

## ***The Future of the Earth is in Our Hands: Real Action to Protect Life on Land***

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***Abstract:*** This article discusses the critical role of human action in preserving terrestrial life as part of a sustainable future for the Earth. Facing increasing environmental degradation, terrestrial ecosystem conservation is vital. The study aims to identify tangible actions that communities may undertake to sustain biodiversity and promote collective awareness. The methodology employed includes literature review and document analysis on environmental conservation. Results indicate that activities such as forest preservation, sustainable resource management, and community mobilization significantly reduce terrestrial degradation rates. The article recommends enhanced environmental education and strengthened conservation policies as strategic measures.

***Keywords:*** environmental sustainability, land conservation, tangible actions, Earth's future, biodiversity.

***Abstrak:*** Artikel ini membahas peran penting manusia dalam menjaga kelestarian kehidupan di darat sebagai bagian dari masa depan bumi yang berkelanjutan. Dengan meningkatnya degradasi lingkungan, konservasi ekosistem darat menjadi krusial. Penelitian ini bertujuan untuk mengidentifikasi aksi nyata yang dapat dilakukan masyarakat untuk menjaga keberlangsungan hayati dan mendorong kesadaran kolektif. Metode yang digunakan adalah studi literatur dan analisis dokumen terkait konservasi lingkungan. Hasil penelitian menunjukkan bahwa tindakan seperti pelestarian hutan, pengelolaan sumber daya yang berkelanjutan, serta mobilisasi komunitas dalam aksi nyata berperan besar dalam mengurangi laju degradasi daratan. Artikel ini merekomendasikan peningkatan edukasi lingkungan dan penguatan kebijakan konservasi sebagai upaya strategis.

***Kata kunci:*** kelestarian lingkungan, konservasi darat, aksi nyata, masa depan bumi, biodiversitas.

## **Introduction**

Global climate change and land degradation are two major challenges threatening the sustainability of terrestrial ecosystems and the continuation of biodiversity. Studies show that climate change causes significant changes in climate patterns and organism phenology, leading to habitat degradation, the threat of species extinction, and the decline of ecosystem functions vital to human and other life (Conradi, Slingsby, & Midgley, 2024). The impacts of climate change are exacerbated by unsustainable land management and widespread deforestation.

In facing these challenges, biodiversity conservation is no longer sufficient simply by protecting formal conservation areas. Conservation approaches that actively involve local communities and utilize modern technology are key to maintaining and restoring degraded ecosystems (Koricha & Ango, 2024; VijayKumar, 2024). Monitoring technologies such as remote sensing and artificial intelligence enable real-time tracking and evaluation of biodiversity, allowing conservation to be dynamically adapted as needed.

Furthermore, incentive-based conservation strategies such as payments for ecosystem services (PES) provide economic incentives for communities to adopt environmentally friendly and sustainable management practices (Jack, Kousky, & Sims, 2008). Collaboration and synergy between stakeholders—government, communities, the private sector, and non-governmental organizations—strengthen the effectiveness of conservation and sustainable development programs (Santini & Miquelajauregui, 2022).

This article aims to identify concrete actions communities can take to protect life on land and foster collective awareness through an integrated approach encompassing environmental education, technological innovation, and inclusive policies. This collective and integrated effort is expected to pave the way for sustainable earth preservation for future generations.

## **Research methods**

This research employed a literature review method, collecting secondary data from scientific articles, environmental organization reports, and official documents relevant to environmental conservation and concrete actions to protect life on land. Qualitative analysis was conducted to formulate conservation strategies and concrete examples that can be adapted by the wider community.

## **Results and Discussion**

Climate change is putting significant pressure on terrestrial ecosystems worldwide. Recent studies indicate that 33% to 68% of the global land surface will experience phytoclimate changes by 2070, depending on the emissions scenario used (Conradi, Slingsby, & Midgley, 2024). Changes in phenological patterns, disruption of ecological interactions, and increased extreme weather events have a

direct impact on habitat degradation and the risk of species extinction. The inability of many species to adapt to the rapid pace of climate change is leading to population declines and the decline of ecosystem services essential to humans (Graciela, 2023).

Terrestrial ecosystems face the risk of habitat loss and degradation of ecological functions due to changes in temperature and rainfall patterns. Plant and animal species struggle to adapt to the rapid pace of climate change, leading many species to become endangered or experience drastic population declines. These changes impact not only biodiversity but also ecosystem services that depend heavily on stable ecological functions (Hellmann et al., 2010).

