

**Enhancing Indigenous Peoples and Local Communities' Role in
Biodiversity Conservation**

Kariuki Muigua, Ph.D.

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

Kariuki Muigua*

Abstract

Global biodiversity conservation faces threats like climate change and habitat loss. Protected Areas help, but often exclude inhabited areas, which overlooks the importance of traditional communities in natural resource management. Studies show community-managed lands can be as biodiverse as Protected Areas. Indigenous peoples and local communities are key to fair and conservation results. Though progress is being made in promoting rights-based approaches and conservation governance, these ideas need to be better applied at the local level.

Indigenous knowledge of local ecosystems is valuable and can support scientific observations. For sustainable ecosystem management, it is important to recognize and build upon this knowledge and promote community-based resource management. This paper examines the role of indigenous peoples and local communities in biodiversity conservation, as well as related difficulties and opportunities in enhancing their participation.

1. Introduction

Conserving biodiversity is a key global goal because of growing environmental dangers, especially those tied to climate change and habitat loss.¹ The rapid loss of species, often before we even know they exist, shows how urgently we need to minimize the harm to global biodiversity and come up with effective conservation plans.² Biodiversity is declining rapidly because of overexploitation, a lack of government action, poor management approaches, and the loss of traditional knowledge.³ Human activities are causing a biodiversity decline, which poses a threat to ecological balance and the cultural and economic well-being of communities dependent on these ecosystems. These activities include habitat destruction, climate change, pollution, and resource overexploitation.⁴

Protected Areas (PAs) have been created as a way to control changes and maintain biodiversity and ecosystem services, and they have been shown to be very useful over time. Yet, some conceptual or recognition issues continue, such as the common idea that biodiversity conservation is only linked to

***PhD in Law (Nrb), FCI Arb (Chartered Arbitrator), LL. B (Hons) Nrb, LL.M (Environmental Law) Nrb; Dip. In Law (KSL); FCPS (K); Dip. In Arbitration (UK); MKIM; Mediator; Consultant: Lead expert EIA/EA NEMA; BSI ISO/IEC 27001:2005 ISMS Lead Auditor/ Implementer; Advocate of the High Court of Kenya; Professor of Environmental Law and Conflict Management at the University of Nairobi, Faculty of Law [October, 2025].**

¹ Da Silva EC, *et. al.*, 'The Importance of Traditional Communities in Biodiversity Conservation' (2025) 34 Biodiversity and Conservation 685.

² Ibid.

³ Joshi P and Rao N, 'Role of Indigenous People in Conservation of Biodiversity of Medicinal Plants: An Indian Case Study', *Survival and Sustainability* (Springer, Berlin, Heidelberg 2010) <https://link.springer.com/chapter/10.1007/978-3-540-95991-5_10> accessed 20 October 2025.

⁴ VijayKumar, R., "Integrating indigenous knowledge and traditional practices for biodiversity conservation in a modern world." *Environmental Reports* (2019).

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

uninhabited PAs.⁵ Increasingly, societies have acknowledged that traditional communities are important for protecting and managing natural resources in a sustainable way. Research shows that the areas these communities manage have similar levels of biodiversity as formally protected areas, which suggests these management methods work well.⁶ Indigenous peoples and local communities are key to protecting biodiversity, helping to ensure conservation efforts are both fair and successful.⁷ We have seen advancements in advocating for rights-based strategies, integrating social and ecological objectives, creating standards and assessment methods for conservation governance, and incorporating local governance initiatives into the international network of protected areas.⁸ These principles have not fully influenced site-level governance, so there is a disconnect between policy and what happens in practice.⁹

It is worth noting that past conservation efforts sometimes forced indigenous people off their land, causing displacement and poverty.¹⁰ This is despite the fact that these communities are especially concentrated in the most intact land and water ecosystems, where they play an essential part in caring for our natural environment.¹¹

In 2014, the phrase indigenous and local communities came into use, marking a symbolic acknowledgement of Indigenous Peoples' unique status in international human rights law.¹² The 2014 CBD decision, though, clarified that this wording should not change the legal meaning of CBD Article 8(j) or suggest altered rights or duties under the CBD.¹³ Legal experts have differing views on how to understand this wording. Some argue that national governments are still in charge of recognizing Indigenous Peoples' rights related to biodiversity. Others contend that the change in wording means the CBD now sees Indigenous Peoples and local communities as distinct groups.¹⁴ The existing literature indicates a lack of consensus on the definition of Indigenous Peoples, and the terms used to

⁵ Da Silva EC, *et. al.*, 'The Importance of Traditional Communities in Biodiversity Conservation' *op. cit.*

⁶ *Ibid.*

⁷ Dawson, N.M., *et al.* "The role of Indigenous peoples and local communities in effective and equitable conservation." *Ecology and society* 26, no. 3 (2021): 19.

⁸ *Ibid.*

⁹ *Ibid.*

¹⁰ Popova U, 'Conservation, Traditional Knowledge, and Indigenous Peoples' (2014) 58 *American Behavioral Scientist* 197; see also Alcorn, J.B., "Indigenous Peoples and Conservation." *Conservation Biology* 7, no. 2 (1993): 424-426.

¹¹ Toledo, V.M., "Indigenous peoples and biodiversity." *Encyclopedia of biodiversity* 3 (2001): 451-463.

¹² Parks, L. and Tsioumani, E., "Transforming biodiversity governance? Indigenous peoples' contributions to the Convention on Biological Diversity." *Biological Conservation* 280 (2023): 109933-1.

¹³ *Ibid.*

¹⁴ *Ibid.*

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

refer to knowledge stemming from indigenous cultures are inconsistent.¹⁵ The definition of Indigenous Peoples lacks universal agreement, and the terminology for knowledge related to indigenous cultures varies. The term traditional knowledge describes the knowledge, innovations, and practices of Indigenous Peoples and Local Communities who maintain traditional lifestyles that are important for protecting and using biological diversity sustainably.¹⁶ The term traditional knowledge is still somewhat clumsy, as it relies on ideas that are not used by the involved communities or the UN.¹⁷ Indigenous groups engage in diverse ecosystem management practices. These include forest management by tropical lowland communities, grassland pastoralism, nomadic hunting and gathering in varied environments, and fishing as a key economy and food source for many coastal and island populations.¹⁸

Giving indigenous people chances to share their views on managing ancestral lands and natural resources is essential. Working together between these groups and outside organizations is key to stronger economies, better relations, and environmental care that crosses political borders.¹⁹

This paper critically discusses the challenges and prospects in entrenching and enhancing the role of indigenous peoples and local communities in biodiversity conservation.

