly Across Africa, Except in Intensively Managed Areas' (2015) 112 Proceedings of the National Academy of Sciences 14894 <<https://pnas.org/doi/full/10.1073/pnas.1500664112>> accessed 29 September 2022.

and Liberia, focusing particularly on wildlife conservation, followed by the identification of specific factors that impede biodiversity protection in Africa. Some of the factors engaged with in this paper include climate change, resource competition and unsustainable agricultural practices, among others. The paper highlights relevant areas for improved governance and offers some recommendations for improving biodiversity conservation in Africa.

2. Contextualising Biodiversity Loss in Africa

Africa's wild flora and fauna are severely threatened by biodiversity loss. The perilous state of Africa's wildlife has prompted the development of protected areas ("PAs") in many parts of the continent, with PAs presenting one of the most effective mechanisms for preserving biodiversity.¹¹ Historically, PAs were mostly maintained in a defined 'wild' state with relatively little protection from human threat. Today, PAs have evolved from a pure focus on rare and endangered species to include a broader awareness of biodiversity and ecosystems, including their utilities.¹² PAs typically are *in situ* conservation sites, such as game reserves, national parks and forest reserves. While the Convention on Biological Diversity supports such conservation methods, it equally encourages *ex situ* wildlife conservation via zoological gardens, botanical gardens etc. However, this aspect of conservation remains underdeveloped in many African countries.

This underdevelopment is linked to the fact that PAs are generally suboptimal for conserving wildlife in Africa, as native hunters often attempt to commercialise the use of relevant

¹¹ Fangli Wei and others, 'Balancing Community Livelihoods and Biodiversity Conservation of Protected Areas in East Africa' (2018) 33 *Current Opinion in Environmental Sustainability* 26
<<https://doi.org/10.1016/j.cosust.2018.03.013>> accessed 28 September 2022.

¹² *ibid.*

lands.¹³ During the 20th century, park encroachments, desertification, habitat loss and the extermination of wildlife occurred as a result of population increase and poverty in Sub-Saharan Africa.¹⁴ This problem continues to perpetuate itself in many African protected areas, undermining the effectiveness of wildlife conservation efforts.

The utility of PAs in serving the economic interests of the rural majority better than the international elite minority is critical to their survival in the 21st century. In general, rural populations may place less value on land tenure in the absence of resource tenure and may be less inclined to preserve natural systems and biodiversity.¹⁵ This scenario is unlikely with *ex situ* conservation. The survival of relevant sites does not primarily depend on their economic benefits to the rural populace. They are generally safer as the organisms are protected from poaching and predation. Also, the genetic diversity of the population can be more easily measured while the sites can be employed to raise funds for additional conservation efforts and for educational purposes.¹⁶ African countries require these features in order to better conserve biodiversity.

Illegal wildlife trading and trafficking constitute a major challenge to biodiversity protection in Africa. While countries in southern, eastern and central Africa have paid closer attention to this issue, West African countries have made fewer efforts to curb wildlife trafficking.

¹³ Paul Andre DeGeorges and Brian Kevin Reilly, 'The Realities of Community Based Natural Resource Management and Biodiversity Conservation in Sub-Saharan Africa' (2009) 1 Sustainability 734 <<https://dx.doi.org/10.3390/su1030734>> accessed 28 September 2022.

¹⁴ *ibid.*

¹⁵ *ibid.*

¹⁶ John Garner, 'Ex Situ Conservation: Is It Better Than in Situ Conservation?' (*Millennial Cities*, 25 May 2021) <<https://millennialcities.com/ex-situ-conservation-is-it-better-than-in-situ-conservation/>> accessed 28 September 2022.

Illegal trade is depleting the population of pangolin, rhinoceros, elephants, chimpanzee, gorilla and tree species populations in the region.¹⁷ For instance, Nigeria has become a source country for several species of wild flora and fauna. Efforts to address the root causes of this problem are affected by limited data on the endemic wildlife populations and the institutional, socioeconomic and political elements that promote wildlife trafficking in the region.¹⁸ These challenges have prompted many governments to adopt legal and regulatory frameworks for biodiversity conservation.

3. Africa and the Legal Trajectory of Biodiversity Conservation

At the international level, the Convention on Biological Diversity (CBD), the Convention on Migratory Species (CMS), the Convention on International Trade in Endangered Species (CITES), the Ramsar Convention, and the World Heritage Convention are hugely popular when it comes to biodiversity conservation, especially the conservation of wildlife. The first set of standards adopted to safeguard nature were intended to protect economically valuable species. However, since the 18th century, these normative standards have been expanded to include a wide variety of species, including those that are less economically valuable. At the African regional level, differing legal standards have been set in motion to address the challenge of biodiversity loss.

During colonial rule, Africa had two main conventions on nature conservation. The first was the Convention on the Preservation of Wild Animals, Birds, and Fish in Africa, adopted in 1900. The convention had a rather practical orientation and looked at controlling wildlife

¹⁷ 'Combatting Wildlife Trafficking' (*West Africa Biodiversity and Climate Change (WA BiCC)*)

<www.wabicc.org/en/thematic-areas/combating-wildlife-trafficking> accessed 28 September 2022.

¹⁸ *ibid.*

harvesting. Signatories, however, did not ratify it and it never entered into force.¹⁹ A second attempt was made via the Convention Relative to the Preservation of Fauna and Flora in their Natural State, which entered into force in 1936. The scope of the convention included plant-based resources and, like the first convention, the use of animals and plants by people was prioritised.

Following the independence of African states from colonial rule in the 1960s, a new conservation regime that responded to local needs was required. This resulted in the revision of the 1936 Convention with the help of UNESCO and other international bodies. The 1968 African Convention on the Conservation of Nature and Natural Resources, or the Algiers Convention, also emerged from this post-colonial agenda. The Algiers Convention was adopted in 1968 and entered into force in 1969. The convention encouraged African States to make progress in the area of natural resource conservation. Nonetheless, the convention failed to establish institutional mechanisms that may facilitate its effective implementation. The decade following its adoption, however, was a fruitful phase in the development of environmental law at the international level, with the adoption of numerous multilateral environmental agreements. With these developments and the rapid advancement in scientific knowledge, it was necessary to revise the Algiers Convention.²⁰ Successive attempts to revise it eventually resulted in the African Convention on the Conservation of Nature and Natural Resources (Revised Version). The Convention was adopted in Maputo on the 11 July 2013 and entered into force in 2016. It represented the first

¹⁹ Willem Daniel Lubbe, 'Africa's Ambitious New Biodiversity Laws Come with Teeth, Will Protect People Too' (*The Conversation*, 10 September 2017) <<https://theconversation.com/africas-ambitious-new-biodiversity-laws-come-with-teeth-will-protect-people-too-83109>> accessed 28 September 2022.

²⁰ 'The Maputo Convention on the Conservation of Nature and Natural Resources: Conference of Heads of State and Government of the African Union – Note' (*United Nations Environment Programme*, 2019) <<https://wedocs.unep.org/20.500.11822/30163>> accessed 28 September 2022.

revision of Africa's environmental law framework in 48 years.²¹ The convention provides a much-needed inclusion of contemporary environmental standards into African environmental law.