Agroforestry has emerged as a sustainable land use strategy capable of increasing carbon stocks, improving soil quality, and enhancing biodiversity. Research shows that agroforestry maintains higher biomass and biodiversity levels than monoculture systems. This practice creates habitats that support flora and fauna, while providing economic benefits to local communities through resource diversification. However, the implementation of agroforestry remains hampered by fragmented policies, limited financial access, and weak supporting institutions (Philpott et al., 2016).

Research in Nicaragua has shown that agroforestry systems can maintain higher levels of biodiversity and biomass than conventional agricultural systems. Agroforestry, which combines trees and crops, creates habitats that support a variety of flora and fauna, while providing natural resources such as food, medicine, and timber for local communities (World Agroforestry Centre, 2023). Agroforestry implementation also contributes to improving ecosystem services such as soil fertility, water regulation, carbon sequestration, and natural pest management. This practice strengthens the resilience of small-scale farmers by diversifying income sources and improving nutritional security. However, agroforestry adoption remains limited by systemic challenges, including fragmented policies, limited access to finance, and institutional weaknesses (Forestry: Jurnal Ilmu Kehutanan, 2025).

Community-based conservation approaches emphasize local community involvement in natural resource management decisions. This approach aims to simultaneously achieve conservation and sustainable development goals, recognizing the intrinsic link between biodiversity conservation and human well-being (Koricha & Ango, 2024).

Community-based conservation is particularly relevant in areas where communities directly depend on natural resources for their livelihoods. Participatory approaches involve communities in decision-making and the implementation of conservation programs, integrating local and traditional ecological knowledge into conservation planning. Equitable benefit sharing from conservation activities and the implementation of adaptive management are key elements to ensuring long-term sustainability (Nugraha & Supriatna, 2024).

Case studies from various countries demonstrate that active community involvement enhances the effectiveness of conservation programs. In Namibia, a community-based wildlife management program has successfully increased conservation outcomes while improving local livelihoods. This success demonstrates that empowering local communities, recognizing land tenure rights, and building the capacity of local institutions are key factors in effective conservation (Santini & Miquelajauregui, 2022).

Traditional ecological knowledge is a treasure trove of wisdom that offers valuable insights for conservation and sustainable living. This knowledge reflects the deep connection between indigenous peoples and their environment and provides effective strategies for conserving biodiversity, managing resources, and adapting to climate change (VijayKumar, 2024).

Integrating indigenous knowledge with modern conservation strategies offers a pathway to addressing the pressing challenge of biodiversity loss. While conventional scientific approaches provide valuable insights into ecological processes, they often neglect the contextual and experiential knowledge held by indigenous communities. This integration fosters a more holistic understanding of ecosystems, increasing the effectiveness of conservation initiatives (Sylvester, Jordan, & Watson, 2020).

Indigenous communities often possess detailed knowledge of local flora and fauna, enabling them to identify and protect endangered species and vital habitats. Traditional ecological knowledge provides sustainable resource management practices, such as rotational agriculture, fire management, and fishing techniques, that have been refined over generations to ensure resource abundance (VijayKumar, 2024).

Habitat connectivity is a key component of modern wildlife conservation. Connectivity refers to the ability of individuals to move freely through terrestrial or aquatic environments, with the primary goal of facilitating movement through dispersion and migration. By connecting populations, there is a lower risk of extinction and greater support for species richness (Nugraha & Supriatna, 2024).

Wildlife corridors provide sustainable habitat for species to move independently and are a natural and effective way to ensure connectivity within the landscape. All species require connectivity for their survival, whether they are plants, animals, or fungi. Species can only survive if individuals can move, disperse, and interact with each other (Workie & Teku, 2025).

Areas that promote wildlife connectivity help wildlife maintain resilience and adapt to extreme events such as wildfires and changing climate conditions. Disconnected habitats are half as likely to support species movement as connected habitat networks. Habitat fragmentation translates into a higher risk of local extinction for isolated wildlife populations (Nugraha & Supriatna, 2024). Urban green spaces are key areas where residents interact with and experience the natural environment. These areas provide a variety of ecosystem services, including non-

material benefits, particularly cultural ecosystem services, that contribute to human well-being. Urban green spaces play a crucial role in promoting the health and general well-being of urban communities (Bai, Wang, & Chang, 2025).

The cultural ecosystem services of urban green spaces include the aesthetic, recreational, spiritual, and educational values that people derive from interacting with nature in urban environments. Well-managed urban green spaces can improve air quality, reduce the urban heat island effect, and provide habitat for biodiversity in urban contexts (Boermans & Zhang, 2024).

