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PERSPECTIVE

Safeguarding Natural Forests under Sustainable Forest Land Management Agreement (SFLMA): Ecological Risks and Policy Imperatives

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ABSTRACT

The Sustainable Forest Land Management Agreement (SFLMA), introduced under recent policy reforms, aims to streamline forest tenure and promote sustainable utilization of forestlands in the Philippines. This paper examines how the implementation of SFLMA may unintentionally intensify the conversion of remaining natural forests into agroforestry and plantation systems based on historical outcomes. Since Department Administrative Order (DAO) 2025-22, issued by Department of Environment and Natural Resources (DENR), formally authorizes these areas for agroforestry and plantation development and given that similar tenure frameworks (e.g., IFMA and CBFMA) facilitated the conversion of natural forests into production landscapes, the policy risks accelerating the replacement of remaining native forests and compromising biodiversity and critical ecosystem functions. The objective of this perspective is to assess the ecological and faunal implications of replacing unmanaged forests with production-oriented land uses and to identify science-based safeguards to prevent irreversible habitat degradation. The analysis draws from comparative observations of forest structure, ecological processes, and faunal assemblages in natural versus managed systems, combined with policy review and expert ecological reasoning. Findings suggest that the simplification of natural habitats under mixed-use tenures can lead to habitat fragmentation, decline of forest-dependent fauna, and weakening of hydrological and carbon-regulating processes. Furthermore, governance gaps, such as the absence of ecological baselines, and biodiversity performance indicators, such as species richness trends (e.g., biodiversity value) or habitat

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Transactions NAST PHL Vol. 47 (2025)
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condition indices, may enable unsustainable management practices despite compliance with formal reforestation targets. The paper concludes that while SFLMA presents opportunities for rationalized management and investment, its sustainability depends on incorporating rigorous ecological baselines, independent monitoring, and protection of high-conservation-value forests. Strengthening science-based safeguards and community participation is essential to ensure that SFLMA contributes to long-term ecosystem resilience rather than the further loss of the country's remaining natural forests.

Keywords: forest governance, Sustainable Forest Land Management Agreement, biodiversity conservation, forest tenure, ecological safeguards

Abbreviations: BMB, Biodiversity Management Bureau; CAT, Conservation Agriculture with Trees; CBFM, Community-based Forest Management, DAO, Department Administrative Order; DENR, Department of Environment and Natural Resources; ERDB, Environment Research and Development Bureau; FMB, Forest Management Bureau; FPIC, Free Prior and Informed Consent; ICC, Indigenous Cultural Community; IFMA, Integrated Forest Management Agreement; IP, Indigenous People; IPRA, Indigenous Peoples' Right Act; NCIP, National Commission on Indigenous Peoples; SIFMA, Socialized Industrial Forest Management Agreement; SFLMA, Sustainable Forest Land Management Agreement.

INTRODUCTION

The Sustainable Forest Land Management Agreement (SFLMA), introduced through the Department of Environment and Natural Resources (DENR) Administrative Order 2025-22, represents one of the most significant policy shifts in Philippine forest governance since the 1990s, comparable in scope to earlier nationwide reforms such as Community-Based Forest Management (CBFM) Program and Integrated Forest Management Agreements (IFMA). The new policy consolidates earlier tenure instruments—including IFMA, the Socialized Industrial Forest Management Agreement (SIFMA), and CBFM Agreement—into a single mechanism. It was envisioned to streamline forest land management, attract sustainable investments, and promote reforestation and agroforestry (DENR 2025; Mongabay 2025).

While these objectives align with the principles of sustainable development, integrating multiple land uses within one tenure poses risks. Specifically, mechanisms such as relaxed land-use zoning, perverse conversion incentives, and weak monitoring capacity over extensive tenured areas may inadvertently hasten the loss of the remaining natural forests. The Philippines retains only a fraction of its original forest cover, much of which consists of fragmented and biodiverse remnants (Lasco and Pulhin 2023). These natural forests serve as irreplaceable habitats for endemic fauna and as key regulators of hydrological and biogeochemical processes. This paper presents a perspective on how SFLMA, if not grounded in ecological science, may compromise flora, faunal diversity, and ecosystem function, and suggests policy safeguards to prevent further ecological degradation.

Ecological Implications of SFLMA Implementation

1. Structural simplification of natural habitats

Natural forests in the Philippines are structurally complex ecosystems characterized by multi-layered canopies, dense undergrowth, decomposing logs, and diverse microhabitats. Structural simplification—defined as the reduction of vertical and horizontal vegetation layers and the loss of microhabitat features—occurs when heterogeneous forests are converted into more uniform agroforestry plots or tree farms dominated by commercial or fruit-bearing species (Hughes et al. 2020). Such simplification reduces the availability of nesting cavities, foraging substrates, and shelter sites for forest-dependent wildlife. For instance, studies in Luzon and Mindanao have shown that bird guilds reliant on dense understory and mature canopy layers decline markedly in simplified farmed landscapes (e.g., insectivorous understory birds and canopy frugivores).