The revised version of the Algiers Convention, also referred to as the Maputo Convention on the Conservation of Nature and Natural Resources, introduces certain new provisions but also importantly contains progressive contents. It seeks to enhance environmental protection and foster the conservation and sustainable use of natural resources. In addition, the convention seeks to harmonise relevant policies with a view to achieving ecologically sound and socially acceptable development programmes and policies.²² The convention enjoins member states to establish and implement policies to improve the conservation and sustainable use of species, as well as the genetic diversity of plants and animals, by paying particular attention to socioeconomically and ecologically valuable species, which are threatened, as well as those which are only present in the jurisdiction of one party.²³

Other sub-regional level instruments also exist in Africa, including the Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region adopted in 1985. The Protocol applies to the East African Region, including coastal areas and internal waters related to the marine and coastal environment. State parties to the protocol commit to protecting endangered species of flora and fauna in the sub-region and specifically to regulating the harvest and sale of threatened or depleted fauna species, including protecting critical habitats for the

²¹ *ibid.*

²² African Convention on the Conservation of Nature and Natural Resources (Revised Version) (adopted 11 July 2013, entered into force 23 July 2016) art 2.

²³ *ibid* art 9.

breeding stocks of such species.²⁴ Also, in 2002, Mozambique, South Africa and Zimbabwe signed the Treaty for the Establishment of Great Limpopo Transfrontier Park (GLTP). The landmark instrument provides a framework for the development and implementation of the Great Limpopo Transfrontier Conservation Area (GLTFCA), which includes a wide variety of land uses, including communal areas and private reserves. This adds up to a conservation area of almost 100,000 km.²⁵ Further, in West Africa, the Memorandum of Understanding Concerning Conservation Measures for the West African Populations of the African Elephant was adopted in 2005. The West African Elephant MOU aims to conserve West African elephants throughout their range. The specific status of the species, as well as the implementation of Work Programme activities under the MOU, are reviewed regularly in each country, usually during signatories' meetings.

A multilateral treaty otherwise known as the KAZA TFCA Treaty also exists between Angola, Botswana, Namibia, Zambia and Zimbabwe on the establishment of the Kavango Zambezi Transfrontier Conservation Area (KAZA TFCA). The primary purpose of this treaty is to ensure that the natural resources across the relevant international boundaries along the Kavango and Zambezi river basins are managed prudently for present and future generations. It also aims to harmonise policies and practices for managing shared natural resources straddling the international borders of the partner states.

Thus, beyond the legal mechanisms existing at the African regional level, sub-regional entities in Africa are forging closer ties to ensure biodiversity conservation. These approaches

²⁴ Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region (adopted 21 June 1985, entered into force 30 May 1996) arts 3, 4 and 5.

²⁵ 'Great Limpopo Transfrontier Park & Conservation Area' (*South African Development Community*)

<<https://tfcaportal.org/node/23>> accessed 9 December 2022.

could particularly prove useful given that species in one state could migrate to another and a uniform standard at regional and sub-regional levels could improve conservation efforts, in addition to national measures.

4. Biodiversity Loss and National Approaches to Conservation

4.1 *Nigeria*

Like many countries in Africa, Nigeria faces the challenge of wildlife conservation and effective management strategies. For the most part, the management and conservation of wildlife occur at game reserves, national parks, wildlife parks as well as zoos, due to the destruction of natural habitats and the hunting of wildlife.²⁶ Poaching is a major challenge for wildlife management and conservation in Nigeria and in many other African countries. The practice is encouraged by the high demand for wild animals or ‘bush meat’, which is a popular delicacy across Nigeria.²⁷ Trade in endangered species is also widespread in the country, whereby rare animal species such as monkeys, peacocks, African grey parrot etc are trapped and held captive for sale.²⁸ Nigeria is a notorious hotspot for illegal trade in endangered species, which contravenes the Convention on Trade in Endangered Species of world fauna and flora. Around 1.4 million cubic metres of rosewood were imported by Asian nations in 2016, of which 58% originated from

²⁶ Mobolaji A Idowu and Olajumoke A Morenikeji, ‘Wild Fauna Conservation in Nigeria.’ (2015) 5 *Environment and Natural Resources Research* 98 <<https://doi.org/10.5539/ENRR.V5N3P98>> accessed 9 December 2022.

²⁷ David Happold, ‘A History of Wildlife Conservation in Nigeria, and Thoughts for the Future’ in D. C. D. Happold (ed), *Wildlife Conservation in West Africa* (International Union for the Conservation of Nature Publications 1971).

²⁸ Délagnon Assou and others, ‘Trade in African Grey Parrots for Belief-Based Use: Insights from West Africa's Largest Traditional Medicine Market’ (2021) 9 *Frontiers in Ecology and Evolution* 612355 <<https://doi.org/10.3389/fevo.2021.612355>> accessed 5 October 2022.

Nigeria.²⁹ Additionally, Nigeria is the main route for ivory trafficking from Africa to Asia.³⁰ The first reported pangolin seizure outside Nigeria occurred in China in May 2012. Another shipment from Nigeria was intercepted in China in the same year, totalling 55 kg in weight. Between 2013 and 2015, Nigeria was the sole source of 11,661 kg of ivory seizures.³¹ Seizures of ivory linked to the country 2015–19 amounted to 30,499 kg.³² Within this period, pangolin scales from Nigerian ports totalled 167,594 kg.

During January 2021, some 2,772 pieces of elephant tusks, weighing 4,752 kg, 103 kg of suspected lion and other wild cat skulls, 162 bags of pangolin scales, weighing 5,329 kg, 5 kg of rhino horns, and 76 pieces of processed lumber were found in a seizure at the Apapa Port in Lagos,

²⁹ ‘World Wildlife Day 2021: The Exploitation of Rosewood in Nigeria - Acting to Save Nigeria’s Forests’ (*United Nations Office on Drugs and Crime*, 3 March 2021) <www.unodc.org/nigeria/en/world-wildlife-day-2021_-the-exploitation-of-rosewood-in-nigeria---acting-to-save-nigerias-forests.html> accessed 5 October 2022.

³⁰ ‘Corruption Has Helped Make West and Central Africa the Epicentre for Ivory and Pangolin Scale Trafficking to Asia’ (*Environmental Investigation Agency*, 7 December 2020) <<https://eia-international.org/news/corruption-has-helped-make-west-and-central-africa-the-epicentre-for-ivory-and-pangolin-scale-trafficking-to-asia/>> accessed 7 October 2022.

³¹ Charles A Emogor and others, ‘The Scale of Nigeria's Involvement in the Trans-National Illegal Pangolin Trade: Temporal and Spatial Patterns and the Effectiveness of Wildlife Trade Regulations’ (2021) 264 *Biological Conservation* 109365 <<https://doi.org/10.1016/j.biocon.2021.109365>> accessed 7 October 2022.

³² ‘Out of Africa: How West and Central Africa Have Become the Epicentre of Ivory and Pangolin Scale Trafficking to Asia’ (*Environmental Investigation Agency*, December 2020) <<https://reports.eia-international.org/out-of-africa/>> accessed 7 October 2022.

Nigeria.³³ In July 2021, 196 bags containing 7,167 kg of pangolin scales, 888.5 kg of ivory and 4.6 kg of pangolin claws were recovered in Nigeria.³⁴ Nigerian authorities made another seizure worth \$US54 million, including 17,137 kg of pangolin scales, 60 kg in pangolin claws and 44 kg of elephant tusks in 2021.³⁵ Indeed, the United Nations Office on Drugs and Crime (UNDOC) reports that the seizures of pangolin scales, mainly sourced from Africa, increased tenfold 2014–18.³⁶ During this time period, 185 tonnes of scales were seized, from which around 370,000 pangolins were killed.³⁷ With many of these crimes going undetected, pangolins have become the most trafficked mammals today,³⁸ the next being elephants, both of which are on the brink of extinction in Nigeria.