2. Biodiversity Conservation Through the Eyes of Indigenous Peoples and Local Communities

Multilateral policy discussions, like the CBD's post-2020 Global Biodiversity Framework, tend to emphasize how much of the planet should be protected, instead of how protection should occur.²⁰ Externally managed conservation efforts often start from the idea that Indigenous Peoples and Local Communities (IPLCs) harm the environment because they rely on biodiversity for their livelihoods.²¹

¹⁵ Ibid.; See also Sanders, D.E., "Indigenous peoples: Issues of definition." *International Journal of Cultural Property* 8, no. 1 (1999): 4-13; Wiessner, S., "Indigenous Peoples: The Battle over Definition." In *Reflections on International Law*, pp. 4-40. Brill Nijhoff, 2023.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Toledo, V.M., "Indigenous peoples and biodiversity."

¹⁹ Popova U, 'Conservation, Traditional Knowledge, and Indigenous Peoples', *op. cit.*

²⁰ Dawson, N.M., et al. "The role of Indigenous peoples and local communities in effective and equitable conservation." *Op.cit.*

²¹ Ibid.; see also Parks L and Tsioumani E, 'Transforming Biodiversity Governance? Indigenous Peoples' Contributions to the Convention on Biological Diversity' (2023) 280 *Biological Conservation* 109933; 'Protected Areas and the Neglected Contribution of Indigenous Peoples and Local Communities: Struggles for Environmental Justice in the Caatinga Dry Forest - Dawson - 2023 - People and Nature - Wiley Online Library' <<https://besjournals.onlinelibrary.wiley.com/doi/full/10.1002/pan3.10288>> accessed 21 October 2025; Hill R and others, 'Working with Indigenous, Local and Scientific Knowledge in Assessments of Nature and Nature's Linkages with People' (2020) 43 *Current Opinion in Environmental Sustainability* 8.

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

This reasoning supports efforts to shield biodiversity from Indigenous Peoples and Local Communities (IPLCS) by using administrative systems that disallow local ways and take precedence over traditional establishments.²² Areas with a lot of different cultures often have a lot of different species living there as well. This can be seen when looking at maps that show where there are many languages spoken and where there are many different types of plants and animals. These maps often overlap.²³ Climate change threatens Traditional Ecological Knowledge derived from ancestral lands, impacting its passage between generations in local communities.²⁴ Industries, governments, and corporations continue to desecrate culturally important and sacred locations that have cultural and ecological value, which reduces Indigenous Peoples' access to important lands.²⁵

Indigenous populations represent a large portion, around 80-90%, of the world's cultural diversity. There are 6,703 languages spoken across Asia, Africa, the Pacific region, and the Americas.²⁶

Indigenous Peoples and local communities (IPLCs) have played a key role in promoting sustainability when facing global environmental problems such as biodiversity loss.²⁷ Traditional practices, born from reliance on natural resources, have played a key role in maintaining biodiversity since the emergence of humans.²⁸ The Convention on Biological Diversity (CBD) is a leader in making sure that indigenous peoples and local communities (IPLC) representatives are involved in global environmental governance.²⁹

Indigenous actors have however noted the limits of these advances, saying the system does not give them unfiltered access or full participation.³⁰ It is important to remember that native people have a deep understanding of the ecological systems around them, knowledge passed down through the years.³¹ Indigenous knowledge, derived from long-term observations, supports the observations of

²² Dawson, N.M., et al. "The role of Indigenous peoples and local communities in effective and equitable conservation." *Op.cit.*

²³ Ibid.; see also Wartmann FM and Purves RS, 'Investigating Sense of Place as a Cultural Ecosystem Service in Different Landscapes through the Lens of Language' (2018) 175 *Landscape and Urban Planning* 169.

²⁴ Carroll D., et. al., 'Knowledge Connects Our Hearts and Lands: A Qualitative Research Study on Stewarding Indigenous Traditional Ecological Knowledges for Community Well-Being' *op. cit.*

²⁵ Ibid.

²⁶ Toledo, V.M., "Indigenous peoples and biodiversity." *Op. cit.*

²⁷ Parks, L. and Tsioumani, E., "Transforming biodiversity governance? Indigenous peoples' contributions to the Convention on Biological Diversity." *Biological Conservation* 280 (2023): 109933-1.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Ibid.; see also 'Indigenous Peoples Must Have Full Representation, Participation in Decisions Affecting Their Territory, Governance, Speakers Stress at Permanent Forum | Meetings Coverage and Press Releases' <<https://press.un.org/en/2023/hr5477.doc.htm>> accessed 21 October 2025.

³¹ Gadgil, M., Berkes, F. and Folke, C., "Indigenous Knowledge for Biodiversity Conservation." *Ambio* (1993): 151-156.

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

Western science, which tend to be more in the moment. Indigenous communities have an interest in protecting biodiversity because it is important for the health of their environments.³² Indigenous groups sometimes change the local environment to promote variety, and sometimes they try to bring back biodiversity to damaged areas.³³ Indigenous practices rely on a set of principles that Western science finds hard to understand. Recognizing the importance of indigenous knowledge and supporting community-based resource management is key to sustainable ecosystem management.³⁴

Rural communities often depend on their traditional ecological knowledge for farming and species growth, showing a clear link between indigenous people and biodiversity.³⁵ In India, local people, NGOs, and community groups are implementing programs focused on medicinal plants, using traditional knowledge to conserve them.³⁶ It is important to strengthen these links and build on local knowledge to get the most out of medicinal plant biodiversity and ensure these resources are managed sustainably.³⁷

3. Biodiversity Conservation: Prospects and Challenges

Scholars have long examined how involvement relates to influence in group activities. This process is understood to be complex, occurring in varied situations, and involving many individuals and groups who debate and shape the understanding of legal and policy choices.³⁸ Entities and individuals that have historically relied on widespread societal viewpoints, such as Enlightenment thought, are better positioned to influence these interpretations.³⁹

Indigenous communities are central to biodiversity, as they inhabit areas with rich ecosystems. Protecting both their cultures and the natural world is a key challenge since biodiversity is also affected by society and politics.⁴⁰ Indigenous groups are often seen as poor or ignored, but they are essential

³² Ibid.