Increasing urban green space contributes to the mental and physical health of city dwellers by providing places for physical activity, relaxation, and social interaction. Research shows that access to urban green space can reduce stress, improve cardiovascular health, and enhance overall psychological well-being (Bai, Wang, & Chang, 2025).

Ecological restoration is one of the most important ecological challenges on Earth. Habitat degradation is often caused by deforestation and desertification resulting from unsustainable natural resource management. Land restoration seeks to reverse this trend and restore ecosystems to better health (Santini & Miquelajauregui, 2022).

Indigenous peoples and local communities play a key role in achieving long-term, sustainable land restoration. Local and indigenous communities often possess intimate knowledge of local ecosystems and a vested interest in preserving ecosystem services. Areas managed by indigenous peoples and local communities typically overlap with intact ecosystems and experience lower levels of deforestation than unprotected areas (Santini & Miquelajauregui, 2022).

Local community knowledge and engagement can improve the management, implementation, and monitoring of habitat restoration. Scientists and policymakers who can align restoration outcomes with the community benefits derived from environmental management and knowledge are more likely to achieve long-term, sustainable restoration success (Santini & Miquelajauregui, 2022).

Payment for ecosystem services (PES) is a policy that provides financial incentives to landowners or managers to adopt practices that support the provision of ecosystem services such as water purification and flood mitigation. These schemes have been implemented in various countries and have demonstrated effectiveness in encouraging changes in conservation behavior (Jack, Kousky, & Sims, 2008). PES program initiatives in Costa Rica, Mexico, and China have demonstrated that direct payments can promote sustainable land management practices (Izquierdo-Tort et al., 2024).

The design of a PES program significantly influences its cost-effectiveness and long-term success. Programs that require participants to register their entire land area tend to be more effective than those that allow partial registration (Izquierdo-Tort et al., 2024). This provides a basis for developing future incentive-based conservation strategies.

Integrated landscape management is an approach that involves cross-sector stakeholders to manage land collaboratively to achieve a balance between social, economic, and environmental needs (Waeber, Schuurman, & Sayer, 2023). This approach is crucial for addressing global challenges in maintaining biodiversity, reducing land degradation, and adapting to climate change.

Through a systems approach and long-term collaboration, integrated landscape management supports multifunctional and sustainable land use. This enables synergy between various sectors and minimizes land-use conflicts (Waeber et al., 2023). Sensitivity to local conditions ensures adaptive and targeted solutions.

Environmental education has been proven effective in raising awareness and encouraging behavioral change toward sustainable conservation (Boermans & Zhang, 2024). Interactive training programs and field workshops are the most successful methods for changing participants' mindsets and actions.

Environmental education plays a role in building a sense of social and ecological responsibility and strengthening individual empowerment as agents of change (Soxila & Kholmatova, 2025). Integrating environmental education into formal curricula and development policies supports the achievement of sustainable development goals.

Protected areas are a key bulwark in maintaining biodiversity, natural habitats, ecosystem services, and cultural values. Evaluating the effectiveness of protected area management is crucial to ensure optimal resource utilization and the achievement of conservation goals (Nugraha & Supriatna, 2024). The Indonesian government continues to monitor the national protected area network and utilizes evaluation results for more effective management planning. Evaluation frameworks such as the Management Effectiveness Tracking Tool (METT) measure the design, adequacy, and achievements of protected area management, helping to identify threats and opportunities for long-term management improvement (Alberts & Knight, 2024).

Soil erosion and land degradation pose major threats to sustainable resource management. Factors such as steep slopes, unsustainable agricultural practices, and declining soil health exacerbate the situation (Workie & Teku, 2025). Geospatial studies reveal erosion-prone areas and the importance of targeted mitigation to maintain land productivity. Soil erosion also negatively impacts nutrient cycling, water quality, and biodiversity. Vegetation cover plays a crucial role in protecting soil from erosion caused by rain and wind (Workie & Teku, 2025).

Sustainable land management is the use of land and natural resources for production that meets current human needs without compromising the ability of future generations to meet them (Waeber, Schuurman, & Sayer, 2023). Its principles include appropriate policy support, land user participation, natural resource integration, and knowledge development. This holistic approach is important in addressing the challenges of climate change and land degradation, as

well as encouraging the rehabilitation and enhancement of ecosystem and community resilience (Waeber et al., 2023).