Nevertheless, recent seizures show the impact of international legal standards on wildlife protection in Nigeria. The role of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) may be noted in this regard, especially as the listing of species threatened with extinction in CITES Appendix I includes pangolins. Despite this positive

³³ Kingsley Jeremiah, 'Feasting on the Forbidden: Tales of Unending Wildlife, Environmental Crimes' *The Guardian* (Ibadan, 23 October 2022) <<https://guardian.ng/sunday-magazine/newsfeature/feasting-on-the-forbidden-tales-of-unending-wildlife-environmental-crimes/>> accessed 7 October 2022.

³⁴ Abdulkareem Mojeed, 'Again, Nigeria Customs Intercepts Huge Haul of Pangolin Scales' *Premium Times* (Lagos, 5 August 2021) <www.premiumtimesng.com/news/headlines/again-nigeria-customs-intercepts-huge-haul-of-pangolin-scales.html> accessed 18 December 2022.

³⁵ Libby George, 'Nigeria Seizes Record \$54 Million in Pangolin Parts, Elephant Tusks' *Reuters* (Lagos, 4 August 2021) <www.reuters.com/world/africa/nigeria-seizes-record-54-million-pangolin-parts-elephant-tusks-2021> accessed 18 December 2022.

³⁶ *ibid.*

³⁷ *ibid.*

³⁸ Jeremiah (n 33).

development, the continued trafficking of endangered species, including pangolins, suggests that the Appendix I listings have contributed minimally to reducing the illegal trade.³⁹

Due to Nigeria's ever-increasing human population, as well as rampant and unrestricted hunting and poaching, loss of wildlife populations continues to pose a significant challenge in the country.⁴⁰ Nigeria's porous borders, poor law enforcement, increasing economic development, corrupt government, lack of awareness, poverty etc all contribute to the loss of wildlife and biodiversity in the country. In the next section, we assess the legal frameworks for achieving wildlife conservation in Nigeria. The assessment is undertaken to present opportunities for legal reform and improvement of biodiversity governance more broadly.

4.2 *Legal Framework for Wildlife Conservation in Nigeria*

The 1999 Constitution of Nigeria contains some policy statements concerning the environment and wildlife conservation. Section 20 of the constitution states that the government shall 'protect and improve the environment and safeguard the water, air and land, forest and wild life of Nigeria.' It is, however, worth noting that this provision falls under the fundamental objectives and directive principle of state policy, which diminishes its legally binding nature. In other words, environmental protection is not classed among state obligations that may be enforced in court. Nevertheless, other legislation exists for the protection of wildlife in Nigeria.

The Wild Animals Law of 1963 as amended by the Wild Animals Law (Amendment) Edict 1975 was among the first wildlife laws in Nigeria. It provided for the declaration of game reserves

³⁹ Emogor and others (n 31).

⁴⁰ Idowu and Morenikeji (n 26).

by the governor,⁴¹ and the protection of certain animals, which may not be hunted in northern Nigeria except with the prime minister's consent.⁴² A similar law was passed in eastern Nigeria in 1965 – the Wild Animals Law, 1965. The law sought to provide for the conservation and management of wild animals.⁴³ Prior to these laws, the development of game reserves had begun during the British colonial rule in Nigeria, including the repealed Wild Animal's Preservation Ordinance, Cap. 232 of Laws of Nigeria Edition, 1948.⁴⁴ In what follows, we assess some of the core legislation adopted to improve the conservation of wildlife in Nigeria.

4.2.1 The Endangered Species (Control of International Trade and Traffic) Act 2016⁴⁵

This Act focuses on the protection and management of Nigeria's wildlife and endangered species. The Act aims to implement international treaties, such as the 1968 African Convention on the Conservation of Nature and Natural Resources and the 1973 Convention on International Trade in Endangered Species of Fauna and Flora.⁴⁶ The Act is also an attempt to implement terms of the Agreement on the Joint Regulation of Fauna and Flora on the Lake Chad Basin,⁴⁷ to which Nigeria is a member state.⁴⁸

⁴¹ The Wild Animals Law 1963 (No. 16 of 1963) as amended by The Wild Animals Law (Amendment) Edict 1975, s 12.

⁴² *ibid* s 4.

⁴³ 'Wild Animals Law, 1965' (*United Nations Environment Programme*)

<<https://leap.unep.org/countries/ng/national-legislation/wild-animals-law-1965>> accessed 17 October 2022.

⁴⁴ *ibid*.

⁴⁵ This Act amends the Endangered Species (Control of International Trade and Traffic) Act, Cap E9, LFN 2004.

⁴⁶ Nigeria signed this treaty on May 7, 1974.

⁴⁷ Nigeria ratified this agreement in December 1977.

⁴⁸ Margaret T Okorodudu-Fubara, *Law of Environmental Protection: Materials and Text* (Caltop Publications 1998) 353–54.

The Act is a significant statutory landmark in giving legislative effect to the government's wildlife conservation policy by regulating specific activities relating to wildlife in Nigeria.⁴⁹ Animals are categorised into Schedules I and II of the legislation. In this regard, Schedule I contains a list of endangered species, and international trade in these animals is forbidden. Examples of these creatures include cheetahs, wildcats, dolphins, whales, Nile crocodiles, spotted hyenas, gorillas, chimpanzees, short-nosed crocodiles, addax and seals. On the other hand, Schedule II animals may only be traded with permission from the authorities. These creatures include vultures, galagoes, fennec foxes, monkeys and hippopotamuses. The hunting, capture or trade in animals threatened with extinction as specified in Schedule I is subject to government approval.⁵⁰

Despite its ambitious orientation, the Act is also somewhat problematic. It shies away from employing widely used terms such as 'endangered species' and 'threatened species' in its core provisions. It would seem it merely refers to animal species threatened with extinction. Furthermore, the Act does not offer any protection to any of the country's amphibians, although some rare species are threatened by habitat destruction. The Act has since been revised, with amendments made to sections 1, 5(1)(a) and 5(1)(b).⁵¹

4.2.2 National Park Service (Amendment) Act 2006

The National Park Service Act established the National Park Service,⁵² which is tasked with preserving, enhancing and protecting wild fauna and flora and other vegetation in national parks.⁵³ Section 6 of the Act establishes a geographically and ecologically balanced network of protected areas under the jurisdiction and control of the federal government. This includes the protection of endangered species of wild animals and plants and their habitats as well as the conservation of wildlife throughout Nigeria. The promotion of education about wildlife and nature conservation is

⁴⁹ Endangered Species (Control of International Trade and Traffic) Act Decree No. 11 of 1985, s 4.

⁵⁰ Endangered Species (Control of International Trade and Traffic) Act 2016, s 1.

⁵¹ Endangered Species (Control of International Trade and Traffic) (Amendment) Act 2016.

⁵² 1999 No. 46, National Park Service (Amendment) Act 2006, s 1.

⁵³ *ibid* preamble.

also stipulated in the legislation.⁵⁴ In addition, the Act provides for the control and management of national parks and empowers the national government with exclusive ownership of wild fauna and flora.⁵⁵ Except with the consent of the federal authority, ownership of a wild animal found dead or dying cannot be validly transferred.⁵⁶ Where wild animals are captured in contravention of the Act, the ownership of such animals may still not be transferred to that person.⁵⁷

Amidst these objectives, the National Park Service Act has struggled with the implementation of its functions. This is largely due to insufficient funding, limited staff training and a minimal provision of education about wildlife and nature conservation.⁵⁸ The Act's attempt to penalise offences, such as illegal entry into national parks, has also been inadequate. Despite this, section 9 of the Act, which provides for the appointment of a conservator-general of the National Parks Service, has been one of the Act's good features. This establishment of leadership has aided in the direction of the agency's resources and personnel for improved efficiency in national parks management in recent years.