³³ Ibid.; see also 'Indigenous Knowledge: The Key to Biodiversity Conservation | Cultural Survival' <<https://www.culturalsurvival.org/publications/cultural-survival-quarterly/indigenous-knowledge-key-biodiversity-conservation>> accessed 21 October 2025; 'Indigenous Knowledge Is Crucial in the Fight against Climate Change – Here's Why | UNDP Climate Promise' <<https://climatepromise.undp.org/news-and-stories/indigenous-knowledge-crucial-fight-against-climate-change-heres-why>> accessed 21 October 2025; Esmail N and others, 'What's on the Horizon for Community-Based Conservation? Emerging Threats and Opportunities' (2023) 38 *Trends in Ecology & Evolution* 666.

³⁴ Ibid.

³⁵ Joshi P and Rao N, 'Role of Indigenous People in Conservation of Biodiversity of Medicinal Plants: An Indian Case Study', *Survival and Sustainability* (Springer, Berlin, Heidelberg 2010), *op.cit.*

³⁶ Ibid.

³⁷ Ibid.

³⁸ Parks, L. and Tsioumani, E., "Transforming biodiversity governance? Indigenous peoples' contributions to the Convention on Biological Diversity." *Biological Conservation* 280 (2023): 109933-1.

³⁹ Ibid.

⁴⁰ Toledo, V.M., "Indigenous peoples and biodiversity." *Op. cit.*

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

for protecting biodiversity in many of the world's most biologically diverse areas.⁴¹ A key advantage of indigenous knowledge lies in its specific connection to a place. Indigenous populations often have detailed awareness of local plants and animals, understanding their roles in the ecosystem, seasonal patterns, and relationships with each other.⁴² Many indigenous communities, for example, have created complex resource management systems that work with their ecosystems' natural cycles. These include seasonal harvesting methods to keep species sustainable.⁴³

Indigenous peoples and local communities are key to protecting biodiversity, and conservation groups often see helping them as a moral imperative.⁴⁴ For conservation to be sustainable, fair governance is needed. This involves understanding and respecting what all involved people know, their different values, their rights to land passed down through families, and their cultural ways.⁴⁵ It is worth noting that the link between equity and how well conservation works is still debated.⁴⁶ Research in conservation suggests that involving Indigenous Peoples and Local Communities more fully can improve conservation results by strengthening group efforts and teamwork and by lessening disagreements.⁴⁷

Indigenous knowledge systems often emphasize the interconnectedness of all living beings and the importance of maintaining balance within ecosystems.⁴⁸ Recognizing that ecosystems are dynamic and interrelated allows conservationists to create better strategies that target the main reasons for

⁴¹ Ibid.

⁴² VijayKumar, R., "Integrating indigenous knowledge and traditional practices for biodiversity conservation in a modern world." *Op. cit.*

⁴³ Ibid.

⁴⁴ Dawson, N.M., *et. al.*, "Is it just conservation? A typology of Indigenous peoples' and local communities' roles in conserving biodiversity." *One Earth* (2024).

⁴⁵ Ibid.; see also Sobrevila, C., *The role of indigenous peoples in biodiversity conservation: The natural but often forgotten partners*. International Bank for Reconstruction and Development, 2008; Hilton, A., Wehrmann, B. and Beall, E., "Safeguarding land tenure rights in the context of agricultural investment." (2015); Worsdell, T., Kumar, K., Allan, J.R., Gibbon, G.E.M., White, A., Khare, A. and Frechette, A., "Rights-based conservation: The path to preserving Earth's biological and cultural diversity?" (2020).

⁴⁶ Ibid.

⁴⁷ Ibid.; see also Fariss B., *et. al.*, 'Catalyzing Success in Community-based Conservation' (2022) 37 *Conservation Biology* e13973; Fidler R.Y., *et. al.*, 'Individual and Community Empowerment Improve Resource Users' Perceptions of Community-Based Conservation Effectiveness in Kenya and Tanzania' (2024) 19 *PLOS ONE* e0301345; Kuhnlein HV and Chotiboriboon S, 'Why and How to Strengthen Indigenous Peoples' Food Systems With Examples From Two Unique Indigenous Communities' (2022) 6 *Frontiers in Sustainable Food Systems* <<https://www.frontiersin.org/journals/sustainable-food-systems/articles/10.3389/fsufs.2022.808670/full>> accessed 21 October 2025; 'An Assessment of Kenya's Forest Policy and Law on Participatory Forest Management for Sustainable Forest Management: Insights from Mt. Kenya Forest Reserve - ScienceDirect' <<https://www.sciencedirect.com/science/article/pii/S2666719324002760>> accessed 21 October 2025.

⁴⁸ VijayKumar, R., "Integrating indigenous knowledge and traditional practices for biodiversity conservation in a modern world." *Environmental Reports* (2019).