Forest management with biodiversity conservation in mind reduces the negative impacts of biomass production and mitigates climate change. Strategies to reduce management intensity and divert energy production can significantly reduce species loss (Schulze, Malek, & Verburg, 2020). Ranking of forest management types shows that selection and retention systems and reduced-impact logging are the methods that best support species diversity (Schulze et al., 2020). Reforestation plays a key role in habitat restoration, climate change mitigation, and improving soil health. Planting native trees restores ecosystem function, provides habitat for wildlife, and improves the water cycle (Cunningham et al., 2015). Tropical forests store a significant portion of global carbon and help reduce greenhouse gas emissions. Other benefits include reduced erosion, improved soil structure, and improved water quality through natural filtration (Cunningham et al., 2015).

Conservation provides significant socio-economic benefits, such as long-term job creation through tree nurseries and habitat restoration. Active local management fosters a sense of ownership that supports project sustainability (Santini & Miquelajauregui, 2022). Furthermore, improved air quality and temperature contribute to improved community health, and access to forest products supports food and energy security (Cunningham et al., 2015). Community-based ecotourism also provides a sustainable source of income, while linking conservation to local economic well-being (Koricha & Ango, 2024). Active participation of local communities in planning and implementation increases the effectiveness and sustainability of conservation programs (Koricha & Ango, 2024).

Geospatial and remote sensing technologies enable real-time monitoring of biodiversity and habitat recovery status (Workie & Teku, 2025). Artificial intelligence facilitates comprehensive environmental data analysis to support more informed conservation decision-making (VijayKumar, 2024). Technology is also used in habitat mapping, fire detection, and monitoring the effects of climate change, facilitating rapid response to environmental threats (Nugraha & Supriatna, 2024). This innovation, if supported by appropriate research and policies, can overcome traditional limitations in conservation (Erisman et al., 2016).

Despite its benefits, conservation faces various obstacles such as limited financial resources, insecure land tenure, and cultural resistance from communities (Santini & Miquelajauregui, 2022). Policy fragmentation and institutional weaknesses also hamper effective conservation implementation (Nugraha & Supriatna, 2024). Furthermore, a lack of technical knowledge and changing environmental conditions add to the complexity of management. Data management and monitoring are crucial for identifying critical areas and evaluating conservation outcomes sustainably (Workie & Teku, 2025).

The government plays a central role in providing a policy framework, oversight, and strategy for sustainable protected area management (Nugraha &

Supriatna, 2024). Policy support that integrates resource protection and incentives for conservation actors is crucial to the program's success. Policies that recognize indigenous peoples' rights to land and resources are essential for inclusive and effective conservation (VijayKumar, 2024). Synergy between the government, the private sector, and the wider community is essential to achieving long-term conservation targets (Koricha & Ango, 2024).

Effective conservation relies heavily on close collaboration between various stakeholders, including governments, NGOs, the private sector, academia, and local communities. Multi-stakeholder platforms and forums facilitate constructive dialogue and inclusive decision-making, thereby increasing the effectiveness of conservation programs and reducing conflict between actors (Koricha & Ango, 2024). Mutually respectful collaboration between indigenous communities, governments, and conservation organizations enables the integration of traditional ecological knowledge into modern conservation policies. This collaborative approach enhances ecosystem understanding and develops innovative solutions to conservation challenges (VijayKumar, 2024). Strengthening the capacity of local institutions through training and education, as well as equitable benefit-sharing mechanisms, are important factors in maintaining community participation and sustainable conservation (Santini & Miquelajauregui, 2022).

## **Conclusion**

The future of the Earth depends crucially on our collective commitment to implementing concrete actions to safeguard life on land. Habitat conservation, sustainable resource management, community education, technology utilization, and the integration of traditional knowledge are vital, interconnected components of a comprehensive conservation strategy. The challenges of land degradation, biodiversity loss, and climate change require an integrated and participatory response from all stakeholders. Community-based approaches that recognize local rights and knowledge, combined with strong policy support and technological innovation, provide a pathway to effective and sustainable conservation. Key recommendations include enhancing inclusive and culturally contextual environmental education, strengthening conservation policies through clear legal frameworks, empowering local communities through the recognition of land tenure and resource access rights, and developing sustainable financing mechanisms to support long-term conservation initiatives. Every individual, community, organization, and government has a vital role and responsibility in preserving the Earth. A full awareness of the importance of conservation and a commitment to action are the keys to creating a better future for the future. Only through collective and consistent efforts can we ensure that life on land remains intact and that Earth's ecosystems continue to function to support all life.

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