4.2.3 National Environmental Standards and Regulation Enforcement Agency Act 2007

The National Environmental Standards and Regulation Enforcement Agency (NESREA), established by the 2007 NESREA Act, is the authority charged with the protection of the environment in Nigeria. The agency was established in line with section 20 of the 1999 Constitution, which affirms that the government shall protect the environment. NESREA operates

⁵⁴ *ibid* s 6.

⁵⁵ *ibid* s 20(2).

⁵⁶ *ibid* s 20(3).

⁵⁷ *ibid* s 20(4).

⁵⁸ 'Goni: We Have Done Very Well Despite Our Challenges' *THISDAY* (Lagos, 23 November 2021)

<www.thisdaylive.com/index.php/2021/11/23/goni-we-have-done-very-well-despite-our-challenges> accessed 17 October 2022.

under the supervision of the Federal Ministry of Environment, Housing and Urban Development.⁵⁹ The agency was created to replace the defunct Federal Environmental Protection Agency (FEPA).⁶⁰ A notable provision in the NESREA Act is section 7(c), which obliges the Agency to enforce compliance with the provisions of international law on the environment and other matters such as wildlife, biodiversity, and conservation.

The NESREA Act also stipulates that the Agency is responsible ‘for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria’s natural resources in general and environmental technology.’⁶¹ In this regard, section 2 confers broad powers on NESREA in areas of sustainable management of the ecosystem and biodiversity conservation. Although the Federal Ministry of Environment is designated as the CITES Management Authority for Nigeria,⁶² in principle, NESREA has been the government's focal point responsible for enforcing seizures and prosecuting illegal wildlife trade crimes in Nigeria in accordance with CITES provisions.

⁵⁹ Muhammed Tawfiq Ladan, ‘Review of NESREA Act 2007 and Regulations 2009-2011: A New Dawn in Environmental Compliance and Enforcement in Nigeria’ (2012) 8 Law, Environment and Development Journal 116 <<https://lead-journal.org/content/12116.pdf>> accessed 17 October 2022.

⁶⁰ Adekunle Olajide, ‘Protecting the One Earth: The Role of the NESREA Act 2007’ (*LinkedIn*, 10 September 2022) <www.linkedin.com/pulse/protecting-one-earth-role-nesrea-act-2007-adekunle-olajide-fmva-> accessed 29 September 2022.

⁶¹ National Environmental Standards and Regulations Enforcement Agency (Establishment) Act 2007, s 2.

⁶² ‘Nigeria - National Authorities’ (*Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)*, 8 August 2023) <<https://cites.org/eng/parties/country-profiles/ng/national-authorities>> accessed 17 October 2022.

One of the Agency's 33 gazetted national environmental regulations is the National Environmental (Protection of Endangered Species in International Trade) Regulation, S.I. No. 16 of 2011, which covers specimens made up of highly endangered wild species listed in CITES Appendices I, II and III.⁶³ It is illegal and punishable under this regulation to import, export, or introduce from the sea, or attempt to do so, any of the specimens without a valid licence or certificate.⁶⁴ NESREA works in tandem with the Nigerian Customs Service, National Park Service, and other relevant agencies to combat illegal wildlife trade.⁶⁵

However, the agency's efforts to ensure the conservation of Nigeria's environment and natural resources have been insufficient. The lack of a national database on all endemic and alien species of flora, fauna, and other organisms in the country makes carrying out the agency's objectives challenging. Furthermore, the Act's implementation in Nigeria has been complicated by an inadequate number of staff, as well as their poor technical capacity. The nature of government bureaucracy has also resulted in a lack of incentives for officials to be efficient. Moreover, NESREA lacks a community-based approach to raising awareness. The agency has maintained FEPA's top-down rather than bottom-up approach, which is counter-productive because indigenous people are closer to wild species, and protecting these species will be more effective if those closest to wildlife are also involved.⁶⁶

4.2.4 The National Strategy to Combat Wildlife and Forest Crime in Nigeria (2022–2026)

⁶³ Monsurat Romoke Suleiman, Raimi Morufu Olalekan and Sawyerr Henry Olawale 'A Deep Dive into the Review of National Environmental Standards and Regulations Enforcement Agency (NESREA) Act' (2019) 1 International Research Journal of Applied Sciences 108.

⁶⁴ *ibid* 115.

⁶⁵ Chika Okeke, 'Nigeria: Customs Partners NESREA to Enforce Environmental Laws' *All Africa* (Abuja, 11 November 2015) <<https://allafrica.com/stories/201511110646.html>> accessed 17 October 2022.

⁶⁶ Suleiman, Olalekan and Olawale (n 63) 119–21.

In 2021, the national strategy was adopted after extensive consultation with stakeholders.⁶⁷ It is the first document of its kind and is critical for setting the country on the right trajectory of attaining a crime-free wildlife sector. The strategy is part of a broader Economic Community of West African States (ECOWAS) initiative to tackle wildlife crime across the West African region. The Nigerian government, with support from the United Nations Office on Drugs and Crime (UNODC) and the German government developed this first national strategy. the national strategy's first goal is to set the stage for sustained, long-lasting reform. If well implemented, it could contribute significantly to reducing wildlife crime by 2026, while law enforcement agents will be better equipped to effectively and cooperatively combat wildlife crime.

The strategy sets out a number of objectives, including enhancing institutional capabilities, strengthening the legal framework, increasing multi-stakeholder collaboration and raising awareness of wildlife crime. These objectives will address the issues surrounding high-value timbre and charcoal, the domestic illegal wildlife trade of ivory and pangolin scales, and illegal, unregulated, and unreported (IUU) fishing and fisheries-related crimes.⁶⁸

4.3 *Liberia*

Liberia is widely regarded as one of the largest biodiversity hotspots in the world. The country has the highest remaining portion (42%) of the Upper Guinea Massif, including plants

⁶⁷ Government of Nigeria, 'National Strategy to combat Wildlife and Forest Crime in Nigeria 2022–2026'

(UNODC)

<www.unodc.org/documents/nigeria/National_Strategy_to_Combat_Wildlife_and_Forest_Crime_in_Nigeria_2022-2026.pdf> accessed 17 October 2022.

⁶⁸ *ibid.*

with high endemism.⁶⁹ Liberia boasts of over 2,000 vascular plant species, 600 bird species, 150 mammal species and 75 reptile species.⁷⁰ The country is a signatory to several international environmental agreements on biodiversity protection, including the CBD, CITES, and CMS.⁷¹ Liberia has also ratified the Ramsar Convention,⁷² which requires member states to designate at least one national wetland for inclusion in a list of internationally important wetlands, as well as establish and manage nature reserves to promote wetland conservation.⁷³ Further, Liberia is a signatory to the African Convention on the Conservation of Nature and Natural Resources,⁷⁴ which obliges state parties to maintain and extend existing conservation areas, and also to assess the prospects of establishing additional conservation areas for protecting representative ecosystems.

Similar to other African states, Liberia's wild flora and fauna have decreased in population in recent years due to excessive human activities.⁷⁵ For example, based on confiscation data from 2019, the western chimpanzee is still widely killed for bush meat and illegal trading, despite being

⁶⁹ Republic of Liberia, 'National Biodiversity Strategy and Action Plan-II 2017–2025' (Convention on Biological Diversity) <<https://www.cbd.int/doc/world/lr/lr-nbsap-v2-en.pdf>> accessed 17 October 2022.