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

biodiversity loss.⁴⁹ Indigenous communities also bring cultural and ethical dimensions to biodiversity conservation, leading to a profound commitment to stewardship and sustainability.⁵⁰ Traditional land care methods like rotational farming, agroforestry, and controlled burns can help boost the variety of plant and animal life. They can also make soil healthier and better able to handle environmental problems.⁵¹

Research that tries to measure how well conservation efforts work often finds mixed results. A common conclusion is that success depends a lot on things such as governance, how involved local people are, and the quality of leadership.⁵² This suggests focusing more on how different kinds of indigenous peoples and local community involvement affect conservation results.⁵³

Integrating Indigenous knowledge into biodiversity conservation efforts can empower Indigenous communities, recognizing their rights and contributions to environmental stewardship.⁵⁴ When Indigenous people are included, they feel more responsible and in control, letting them have a key part in taking care of their lands.⁵⁵ When Indigenous communities work with conservation groups, everyone can learn from each other and get better at what they do. This teamwork makes conservation projects work better.⁵⁶ Overall, the importance of Indigenous knowledge in biodiversity conservation

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ Ibid.; see also 'Agroforestry Systems for Soil Health Improvement and Maintenance' <<https://www.mdpi.com/2071-1050/14/22/14877>> accessed 21 October 2025; 'Regenerative Agriculture Practices And Environmental Impacts' <<https://eos.com/blog/regenerative-agriculture/>> accessed 21 October 2025; 'Farming Systems to Return Land for Nature: It's All about Soil Health and Re-Carbonization of the Terrestrial Biosphere - ScienceDirect' <<https://www.sciencedirect.com/science/article/pii/S2949911923000023>> accessed 21 October 2025; Sher A. *et al.*, 'Importance of Regenerative Agriculture: Climate, Soil Health, Biodiversity and Its Socioecological Impact' (2024) 5 Discover Sustainability 462; Kumar, R., *et al.*, "Agroforestry and its potential for sustainable land management and climate action: A review." *International Journal of Environment and Climate Change* 13, no. 12 (2023): 620-629.

⁵² Dawson, N.M., *et al.*, "Is it just conservation? A typology of Indigenous peoples' and local communities' roles in conserving biodiversity." *One Earth* (2024).

⁵³ Ibid.

⁵⁴ VijayKumar, R., "Integrating indigenous knowledge and traditional practices for biodiversity conservation in a modern world." *Op. cit.*

⁵⁵ Ibid.

⁵⁶ Ibid.; see also 'When Indigenous Communities Work with Conservation Groups, Everyone Can Learn from Each Other and Get Better at What They Do. This Teamwork Makes Conservation Projects Work Better. - Google Search' <<https://www.google.com/search?client=firefox-b-d&channel=entpr&q=When+Indigenous+communities+work+with+conservation+groups%2C+everyone+can+learn+from+each+other+and+get+better+at+what+they+do.+This+teamwork+makes+conservation+projects+work+bet ter.>> accessed 21 October 2025.

lies in its ability to provide context-specific, holistic, and ethically grounded approaches to environmental stewardship.⁵⁷

4. Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

Indigenous Peoples possess strengths that make them valuable partners in conservation and development. These strengths include their diversity, self-organization skills, knowledge, internal accountability structures, and cultures adapted to local contexts.⁵⁸ Opportunities to address the intersection of indigenous peoples and conservation have increased and will continue to expand for the next decade.⁵⁹ Indigenous Peoples and their representative organizations (IPOs) are taking more actions against damaging development and industries threatening their lands and waters, at great personal risk.⁶⁰ There is thus an urgent need for supporting IPOs and their support organizations.⁶¹

Indigenous Peoples have created and maintained intricate knowledge systems that help their societies prosper. Given ongoing threats to Indigenous ways of life, it is increasingly important to protect traditional ecological knowledge (TEK).⁶² The role of traditional communities in biodiversity conservation has become even more relevant, as many of these communities have remained resilient and continued to apply sustainable environmental management practices during the crisis.⁶³ Although traditional communities are seen as increasingly important for saving biodiversity, their actual contribution is often not properly assessed.⁶⁴ To understand how communities help conservation, we must organize and analyze data to find patterns and gaps.⁶⁵ The relationships linking biodiversity, agriculture, human nutrition, and health are complex because of how scientific fields are structured.⁶⁶

⁵⁷ Ibid.; see also Catalano AS, Jimmieson NL and Knight AT, 'Building Better Teams by Identifying Conservation Professionals Willing to Learn from Failure' (2021) 256 *Biological Conservation* 109069.

⁵⁸ Alcorn, J.B., "Indigenous Peoples and Conservation." *Conservation Biology* 7, no. 2 (1993): 424-426.

⁵⁹ Ibid.; see also Kemp D, Owen JR and Márquez GYH, 'Research at the Frontier: Making Visible the Intersection between Indigenous Peoples' Lands, Industrial Development, and Rights at Risk' (2023) 6 *One Earth* 948; 'UN/DESA Policy Brief #101: Challenges and Opportunities for Indigenous Peoples' Sustainability | UN DESA Publications' <<https://desapublications.un.org/policy-briefs/undesa-policy-brief-101-challenges-and-opportunities-indigenous-peoples>> accessed 21 October 2025; Fa JE and others, 'Importance of Indigenous Peoples' Lands for the Conservation of Intact Forest Landscapes' (2020) 18 *Frontiers in Ecology and the Environment* 135.

⁶⁰ Ibid.

⁶¹ Ibid.

⁶² Carroll D., *et. al.*, 'Knowledge Connects Our Hearts and Lands: A Qualitative Research Study on Stewarding Indigenous Traditional Ecological Knowledges for Community Well-Being' (2025) 22 *International Journal of Environmental Research and Public Health* 1573.

⁶³ Da Silva EC., *et. al.*, 'The Importance of Traditional Communities in Biodiversity Conservation', *op. cit.*

⁶⁴ Ibid.

⁶⁵ Ibid.

⁶⁶ Heywood, V.H., "Ethnopharmacology, food production, nutrition and biodiversity conservation: Towards a sustainable future for indigenous peoples." *Journal of Ethnopharmacology* 137 (2011): 1-15.