Although agroforestry is often portrayed as a sustainable land-use system, it rarely replicates the ecological intricacy of unmanaged forests. The

Transactions NAST PHL Vol. 47 (2025)
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simplified vegetation structure cannot sustain the same assemblage of forest-dependent fauna. This includes indicator species such as the Philippine wren-babbler (*Robsonius rabori*), which requires dense leaf litter and understory, and the Philippine flying squirrel (*Hylopetes nigripes*), which depends on old-tree cavities. As a result, structurally simplified systems support more generalist and edge-tolerant species while contributing to overall biodiversity decline (Forest Management Bureau 2024).

2. Disruption of ecological and biogeochemical functions

Unmanaged forests regulate hydrology, carbon balance, and nutrient cycles through stable and long-term processes (Hughes et al. 2020). In contrast, managed stands experience periodic disturbances from planting, pruning, and harvesting that degrade soil carbon and increase erosion. These impacts are particularly on slopes exceeding 30–40% or in highly erodible Ultisol and Acrisol soils typical of upland Philippine landscapes. The removal of understory vegetation and litter layers reduces infiltration and weakens the forest's capacity to stabilize streamflow.

The loss of key faunal groups, such as frugivorous birds, bats, and pollinators, leads to secondary ecological effects. Reduced seed dispersal hampers natural regeneration, as demonstrated in Philippine lowland forests where declines in hornbill and fruit bat populations have led to lower seedling recruitment of canopy species (Hamann and Curio 1999; Posa et al. 2008). Pollination networks likewise weaken as nectarivorous fauna decline, limiting reproduction of native plants. These cascading interactions diminish the capacity of forests to recover from disturbance and sustain vital ecosystem services.

Moreover, faunal losses trigger cascading effects. Seed dispersal declines when frugivorous birds and mammals disappear, impeding forest regeneration and favoring invasive or early-successional species. Such trophic disruptions undermine the very ecosystem services that SFLMA intends to sustain.

3. Faunal consequences of fragmented forest mosaics

The SFLMA's flexible design may result in a mosaic of land uses combining production areas and remnant forests. While spatial diversity can have benefits, fragmentation isolates wildlife populations and amplifies edge effects—the ecological changes occur at the boundary between forest interiors and adjacent non-forest or modified habitats. These edges experience altered microclimates—such as increased light, wind, and temperature fluctuations—that reduce humidity, modify species composition, and expose interior-dwelling fauna to higher predation and disturbance (Murcia 1995). Species with limited dispersal—such as forest rodents, amphibians, and understory birds—are the first to decline. Over time, these fragments may no longer support viable populations, leading to local extinctions (Lasco and Pulhin 2023; Hughes et al.,2020). Once disrupted, species interactions may not be restored through replanting alone.

Governance and Policy Dimensions

From an institutional perspective, the SFLMA offers tenure security through 25-year renewable agreements that are expected to encourage long-term stewardship (DENR 2025). However, this same provision can incentivize conversion to more profitable, intensive land uses—such as high-value agroforestry crops (e.g., Conservation Agriculture with Trees [CATs], monoculture tree farms, and mixed agricultural production zones)—especially when productivity indicators overshadow ecological criteria. These land uses typically favor uniform, high-yield landscapes that displace natural forest patches, reduce habitat complexity, and limit the space available for forest-dependent species, thereby creating direct conflicts with conservation objectives.

The absence of mandatory ecological baselines prior to the approval of SFLMA areas remains a critical weakness (Mongabay 2025). A scientifically sound baseline should include a species inventories of key faunal and floral groups alongside maps of remaining natural forest ecosystem habitats or patches. Additionally, it requires measurements of canopy structure, understory condition, and basic soil and hydrological metrics that indicate ecosystem function. Without such information and detailed mapping—including the distribution of threatened species and ecosystem-service indicators—compliance monitoring becomes superficial. Similarly, uncertainties over carbon and biodiversity credits may

Transactions NAST PHL Vol. 47 (2025)
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create perverse incentives for clearing degraded natural forests for so-called "reforestation" projects.

Further, the SFLMA explicitly allows a wide range of land uses within the same forest tenure area. DAO 2025-22 states that the agreement "may be entered for a single purpose or a combination of Agroforestry Development, Forest Plantation Development, Timber Stand Improvement, Forest Protection and Conservation, Ecotourism, and similar forest-based interventions," and further clarifies that "pure agricultural crops shall not exceed twenty percent of the total SFLMA area." This approach establishes that agroforestry and plantation development are formally recognized strategic management options within natural forestlands.

During the national launch, DENR Secretary Raphael Lotilla reinforced this position, noting that the policy "allows multiple management strategies within a single forest area—from agroforestry and ecotourism to forest plantation development and conservation." This official framing confirms that, depending on agreement-level management decisions, natural forests under SFLMA may be legally converted into production-oriented systems alongside conservation functions.