⁷⁰ *ibid.*

⁷¹ 'MEAs Projects' (*Environmental Protection Agency*) <www.epa.gov.lr/content/meas-projects> accessed 17 October 2022.

⁷² *ibid.*

⁷³ Convention on Wetlands of International Importance Especially as Waterfowl Habitat (adopted 2 February 1971, entered into force 21 December 1975) 996 UNTS 245 (Ramsar Convention) art 2.

⁷⁴ Kai Curry-Lindahl, 'Report to the Government of Liberia on Conservation, Management and Utilization of Wildlife Resources' (*International Union for Conservation of Nature and Natural Resources* 1969) <<https://portals.iucn.org/library/sites/library/files/documents/NS-SP-024.pdf>> accessed 29 September 2022.

⁷⁵ *ibid.*

designated as critically endangered on the IUCN Red List of Threatened Species. As a result, Liberia is well on track to losing around 600 adult chimpanzees every year, putting the chimpanzee population at a high risk of extinction in the next ten years.⁷⁶

4.4 *Legal Mechanisms on Wildlife Conservation in Liberia*

To address this challenge, the Liberian government has taken some legal steps toward the conservation of wildlife in the country. For instance, the Wildlife and National Parks Act was enacted in 1988.⁷⁷ This Act identifies a number of protected areas including national parks, nature reserves, game reserves, controlled hunting areas, and communal forests. In addition, the Act specifies the policy objectives regarding wildlife conservation in the country.⁷⁸ Aside from this law, other legal mechanisms put in place by the Liberian government for the conservation of wildlife are further assessed below.

4.4.1 Act for the Conservation of the Forests of the Republic of Liberia (Forest Act) 1953

The Forest Act of 1953 identifies woods as one of the country's 'largest natural resources,' which can contribute the most to the country's economic and social development if put to their most beneficial uses. Forests are defined under the Act as 'all areas supporting woody vegetation other than planted or cultivated crops, regardless of the composition, age or density of the vegetation cover.'⁷⁹ Section 3 of the Act establishes the Bureau of Forest Conservation within the Department of Agriculture and Commerce to, *inter alia*, 'establish a permanent forest estate, made up of reserved areas, upon which scientific forestry will be practiced.' The Bureau is also tasked

⁷⁶ Wing Crawley, Jenny Desmond and Shadrach Kerwillain, 'Our Biodiversity, Our Future' (*Environmental Protection Agency* 2019) <www.epa.gov.lr/content/our-biodiversity-our-future> accessed 29 September 2022.

⁷⁷ 'Parks, Reserves, and Other Protected Areas in Liberia' (Parks.it) <www.parks.it/world/LR/Eindex.html> accessed 17 October 2022.

⁷⁸ *ibid.*

⁷⁹ Act for the Conservation of the Forests of the Republic of Liberia 1953, s 2.

with conducting ‘essential research in conservation of forests’ while adapting action plans to the outcome of such research.⁸⁰ With specific regard to wildlife conservation, section 4(g) of the Act states that one of the Bureau of Forest Conservation's main goals is to conserve the country's recreational, fish and wildlife resources while concurrently developing a forestry program. Further, the legislation empowers the President ‘to create and establish National Parks embracing any area of the country having such outstanding science, recreational, scientific or other pertinent values that it is deemed wise and expedient in the national interest to set aside as permanent parts to be retained insofar as is practicable in their existing condition.’⁸¹

Thus, although the Forest Act primarily aims to protect the forest areas, it also extends to animal conservation. Nevertheless, enforcement of the legislation mainly addresses the timber-producing benefits of forests and ignores their functionality as animal habitats, which renders the legislation incapable of sufficiently protecting Liberia's game populations. As a result, the Act Adopting the National Wildlife and Conservation Protected Area Management Law was enacted in 2012.

4.4.2 Act Adopting the National Wildlife and Conservation Protected Area Management Law 2016

This Act, otherwise known as the National Wildlife Law of 2012, seeks to protect and preserve Liberia's distinctive biodiversity range in a manner that supports the recovery of wildlife as well as the sustainable use of wildlife products.⁸² Section 2.1 of the legislation spells out its core objectives to include ‘the protection of wildlife and wildlife management,’ providing for ‘co-

⁸⁰ *ibid* s 4(e).

⁸¹ *ibid* s 10.

⁸² An Act Adopting the National Wildlife Conservation and Protected Area Management Law of Liberia 2016, s 2.1.

operative governance in the establishment of conservation areas and management of wildlife’ and establishing a ‘national system of conservation areas in Liberia as part of a strategy to manage and conserve its biological diversity.’ The Act implements Liberia’s international law obligations under CITES, CBD, as well as the Ramsar Convention. Further, the legislation establishes a National CITES Scientific Authority (CSA) comprised of the Forestry Development Authority and the University of Liberia.⁸³ CSA’s mandates include the issuance of CITES export and import permits or certificates, as well as the development and issuance of regulations for domestic and international trade in wildlife and other species and the protection of endangered species of wild flora and fauna.⁸⁴

The Act takes a more holistic approach to wildlife and biodiversity conservation in Liberia, specifying protected areas for flora and fauna, game reserves, marine reserves or parks, community wildlife management areas, controlled hunting areas, national forest reserves, national parks, natural monuments, and multiple sustainable use reserves.⁸⁵ It contains provisions governing protected areas and conservation corridors,⁸⁶ wildlife use rights,⁸⁷ wildlife protection⁸⁸ and offenses and penalties. Penalties for offences under the Act are varied. For instance, trophy hunting and export of protected animal without a permit or license attracts a fine of US\$5,000–10,000 or four-years imprisonment, while fishing in a national park or nature reserve without permit or license attracts a penalty of US\$100–150 or 60–100 days imprisonment. Killing of leopard,

⁸³ *ibid* s 4.3(2).

⁸⁴ *ibid* s 4.3(3).

⁸⁵ *ibid* ss 5.3.1 and 5.3.2.

⁸⁶ *ibid* s 5.1.

⁸⁷ *ibid* s 6.2.3.

⁸⁸ *ibid* s 6.1.

elephant or hippopotamus attracts a fine of US\$5,000–10,000 or two to four years imprisonment.⁸⁹ The extent to which these penalties are enforced in Liberia is, however, unclear.

4.4.3 Environment Protection and Management Law 2003

The Environment Protection and Management Law 2003 regulates sustainable development, as well as the management and protection of the environment in Liberia. The primary implementing body is the Environment Protection Authority (EPA), which works in partnership with relevant ministries and agencies.⁹⁰ This law focuses on several aspects of environmental management, including is conservation of biodiversity.

Regarding the protection of wild animals and birds, section 80 of the EPA states that ‘all wild animals and birds and in particular, rare, threatened and endangered species and their habitats shall be preserved and protected in accordance with the guidelines and recommendations made by the Agency after consultation with the Line Ministry.’ The legislation generally seeks to establish wildlife conservation zones and recommend techniques to facilitate coexistence between communities and wildlife in these areas as may be necessary. Sections 84 and 85 of the Act touch on *in situ* and *ex situ* conservation methods and empower EPA to take measures to protect species that are threatened with extinction. Also, EPA is mandated to advice the legislature on strategies to protect the coastal and marine environments in Liberia. In this regard, the legislature may, *inter*

⁸⁹ *ibid* s 11.2.