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

Research has typically been divided into separate fields, which has made it harder to tackle agricultural and nutritional issues together using different approaches.⁶⁷ To address the challenge of maintaining the world's food supply amid a rapidly rising human population and climate change, the agriculture and biodiversity sectors must be converged.⁶⁸ Local populations possess considerable understanding across several areas. These areas include soil and water conservation, seed selection and preservation, traditional farm tools, suitable farming systems, and adaptive methods for dealing with food shortages.⁶⁹ Indigenous technologies have been devised by the community, using their own indigenous knowledge to cope up with harsh times and sustain livelihoods.⁷⁰

Research suggests that when Indigenous Peoples and local communities have equal say or main authority in governance, ecological results tend to be better.⁷¹ This carries weight for how we approach the Global Biodiversity Framework targets. It points to a need to increase the role of Indigenous Peoples and Local Communities to conservation leaders while respecting their rights and customary institutions.⁷²

Indigenous groups play an active part in environmental planning at different levels, rather than just being passive participants in conservation efforts.⁷³ Indigenous groups possess full cognitive and intellectual capacities, potentially offering valuable and innovative perspectives on the impacts of the global economy and the information age.⁷⁴ Sustainable use of natural resources presents options for evolving indigenous approaches to the stewardship of their estates.⁷⁵ Local communities taking charge of their environment offers a different way to think about conservation, rather than separating their

⁶⁷ Ibid.

⁶⁸ Ibid.; see also Said Z. *et al.*, 'Climate and Carbon Policy Pathways for Sustainable Food Systems' (2025) 27 *Environmental and Sustainability Indicators* 100730; Toromade A and others, 'Reviewing the Impact of Climate Change on Global Food Security: Challenges and Solutions' 1403; Bouteska A and others, 'Impacts of the Changing Climate on Agricultural Productivity and Food Security: Evidence from Ethiopia' (2024) 449 *Journal of Cleaner Production* 141793; Calicioglu, O., *et al.*, "The future challenges of food and agriculture: An integrated analysis of trends and solutions." *Sustainability* 11, no. 1 (2019): 222.

⁶⁹ Tizita, E. E., "The role of indigenous people in the biodiversity conservation in Gamo area of Gamo Gofa zone, Southern Ethiopia." *International Journal of Biodiversity and Conservation* 8, no. 10 (2016): 244-250.

⁷⁰ Ibid.

⁷¹ Dawson, N.M., *et al.*, "Is it just conservation? A typology of Indigenous peoples' and local communities' roles in conserving biodiversity." *One Earth* (2024).

⁷² Ibid.

⁷³ Rhea, Z.M. and Palmer, L., "Community-Oriented Protected Areas for Indigenous Peoples and Local Communities1." *Journal of Political Ecology* 12 (2005): 23.

⁷⁴ Ibid.

⁷⁵ Ibid.

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

lives from the natural world.⁷⁶ Indigenous peoples and local communities often have their well-being tied to nature. Some of these communities have sustainably managed species and ecosystems for long periods.⁷⁷ Research suggests that when Indigenous Peoples and Local Communities (IPLCs) are involved in conservation, ecological and social results tend to be better.⁷⁸

Traditional ecological knowledges, along with other indigenous forms of understanding, are seen as detailed ways of knowing about the world. Rooted in specific places and passed down for ages, these systems have been carefully kept by native groups.⁷⁹ Even as attempts to erase Indigenous knowledge like TEK continue, Indigenous Peoples have still managed their lands well in many areas globally.⁸⁰ Despite facing violations of Indigenous land rights and forced displacement from ancestral lands, Indigenous Traditional Ecological Knowledge (TEK) and perspectives offer a helpful framework for promoting community health and well-being.⁸¹

Indigenous Peoples and Local Communities aid conservation efforts through systems of values. These values are expressed and used via their close relationships with nature, traditional learning about ecological systems, and common practices.⁸² Traditional ecological knowledge (TEK) offers a fresh way to include indigenous knowledge in current conservation and environmental management practices.⁸³ Traditional Ecological Knowledge, drawing from indigenous cultures, aids communities in adapting to environmental changes and preserving biodiversity. The rise of technology has transformed how we study this knowledge, offering better ways to record and include indigenous insights in conservation work.⁸⁴ By merging these approaches with community research, collaborative

⁷⁶ Dawson, N.M., et al. "The role of Indigenous peoples and local communities in effective and equitable conservation." *Op.cit.*

⁷⁷ Ibid.; see also Nitah S, 'Indigenous Peoples Proven to Sustain Biodiversity and Address Climate Change: Now It's Time to Recognize and Support This Leadership' (2021) 4 *One Earth* 907; Burgos-Ayala A and others, 'Indigenous and Local Knowledge in Environmental Management for Human-Nature Connectedness: A Leverage Points Perspective' (2020) 16 *Ecosystems and People* 290; Reyes-García V and others, 'Indigenous Peoples and Local Communities Report Ongoing and Widespread Climate Change Impacts on Local Social-Ecological Systems' (2024) 5 *Communications Earth & Environment* 29.

⁷⁸ Ibid.

⁷⁹ Carroll D., et. al., 'Knowledge Connects Our Hearts and Lands: A Qualitative Research Study on Stewarding Indigenous Traditional Ecological Knowledges for Community Well-Being' (2025) 22 *International Journal of Environmental Research and Public Health* 1573.

⁸⁰ Ibid.

⁸¹ Ibid.

⁸² Dawson, N.M., et. al., "Is it just conservation? A typology of Indigenous peoples' and local communities' roles in conserving biodiversity." *One Earth* (2024).

⁸³ Rani J., et. al., 'Synergies of Traditional Ecological Knowledge in Biodiversity Conservation: A Paradigm for Sustainable Food Security' in Hanuman Singh Jatav, Vishnu D Raiput and Tatiana Minkina (eds), *Ecologically Mediated Development: Promoting Biodiversity Conservation and Food Security* (Springer Nature 2025) <https://doi.org/10.1007/978-981-96-2413-3_2> accessed 20 October 2025.

⁸⁴ Ibid.