⁹⁰ ‘Liberia: Environment Protection and Management Law’ (*Food and Agriculture Organisation of the United Nations*, 15 February 2022) <www.fao.org/faolex/results/details/en/c/LEX-FAOC053038/> accessed 17 October 2022.

alia, declare a coastal zone a protected area and impose restrictions that are deemed necessary for the protection of the environment from degradation.⁹¹

4.4.4 Act Adopting the National Forestry Reform Law 2006

The 2006 National Forestry Reform Law aims to promote the sustainable management, conservation, protection and development of Liberia's forest areas. It stipulates rules on the ownership and utilisation of forest resources, including commercial and other uses. One of the core provisions governing species protection is section 9.11, which calls for nationwide wildlife conservation, and section 9.12, which prohibits the hunting of protected animals and imposes a restriction on the possession of protected animals. The keeping of wild animals is nevertheless possible where relevant permits are obtained.⁹² Also, the hunting and capturing of protected animals is permissible for 'the purpose of captive breeding, propagation of the species, its safety, the safety of humans, scientific research, or educational purposes.'⁹³ Section 9.11 confers powers on the Forestry Development Authority (FDA) to manage, conserve and control the use of wildlife across Liberia. The Act directs the FDA to 'review the population, distribution, and status of Liberia's Wildlife and identify categories of animals and plants that are threatened or in danger of extinction.'⁹⁴

4.4.5 United Nations Strategic Plan for Forests 2017–2030

The UN Strategic Plan for Forests 2017–2030, which includes six universally accepted global forest goals, is operational in Liberia. One of the six goals is to use sustainable forest

⁹¹ Environment Protection and Management Law 2003, s 82(2).

⁹² Act Adopting the National Forestry Reform Law 2006, s 9.12(d).

⁹³ *ibid* s 9.12(c).

⁹⁴ *ibid* s 9.12(a).

management (SFM) to preclude the loss of forest cover globally, in order to expand the world's forests by 3%, or 120 million hectares, by 2030.⁹⁵

Reporting on Liberia's implementation progress, the country's government stated that amongst other efforts, it had established the Wildlife and Protected Area Management Law of 2017 and gazetted two additional protected areas, ie the Gola and Grebo-Krahn national parks. In addition, the government noted its adoption of varied wildlife regulations and ongoing plans to establish additional protected areas in the country. With support from the Norwegian government, Liberia conducted the national forest inventory under the Liberia Forest Sector Project (LFSP) and formulated guidelines for plantation forest harvesting and management.

The examples of Nigeria and Liberia demonstrate how greatly international and regional biodiversity standards have influenced legal normative standards at national levels. Despite the existence of these standards, however, evidence shows that many countries in Africa still grapple with the challenge of biodiversity conservation. The next section is devoted to examining some of the factors responsible for the continued loss of biodiversity in the continent. These problems manifest themselves across the length and breadth of Africa, despite the adoption of international and domestic laws. A more integrated approach to law and policymaking that takes these factors into account could improve broader conservation governance in Africa.

5. Specific Factors Impeding Biodiversity Conservation in Africa

Humans remain the biggest threat to biodiversity conservation all over the world, including in Africa. Although Africa's biodiversity is regarded as valuable assets, the contemporary valuing of wildlife for economic, medicinal, educational, ecological and scientific reasons continues to

⁹⁵ 'United Nations Strategic Plan for Forests 2017–2030' (*Defend International*, 2 May 2017)

<<https://defendinternational.org/united-nations-strategic-plan-for-forests-2017-2030/>> accessed 17 October 2022.

undermine biodiversity conservation efforts in Africa. In what follows, we identify some of the core factors impeding biodiversity conservation in Africa.

5.1 *High Illiteracy Rate, Poverty and Corruption*

Research shows that human factors such as literacy rate, corruption or national policies have a greater impact on biodiversity conservation than environmental factors such as food and water availability.⁹⁶ For instance, the conservation of various animal species could depend more on sound education and greater literacy rates, as well as good governance, than merely setting aside areas for conservation. In general, countries with high education levels tend to preserve their animals better than countries that have extended wildlife parks, but whose schools are lacking and where corruption is widespread.⁹⁷ Corruption is specifically at the core of wildlife and forestry crimes. It threatens the effective governance of agriculture, fisheries and other human activities with high environmental impact.⁹⁸ As such, it drives the destruction and over-exploitation of forests, as well as wildlife and biodiversity. Transparency International's Corruption Perceptions

⁹⁶ Willem F de Boer and others, 'Understanding Spatial Differences in African Elephant Densities and Occurrence, a Continent-Wide Analysis' (2013) 159 *Biological Conservation* 468 <<https://doi.org/10.1016/j.biocon.2012.10.015>> accessed 29 September 2022.

⁹⁷ Katharine Gammon, 'The Fastest Way to Conservation Is Increasing Literacy' (*Fast Company*, 21 February 2013) <www.fastcompany.com/2681418/the-fastest-way-to-conservation-is-increasing-literacy> accessed 29 September 2022.

⁹⁸ 'Addressing Corruption as a Driver of Forest, Wildlife and Biodiversity Loss: UNODC Supports Interagency Efforts in the DRC' *UNODC* (Kinshasa, 4 April 2022) <www.unodc.org/2022/addressing-corruption-as-a-driver-of-forest-wildlife-and-biodiversity-loss.html> accessed 17 October 2022.

Index ranks countries in sub-Saharan Africa among the most corrupt in the world.⁹⁹ Corruption can take the form of bribery to allow illegal resource harvests within reserves, undercutting biodiversity conservation in Africa.¹⁰⁰

While protected areas in North America and Western Europe are usually funded by taxpayers, African countries generate very little from tax revenues,¹⁰¹ leaving little public funding available for conservation. Thus, conservation of biodiversity is expected to pay its own way. Photo-tourism etc raise significant revenues in only a few high-profile areas, while sport hunting is more viable in areas where adequate populations of trophy species are supported.¹⁰² Most African reserves are underfunded. Resources intended for conservation efforts are often embezzled by well-connected individuals. As such, biodiversity conservation remains a neglected concept in many sub-Saharan African nations.¹⁰³

5.2 *Unsustainable Agricultural Practices*

Slash-and-burn agriculture, otherwise known as shifting cultivation or fire-fallow cultivation, is an age-old agricultural practice that requires the clearing of forest areas, followed

⁹⁹ ‘Corruption Perceptions Index 2016’ *Transparency International* (25 January 2017)

<www.transparency.org/news/corruption_perceptions_index_2016#table> accessed 29 September 2022.

¹⁰⁰ J Smith and others, ‘Illegal Logging, Collusive Corruption and Fragmented Governments in Kalimantan, Indonesia’ (2003) 5 *The International Forestry Review* 293.

¹⁰¹ ‘GDP Per Capita (Current US\$)’ (*World Bank Group*)

<<https://data.worldbank.org/indicator/NY.GDP.PCAP.CD>> accessed 29 September 2022.

¹⁰² Craig Packer and Stephen Polasky, ‘Reconciling Corruption with Conservation Triage: Should Investments Shift from the Last Best Places?’ (2018) 16 *PLOS Biology* e2005620 <<https://doi.org/10.1371/journal.pbio.2005620>> accessed 29 September 2022.