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

work across disciplines, policy support, and methods to build resilience, we can better tackle environmental change and encourage humans and nature to coexist peacefully.⁸⁵

Conservation efforts include a variety of methods, such as creating protected areas, setting up rules for usage that does not hurt the environment, supporting people's ways of life, tourism or development work, offering incentives, and running educational programs.⁸⁶ Individual designs and governance structures can differ greatly, often with various programs running concurrently at one location.⁸⁷ When indigenous groups and local populations get involved in protected area projects that are community-based and managed, they can keep, improve, and support the knowledge that their livelihoods and environmental safety rely on.⁸⁸

The Convention on Biological Diversity (CBD) has recognized agricultural biodiversity as a focal area, offering sustainable agriculture opportunities for reducing negative impacts of biological diversity and enhancing the value of biological diversity.⁸⁹ The FAO Global Plan of Action covers multidisciplinary areas, such as in situ conservation of wild plants and crop relatives in natural ecosystems. Successful implementation of the Global Plan requires partnerships with various organizations, indigenous and local communities.⁹⁰

Indigenous knowledge systems usually view people as connected to nature. They assign value to nature and suggest keeping balance between all parts of nature, including humans.⁹¹ Identifying the specific instances where Indigenous Peoples and Local Communities (IPLC) representatives' knowledge has shaped choices is important for grasping the extent of their influence on reversing biodiversity loss.⁹²

The integration of Indigenous perspectives with contemporary conservation strategies is increasingly recognized as essential for effective environmental stewardship.⁹³ Traditional ecological knowledge

⁸⁵ Ibid.

⁸⁶ Dawson, N.M., *et. al.*, "Is it just conservation? A typology of Indigenous peoples' and local communities' roles in conserving biodiversity." *Op. cit.*

⁸⁷ Ibid.

⁸⁸ Rhea, Z.M. and Palmer, L., "Community-Oriented Protected Areas for Indigenous Peoples and Local Communities1." *Journal of Political Ecology* 12 (2005): 23.

⁸⁹ Heywood, V.H., "Ethnopharmacology, food production, nutrition and biodiversity conservation: Towards a sustainable future for indigenous peoples." *Op. cit.*

⁹⁰ Ibid.

⁹¹ Parks, L. and Tsioumani, E., "Transforming biodiversity governance? Indigenous peoples' contributions to the Convention on Biological Diversity." *Op. cit.*

⁹² Ibid.

⁹³ VijayKumar, R., "Integrating indigenous knowledge and traditional practices for biodiversity conservation in a modern world." *Environmental Reports* (2019).

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

represents the close relationships between native groups and their environments. This knowledge is important for keeping ecosystems healthy and offering key services like clean air and water, pollination, healthy soils, and climate control.⁹⁴

The Kunming-Montreal Global Biodiversity Framework, agreed upon in 2022, emphasizes the need for conservation research to be participatory, especially when it includes Indigenous peoples and local communities.⁹⁵ This framework places importance on the role of Indigenous groups in global conservation, the necessity of conservation based on rights, and the use of both traditional knowledge and scientific data in putting conservation into practice.⁹⁶ A move toward fairer, more inclusive strategies can help local environmental protection. Researchers working alongside Indigenous people and local groups can really aid this change.⁹⁷ The framework outlines fourteen principles for good practice, including recognizing participation across different stages of the research process, assessing data collection methods, and addressing ethical issues related to Indigenous and community participation.⁹⁸

5. Conclusion

Traditional ecological knowledge is important for protecting biodiversity since it gives specific understandings and methods created from long-term relationships with local environments.⁹⁹ Indigenous communities possess a wealth of knowledge rooted in their cultural, spiritual, and practical interactions with their surroundings. This understanding provides a complete view of nature, which is often missing from standard scientific approaches.¹⁰⁰ Scholars generally concur that the involvement of Indigenous peoples and local communities is vital for successful biodiversity conservation and the promotion of sustainable practices.¹⁰¹

⁹⁴ Ibid.

⁹⁵ Newing H., et al. "Participatory Conservation Research Involving Indigenous Peoples and Local Communities: Fourteen Principles for Good Practice." *Biological Conservation* 296 (2024): 110708.

⁹⁶ Ibid.

⁹⁷ Ibid.; see also Bansal S and others, 'Indigenous Communities and Sustainable Development: A Review and Research Agenda' (2024) 43 *Global Business and Organizational Excellence* 65.

⁹⁸ Ibid.

⁹⁹ VijayKumar, R., "Integrating indigenous knowledge and traditional practices for biodiversity conservation in a modern world." *Op. cit.*

¹⁰⁰ Ibid.

¹⁰¹ Dawson, N.M., et al. "The role of Indigenous peoples and local communities in effective and equitable conservation." *Op.cit.*

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

To understand how social fairness and ecological success relate, we must carefully study the different roles local communities and native people have in managing conservation.¹⁰² A broader synthesis across different sites and data types is needed to properly assess governance. This would allow for a critical, evidence-based examination of how governance relates to conservation success across various ecosystems, regions, and initiatives, as well as identifying large-scale links.¹⁰³

It is evident that giving native people opportunities to share their thoughts on taking care of traditional lands and natural environments is important for their own sake and biodiversity conservation.

References

'Agroforestry Systems for Soil Health Improvement and Maintenance' <<https://www.mdpi.com/2071-1050/14/22/14877>> accessed 21 October 2025.

'An Assessment of Kenya's Forest Policy and Law on Participatory Forest Management for Sustainable Forest Management: Insights from Mt. Kenya Forest Reserve - ScienceDirect' <<https://www.sciencedirect.com/science/article/pii/S2666719324002760>> accessed 21 October 2025.

'Farming Systems to Return Land for Nature: It's All about Soil Health and Re-Carbonization of the Terrestrial Biosphere - ScienceDirect' <<https://www.sciencedirect.com/science/article/pii/S2949911923000023>> accessed 21 October 2025.

'Indigenous Knowledge Is Crucial in the Fight against Climate Change – Here's Why | UNDP Climate Promise' <<https://climatepromise.undp.org/news-and-stories/indigenous-knowledge-crucial-fight-against-climate-change-heres-why>> accessed 21 October 2025.

'Indigenous Knowledge: The Key to Biodiversity Conservation | Cultural Survival' <<https://www.culturalsurvival.org/publications/cultural-survival-quarterly/indigenous-knowledge-key-biodiversity-conservation>> accessed 21 October 2025.

'Indigenous Peoples Must Have Full Representation, Participation in Decisions Affecting Their Territory, Governance, Speakers Stress at Permanent Forum | Meetings Coverage and Press Releases' <<https://press.un.org/en/2023/hr5477.doc.htm>> accessed 21 October 2025.

'Protected Areas and the Neglected Contribution of Indigenous Peoples and Local Communities: Struggles for Environmental Justice in the Caatinga Dry Forest - Dawson - 2023 - People and Nature - Wiley Online Library' <<https://besjournals.onlinelibrary.wiley.com/doi/full/10.1002/pan3.10288>> accessed 21 October 2025.

¹⁰² Dawson, N.M., *et. al.*, "Is it just conservation? A typology of Indigenous peoples' and local communities' roles in conserving biodiversity." *Op. cit.*

¹⁰³ *Ibid.*

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

'Regenerative Agriculture Practices And Environmental Impacts'

<<https://eos.com/blog/regenerative-agriculture/>> accessed 21 October 2025.

'UN/DESA Policy Brief #101: Challenges and Opportunities for Indigenous Peoples' Sustainability | UN DESA Publications' <<https://desapublications.un.org/policy-briefs/undesapolicybrief101-challenges-and-opportunities-indigenous-peoples>> accessed 21 October 2025.

'When Indigenous Communities Work with Conservation Groups, Everyone Can Learn from Each Other and Get Better at What They Do. This Teamwork Makes Conservation Projects Work Better. - Google Search' <<https://www.google.com/search?client=firefox-b-d&channel=entpr&q=When+Indigenous+communities+work+with+conservation+groups%2C+everyone+can+learn+from+each+other+and+get+better+at+what+they+do.+This+teamwork+makes+conservation+projects+work+better.>> accessed 21 October 2025.

Alcorn, J.B., "Indigenous Peoples and Conservation." *Conservation Biology* 7, no. 2 (1993): 424-426.

Bansal, S., Sarker, T., Yadav, A., Garg, I., Gupta, M. and Sarvaiya, H., 'Indigenous Communities and Sustainable Development: A Review and Research Agenda' (2024) 43 *Global Business and Organizational Excellence* 65.

Bouteska, A., Sharif, T., Bhuiyan, F. and Abedin, M.Z., 'Impacts of the Changing Climate on Agricultural Productivity and Food Security: Evidence from Ethiopia' (2024) 449 *Journal of Cleaner Production* 141793.

Burgos-Ayala, A., Jiménez-Aceituno, A., Torres-Torres, A.M., Rozas-Vásquez, D. and Lam, D.P., 'Indigenous and Local Knowledge in Environmental Management for Human-Nature Connectedness: A Leverage Points Perspective' (2020) 16 *Ecosystems and People* 290.

Calicioglu, O., Flammini, A., Bracco, S., Bellù, L. and Sims, R., "The future challenges of food and agriculture: An integrated analysis of trends and solutions." *Sustainability* 11, no. 1 (2019): 222.

Carroll, D., Edwards, D.J., Riley, R. and Redvers, N., 'Knowledge Connects Our Hearts and Lands: A Qualitative Research Study on Stewarding Indigenous Traditional Ecological Knowledges for Community Well-Being' (2025) 22 *International Journal of Environmental Research and Public Health* 1573.

Catalano AS, Jimmieson NL and Knight AT, 'Building Better Teams by Identifying Conservation Professionals Willing to Learn from Failure' (2021) 256 *Biological Conservation* 109069.

da Silva, E.C., Guerrero-Moreno, M.A., Oliveira, F.A., Juen, L., de Carvalho, F.G. and Barbosa Oliveira-Junior, J.M., 'The Importance of Traditional Communities in Biodiversity Conservation' (2025) 34 *Biodiversity and Conservation* 685.

Dawson, N.M., Coolsaet, B., Bhardwaj, A., Booker, F., Brown, D., Lliso, B., Loos, J., Martin, A., Oliva, M., Pascual, U. and Sherpa, P., "Is it just conservation? A typology of Indigenous peoples' and local communities' roles in conserving biodiversity." *One Earth* (2024).

Dawson, N.M., Coolsaet, B., Sterling, E.J., Loveridge, R., Gross-Camp, N.D., Wongbusarakum, S., Sangha, K.K., Scherl, L.M., Phan, H.P., Zafra-Calvo, N. and Lavey, W.G., "The role of Indigenous

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

peoples and local communities in effective and equitable conservation." *Ecology and society* 26, no. 3 (2021): 19.

Esmail, N., McPherson, J.M., Abulu, L., Amend, T., Amit, R., Bhatia, S., Bikaba, D., Bricchieri-Colombi, T.A., Brown, J., Buschman, V. and Fabinyi, M., 'What's on the Horizon for Community-Based Conservation? Emerging Threats and Opportunities' (2023) 38 *Trends in Ecology & Evolution* 666.

Fa, J.E., Watson, J.E., Leiper, I., Potapov, P., Evans, T.D., Burgess, N.D., Molnár, Z., Fernández-Llamazares, Á., Duncan, T., Wang, S. and Austin, B.J., 'Importance of Indigenous Peoples' Lands for the Conservation of Intact Forest Landscapes' (2020) 18 *Frontiers in Ecology and the Environment* 135.

Fariss, B., DeMello, N., Powlen, K.A., Latimer, C.E., Masuda, Y. and Kennedy, C.M., 'Catalyzing Success in Community-based Conservation' (2022) 37 *Conservation Biology* e13973.

Fidler, R.Y., Mahajan, S.L., Ojwang, L., Obiene, S., Nicolas, T., Ahmadi, G.N., Slade, L., Obura, D.O., Beatty, H., Mohamed, J. and Kawaka, J., 'Individual and Community Empowerment Improve Resource Users' Perceptions of Community-Based Conservation Effectiveness in Kenya and Tanzania' (2024) 19 *PLOS ONE* e0301345.

Gadgil, M., Berkes, F. and Folke, C., "Indigenous Knowledge for Biodiversity Conservation." *Ambio* (1993): 151-156.

Heywood, V.H., "Ethnopharmacology, food production, nutrition and biodiversity conservation: Towards a sustainable future for indigenous peoples." *Journal of Ethnopharmacology* 137 (2011): 1-15.