¹⁰³ *ibid.*

by the burning of remaining vegetation.¹⁰⁴ In this way, carbon and other nutrients stored up in the plant material are returned to the soil. The newly enriched soil is then cultivated until it is exhausted, usually after three years. A fallow period then follows, which allows plant life to regrow and soil nutrients to replenish themselves. This cycle continues, as farmers move to new areas to further their activities.¹⁰⁵ Slash-and-burn is, however, hardly sustainable. It has resulted in deforestation and the loss of biodiversity, as well as increased carbon emissions.¹⁰⁶ Generally, cleared land areas require a significant amount of time to recover if slash-and-burn agriculture is to be sustainable. It could take up to ten years for birds and mammals to return to cleared land, and up to 15 years for soil to recover its original condition. Tree species can take up to 20 years to recover 80% of their original diversity.¹⁰⁷ In addition, it can take up to 20 fallow years for soil carbon levels to revert to their original state. At low population densities, fallow periods may take longer than 20 years. However, in the past 25 years, population growth and economic pressure

¹⁰⁴ M Fayiah and MS Fayiah, 'Challenges of Biodiversity Conservation in Africa: A Case Study of Sierra Leone' in Sylvester Chibueze Izah (ed) *Biodiversity in Africa: Potentials, Threats and Conservation* (Springer Singapore 2022).

¹⁰⁵ David M Kuchta, 'Slash-and-Burn Agriculture: Can It Be Sustainable Again?' (*Tree Hugger*, 28 January 2022) <www.treehugger.com/slash-and-burn-agriculture-5215362> accessed 29 September 2022.

¹⁰⁶ Joli R Borah, Karl L Evans and David P Edwards, 'Quantifying Carbon Stocks in Shifting Cultivation Landscapes Under Divergent Management Scenarios Relevant To REDD+' (2018) 28 *Ecological Applications* 1581 <<http://dx.doi.org/10.1002/eap.1764>> accessed 29 September 2022.

¹⁰⁷ Sharif A Mukul and John Herbohn, 'The Impacts of Shifting Cultivation on Secondary Forests Dynamics in Tropics: A Synthesis of The Key Findings and Spatio Temporal Distribution of Research' (2016) 55 *Environmental Science & Policy* 167 <<https://doi.org/10.1016/j.envsci.2015.10.005>> accessed 29 September 2022.

have reduced fallow periods to just two to three years, far below sustainable levels.¹⁰⁸ This practice is exacerbated in Africa and has adverse effects on biodiversity.

5.3 *Resource Extraction and Deforestation*

African countries are among the poorest in the world in GDP per capita terms.¹⁰⁹ Individuals seeking to improve their livelihoods and a surge in demand for resources such as copper, aluminium and forest products have induced resource extraction significantly at both the individual and industrial levels.¹¹⁰ The picture is similarly disturbing when it comes to deforestation. Around 90% of the African population uses wood as fuel for heating and cooking.¹¹¹ Other activities such as land clearance for agriculture, industrialisation and livestock grazing are rapidly depleting Africa's lush forest areas. At present, some 90% of West Africa's original forest areas have been completely wiped out. Deforestation destroys the environment via soil erosion. It also decreases water supply and releases carbon, which may lead to climate change.¹¹²

5.4 *Competition for Resources*

The relationship between humans and other species in nature is a challenging one. While people set up boundaries around their homes and communities, non-humans, especially wild animals, do not recognise them. These animals sometimes roam outside park and forest areas into

¹⁰⁸ Dibyendu Sarkar and others, 'Potential of Fallow Chronosequence in Shifting Cultivation to Conserve Soil Organic Carbon in Northeast India' (2015) 135 *Catena* 321 <<https://doi.org/10.1016/j.catena.2015.08.012>> accessed 29 September 2022.

¹⁰⁹ 'The Poorest Countries in the World' (*FocusEconomics*, 11 October 2022) <www.focus-economics.com/blog/the-poorest-countries-in-the-world> accessed 21 December 2022.

¹¹⁰ 'Threats' (*African Wildlife Foundation*) <www.awf.org/threats> accessed 17 October 2022.

¹¹¹ *ibid.*

¹¹² *ibid.*

built environments. When this happens, substantial damage is caused to fields and cultivated crops.¹¹³ In parts of Africa where towns and villages are situated close to game reserves and national parks, a clash between wildlife and rural livestock often occurs, leading to crude practices fuelled by animosity towards the wildlife. This can create tension and spiral into injuries or even death for humans and animals. As humans and wildlife increasingly encounter one another, the struggle for resources becomes heightened.¹¹⁴ This shapes people's perceptions around wildlife conservation and the protection of other species.

5.5 Wildlife Trafficking and Unregulated Artisanal Fishing

Wildlife covers an enormous part of biodiversity, and their illegal trafficking is ranked as the fourth most valuable illicit commerce globally.¹¹⁵ This estimated US\$20 billion per year¹¹⁶ trade spans borders and continents.¹¹⁷ Illegal wildlife trade is an environmental crime that removes species from their natural habitat and endangers the future survival of wildlife and ecosystems. It also poses a threat to national security and the global economy.¹¹⁸ The poaching of wildlife such

¹¹³ Sefi Mekonen, 'Coexistence Between Human and Wildlife: The Nature, Causes and Mitigations of Human Wildlife Conflict around Bale Mountains National Park, Southeast Ethiopia' (2020) 20 *BMC Ecology* 51 <<https://doi.org/10.1186/s12898-020-00319-1>> accessed 17 October 2022.

¹¹⁴ *ibid.*

¹¹⁵ Abdullateef Aliyu, 'Why Illegal Wildlife Trade Thrives in Africa – Don' *Daily Trust* (Lagos, 24 January 2018) <<https://dailytrust.com/why-illegal-wildlife-trade-thrives-in-africa-don/>> accessed 17 October 2022.

¹¹⁶ 'Wildlife Crime' (*INTERPOL*) <www.interpol.int/en/Crimes/Environmental-crime/Wildlife-crime> accessed 17 October 2022.

¹¹⁷ Aliyu (n 115).

¹¹⁸ 'Illegal Wildlife Trade Threatens National Security, Says WWF Report' *Traffic* (New York, 12 December 2012) <www.traffic.org/news/illegal-wildlife-trade-threatens-national-security-says-wwf-report/> accessed 17 October 2022.

as gorillas, elephants, and rhinos is on the rise and threatens the very survival of these species. Many Africans hunt wildlife for bush meat either to sell to earn money or eat.¹¹⁹

Also, illegal, unregulated, and unreported (IUU) fishing threatens the effective management of marine resources and affects the communities dependent on them.¹²⁰ Artisanal fishing has grown significantly in Africa in recent years. In this regard, globalisation has created increased demands for relevant products, thereby influencing the behaviour of local fishermen.¹²¹ In general, laws pertaining to artisanal fishing do not adequately reflect these global trends and their impacts on local fishing. Instead, they utilise inappropriate scales of reference, either spatially or temporally. Global efforts referencing spatial patterns of fishing vessel activity are largely predicated on automatic identification system (AIS) data. However, AIS is, for the most part, not a legal requirement on fishing vessels. In this way, the enormity and distribution of legal and illegal fishing activity are underestimated, which could affect enforcement efforts and the management of marine resources.¹²²

5.6 *Climate Change*

¹¹⁹ Douglas Williamson and Lonneke Bakker, 'Bush Meat Crises in West-Africa' (*Food and Agriculture Organization of the United Nations*) <www.fao.org/forestry/13227-0dc169eedbbab4a04cae75af869fdccf.pdf> accessed 17 October 2022.

¹²⁰ P Campredon and F Cuq, 'Artisanal Fishing and Coastal Conservation in West Africa' (2001) 7 *Journal of Coastal Conservation* 91 <<https://doi.org/10.1007/BF02742471>> accessed 17 October 2022.