Hill, R., Adem, Ç., Alangui, W.V., Molnár, Z., Aumeeruddy-Thomas, Y., Bridgewater, P., Tengö, M., Thaman, R., Yao, C.Y.A., Berkes, F. and Carino, J., 'Working with Indigenous, Local and Scientific Knowledge in Assessments of Nature and Nature's Linkages with People' (2020) 43 *Current Opinion in Environmental Sustainability* 8.

Hilton, A., Wehrmann, B. and Beall, E., "Safeguarding land tenure rights in the context of agricultural investment." (2015).

Joshi P and Rao N, 'Role of Indigenous People in Conservation of Biodiversity of Medicinal Plants: An Indian Case Study', *Survival and Sustainability* (Springer, Berlin, Heidelberg 2010) <https://link.springer.com/chapter/10.1007/978-3-540-95991-5_10> accessed 20 October 2025.

Kemp D, Owen JR and Márquez GYH, 'Research at the Frontier: Making Visible the Intersection between Indigenous Peoples' Lands, Industrial Development, and Rights at Risk' (2023) 6 *One Earth* 948.

Kuhnlein HV and Chotiboriboon S, 'Why and How to Strengthen Indigenous Peoples' Food Systems with Examples from Two Unique Indigenous Communities' (2022) 6 *Frontiers in Sustainable Food Systems* <<https://www.frontiersin.org/journals/sustainable-food-systems/articles/10.3389/fsufs.2022.808670/full>> accessed 21 October 2025.

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

Kumar, R., Veeraragavan, M., Baral, K., Saikanth, D.R.K., Singh, V., Upadhyay, L. and Raj, S., "Agroforestry and its potential for sustainable land management and climate action: A review." *International Journal of Environment and Climate Change* 13, no. 12 (2023): 620-629.

Newing, H., Brittain, S., Buchadas, A., del Giorgio, O., Grasham, C.F., Ferritto, R., Marquez, J.R.G., Khanyari, M., König, B., Kulkarni, A. and Murali, R., "'Participatory' Conservation Research Involving Indigenous Peoples and Local Communities: Fourteen Principles for Good Practice." *Biological Conservation* 296 (2024): 110708.

Nitah S, 'Indigenous Peoples Proven to Sustain Biodiversity and Address Climate Change: Now It's Time to Recognize and Support This Leadership' (2021) 4 *One Earth* 907.

Parks, L. and Tsioumani, E., "Transforming biodiversity governance? Indigenous peoples' contributions to the Convention on Biological Diversity." *Biological Conservation* 280 (2023): 109933-1.

Popova U, 'Conservation, Traditional Knowledge, and Indigenous Peoples' (2014) 58 *American Behavioral Scientist* 197.

Rani, J., Gulia, V., Sangwan, A., Dhull, S.S. and Mandzhieva, S., 'Synergies of Traditional Ecological Knowledge in Biodiversity Conservation: A Paradigm for Sustainable Food Security' in Hanuman Singh Jatav, Vishnu D Raiput and Tatiana Minkina (eds), *Ecologically Mediated Development: Promoting Biodiversity Conservation and Food Security* (Springer Nature 2025) <https://doi.org/10.1007/978-981-96-2413-3_2> accessed 20 October 2025.

Reyes-García, V., García-del-Amo, D., Álvarez-Fernández, S., Benyei, P., Calvet-Mir, L., Junqueira, A.B., Labeyrie, V., Li, X., Miñarro, S., Porcher, V. and Porcuna-Ferrer, A., 'Indigenous Peoples and Local Communities Report Ongoing and Widespread Climate Change Impacts on Local Social-Ecological Systems' (2024) 5 *Communications Earth & Environment* 29.

Rhea, Z.M. and Palmer, L., "Community-Oriented Protected Areas for Indigenous Peoples and Local Communities1." *Journal of Political Ecology* 12 (2005): 23.

Said, Z., Vigneshwaran, P., Saboor, S., Rauf, A. and Ahmad, Z., 'Climate and Carbon Policy Pathways for Sustainable Food Systems' (2025) 27 *Environmental and Sustainability Indicators* 100730.

Sanders, D.E., "Indigenous peoples: Issues of definition." *International Journal of Cultural Property* 8, no. 1 (1999): 4-13; Wiessner, S., "Indigenous Peoples: The Battle over Definition." In *Reflections on International Law*, pp. 4-40. Brill Nijhoff, 2023.

Sher, A., Li, H., ullah, A., Hamid, Y., Nasir, B. and Zhang, J., 'Importance of Regenerative Agriculture: Climate, Soil Health, Biodiversity and Its Socioecological Impact' (2024) 5 *Discover Sustainability* 462.

Sobrevila, C., *The role of indigenous peoples in biodiversity conservation: The natural but often forgotten partners*. International Bank for Reconstruction and Development, 2008.

Tizita, E. E., "The role of indigenous people in the biodiversity conservation in Gamo area of Gamo Gofa zone, Southern Ethiopia." *International Journal of Biodiversity and Conservation* 8, no. 10 (2016): 244-250.

Toledo, V.M., "Indigenous peoples and biodiversity." *Encyclopedia of biodiversity* 3 (2001): 451-463.

Enhancing Indigenous Peoples and Local Communities' Role in Biodiversity Conservation

Toromade, A.S., Soyombo, D.A., Kupa, E. and Ijomah, T.I., 'Reviewing the Impact of Climate Change on Global Food Security: Challenges and Solutions' 1403.

VijayKumar, R., "Integrating indigenous knowledge and traditional practices for biodiversity conservation in a modern world." *Environmental Reports* (2019).

Wartmann FM and Purves RS, 'Investigating Sense of Place as a Cultural Ecosystem Service in Different Landscapes through the Lens of Language' (2018) 175 *Landscape and Urban Planning* 169.

Worsdell, T., Kumar, K., Allan, J.R., Gibbon, G.E.M., White, A., Khare, A. and Frechette, A., "Rights-based conservation: The path to preserving Earth's biological and cultural diversity?" (2020).