¹²¹ *ibid.*

¹²² Philip D Doherty and others, 'Threats of Illegal, Unregulated, and Unreported Fishing to Biodiversity and Food Security in the Republic of the Congo' (2021) 35 *Conservation Biology* 1463 <<http://dx.doi.org/10.1111/cobi.13723>> accessed 17 October 2022.

Climate change presents one of the greatest risks to biodiversity and ecosystems in Africa today, as biodiversity and ecosystems are intrinsically connected to the climate.¹²³ Freshwater, coastal areas and open ocean marine ecosystems have all been affected by climate change, with increasingly irreparable losses. In Africa, many species have perished due to the frequency and severity of heat and the destruction of forests.¹²⁴ Amphibian populations are declining on the continent, owing to sharp decreases in water bodies caused by dry weather and increased human activity along the shorelines. The 2022 climate change report of the Intergovernmental Panel on Climate Change (IPCC) shows that the scale and magnitude of climate change impacts are greater than previously estimated.¹²⁵ The report notes that

widespread deterioration of ecosystem structure and function, resilience and natural adaptive capacity, as well as shifts in seasonal timing have occurred due to climate change (high confidence), with adverse socioeconomic consequences (high confidence). Approximately half of the species assessed globally have shifted polewards or, on land, also to higher elevations (very high confidence). Hundreds of local losses of species have been driven by increases in the magnitude of heat extremes (high confidence), as well as mass mortality events on land and in the ocean (very high confidence) and loss of kelp forests (high confidence).¹²⁶

¹²³ Dejene W Sintayehu, 'Impact of Climate Change on Biodiversity and Associated Key Ecosystem Services in Africa: A Systematic Review' (2018) 4 *Ecosystem Health and Sustainability* 225 <<https://doi.org/10.1080/20964129.2018.1530054>> accessed 17 October 2022.

¹²⁴ *ibid.*

¹²⁵ 'Climate Change 2022: Impacts, Adaptation and Vulnerability' (*Intergovernmental Panel on Climate Change* 2022) <https://report.ipcc.ch/ar6/wg2/IPCC_AR6_WGII_FullReport.pdf> accessed 21 December 2022.

¹²⁶ *ibid.*

Climate change is expected to constitute one of the key drivers of biodiversity loss over the next 50–100 years, which would further exacerbate the effects of initial threats.¹²⁷ Overall, anthropocentric and ecocentric values have stood opposed to each other for a long time, with the former often trumping the latter. This has contributed to the significant decline in Africa's biological range. In what follows, some propositions are made to address the identified challenges.

6. Towards a More Effective Biodiversity Conservation Regime in Africa

6.1 *Prioritising Legislative Action and Local Responses*

To achieve improved biodiversity protection in Africa, it is important that the specific determinants of biodiversity losses are individually addressed. As already noted, anthropocentric factors are central to the loss of biodiversity across Africa with grave consequences for species and ecosystems. Evidence suggests that legislative action could play vital roles in addressing these factors and their varied impacts.¹²⁸ In principle, improved biodiversity conservation can be partly achieved when appropriate legal standards are enacted and effectively implemented. However, the identification of species and ecosystems that face the greatest risks must precede any legislative action. Currently, one of the best-known methods for identifying legislative priorities is to utilise IUCN's Red List criteria, which reflects a species' risk of extinction.¹²⁹ African countries should

¹²⁷ Cristian Román-Palacios and John J Wiens, 'Recent Responses to Climate Change Reveal the Drivers of Species Extinction and Survival' (2020) 117 *Proceedings of the National Academy of Sciences* 4211 <<https://doi.org/10.1073/pnas.1913007117>> accessed 21 December 2022.

¹²⁸ Matthew Frost and others, 'A Review of Climate Change and the Implementation of Marine Biodiversity Legislation in the United Kingdom' (2016) 26 *Aquatic Conservation* 577 <<https://doi.org/10.1002/aqc.2628>> accessed 21 December 2022.

¹²⁹ 'The IUCN Red List of Threatened Species' (*International Union for Conservation of Nature and Natural Resources*) <www.iucnredlist.org> accessed 30 September 2022.

take the IUCN framework seriously and adopt laws that will cater to the listed species. In addition, these laws must address issues around *in situ* and *ex situ* conservation. With regard to the latter, for instance, many African countries do not maximise *ex situ* conservation and lack comprehensive data of all their conservation sites. Further, countries must ensure that appropriate environmental policies are implemented at all levels of government, ie at national, state, and local levels. In this way, relevant species and ecosystems are better documented and protected. Prosecution of environmental offences such as poaching must also be prioritised as a deterrence measure. In addition to this, relevant authorities must adopt and implement laws that address other specific issues identified in this study including the problem of resource extraction and deforestation, as well as wildlife trafficking and unregulated artisanal fishing. Also, as climate change has emerged as a newer challenge to biodiversity conservation, legislative action must be taken at national and regional levels to address this challenge.

In addition to law and policy actions, states must equally be innovative in responding to specific local challenges around biodiversity, especially wildlife conservation. In this regard, effective mechanisms must be established to reduce the risk of clashes between communities and wildlife. For instance, appropriate boundaries can be put in place, restricting wildlife to certain areas while human settlements are sited far from relevant parks and forest areas. Aggressive public awareness programmes on biodiversity loss must complement these efforts. In addition, school curriculum may incorporate relevant environmental subjects while enlightenment campaigns should be introduced to rural communities.

6.2 *Creation of Specialised Agencies*

As is the case with Nigeria's NESREA, some African countries have a tendency to assign one agency with multiple obligations in diverse thematic areas. As a result, the agency is faced

with a workload that is either too large or too cumbersome to effectively manage. To address each environmental issue adequately, distinct agencies or parastatals should be established. For instance, a more effective strategy to stop biodiversity loss, including issues like wildlife trafficking, is for national authorities to establish dedicated agencies to handle specific biodiversity conservation issues, paying attention to contextual challenges in each country and at sub-national levels.

7. Conclusion

This paper has examined the challenge of biodiversity loss and the complexities around its legal governance in Africa. Many countries in Africa are currently facing an existential threat when it comes to the conservation of biological diversity. In many ways, laws and regulatory frameworks both at regional and national levels have sought to offer efficient approaches and interventions to manage biological diversity sustainably. However, given the rapid decline in Africa's biodiversity, it is clear that the various policies, strategies, and interventions have been largely ineffective. This study revealed that African countries (Nigeria and Liberia) lack a standalone biodiversity mechanism that addresses biodiversity issues exclusively, including biodiversity data.

According to the analyses of institutions in Nigeria and Liberia, these countries have yet to establish specialised institutions that facilitate the generation, processing, and access to biodiversity data and information. This is true for many African countries. The current state of biodiversity information in Africa is patchy and precarious due to a variety of factors, such as illegal trade of wild flora and fauna, indiscriminate agricultural practices, prioritisation of economic development, and a failure to maximise *ex situ* conservation. From a legislative standpoint, it is important to adopt laws that take local challenges into account, as opposed to mere domestication of international law. As the link between illiteracy, poverty, corruption and

biodiversity loss was highlighted in this study, efforts must be made to address these challenges from an ecological perspective for improved biodiversity conservation.

Biographical Notes

Daniel Ogunniyi is a Lecturer at the Wilberforce Institute and the Law School, University of Hull. He teaches and conducts research on modern slavery, children's rights, biodiversity conservation, and international law.

Angela Azeta is an environmental activist and researcher. She obtained her law degree with first-class honours from Redeemer's University and served as the editor-in-chief of the Legal Scholars Journal for a year. Her research interests span biodiversity conservation, environmental rights, energy law, and sustainable development.