Although the policy acknowledges community participation, mechanisms for ensuring Free, Prior, and Informed Consent (FPIC) and equitable benefit-sharing remain limited. While the Indigenous Peoples' Rights Act (IPRA) and the National Commission on Indigenous Peoples (NCIP) FPIC Guidelines provide a formal framework, significant gaps persist in practice. This include inadequate community consultations, procedural shortcuts and delays, and limited transparency in decision-making. Consequently, indigenous and local communities—often the most effective stewards of forest biodiversity—require clearer rights recognition and co-management provisions (Forest Management Bureau 2024).

Balancing Production and Conservation

The objective of SFLMA should not be questioned, but its ecological framework must be strengthened. Global evidence shows that conservation and production can coexist through landscape zoning and science-based thresholds for land-use intensity (Hughes et al. 2020). Table 1 summarizes priority risks and their corresponding safeguards that can be integrated into SFLMA's implementing rules and monitoring framework.

Table 1. Key Ecological Risks and Recommended Safeguards for SFLMA Implementation.

Ecological Risk	Recommended Safeguard	Responsible Entity / Implementation Mechanism
Conversion of intact forests to productive agroforestry or plantations	Establish legally binding "no-go" zones for old-growth and high-conservation-value areas within SFLMA parcels	DENR–FMB to delineate and gazette no-go zones; SFLMA holders to comply; LGUs to enforce land-use restrictions
Decline in faunal diversity and loss of habitat connectivity	Require biodiversity baselines and minimum native forest retention or corridor connectivity across the landscape	DENR–BMB to set biodiversity baseline standards; third-party assessors to conduct surveys; SFLMA holders to maintain corridors
Soil erosion and hydrological degradation	Implement site-specific soil and water management plans; monitor soil stability and baseflow indicators	DENR–ERDB to issue guidelines; SFLMA holders to implement plans; river basin councils/ LGUs to monitor hydrological indicators

Transactions NAST PHL Vol. 47 (2025)
doi.org/10.57043/transnastphl.2025.0000

Ecological Risk	Recommended Safeguard	Responsible Entity / Implementation Mechanism
Weak ecological monitoring and accountability	Mandate independent audits using remote sensing and field verification; publish monitoring data	DENR to require annual audits; independent accredited auditors to conduct assessments; public disclosure through DENR data portals
Marginalization of local communities	Strengthen FPIC processes and promote co-management schemes recognizing customary rights	NCIP to oversee FPIC compliance; DENR to formalize co-management; IP/ICC councils and local communities to participate in decision-making

A Science-Driven Path Forward

To harmonize SFLMA's sustainability goals with biodiversity conservation, ecological assessments must precede tenure approval. These baselines should document forest structure, faunal diversity, and ecosystem service values. Monitoring should not rely solely on tree-cover metrics but must assess the quality and functionality of ecosystems.

Landscape-level planning is also essential. The delineation of ecological corridors and conservation zones ensures that productive areas do not fragment critical habitats. Collaboration among DENR, local governments, academe, and civil society can build transparency and adaptive management mechanisms. Science must move from being an advisory tool to a central pillar in forest policy implementation (Lasco and Pulhin 2023).

CONCLUSION

The SFLMA represents both opportunity and peril. It can rationalize tenure and attract investment for restoration, or it can accelerate the silent disappearance of the last true forests if ecological safeguards are weak. Natural forests are not just collections of trees but living systems whose fauna, soils, and hydrology sustain national resilience. Protecting them requires embedding ecological science into every clause of forest policy.

A precautionary yet progressive implementation of SFLMA—anchored in sound ecological baselines, transparent monitoring, and community stewardship—can ensure that economic use of forest lands complements, rather than replaces, the natural ecosystems. This approach safeguards the Philippines' biological heritage, strengthening national resilience to climate change while positioning the country as a regional leader in tropical biodiversity conservation.

It is therefore imperative that all conservation efforts should provide both scientific and policy-relevant perspectives on the ecological risks associated with actionable safeguards. These contributions will enrich the body of knowledge on forest governance and serve as a practical basis for guiding the implementation of the Sustainable Forest Land Management Agreement (SFLMA) in the Philippines.

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Transactions NAST PHL Vol. 47 (2025)
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References Cited

Department of Environment and Natural Resources. 2025. DAO 2025-22: Rules and Regulations Governing the Sustainable Forest Land Management Agreement (SFLMA). DENR, Quezon City, Philippines.

Forest Management Bureau. 2024. National Forest Resources Assessment 2023. Department of Environment and Natural Resources, Quezon City, Philippines.

Hamann A, Curio E. 1999. Interactions among frugivores and fleshy fruit trees in a Philippine submontane rainforest. Conservation Biology 13(4): 766–773. https://doi.org/10.1046/j.1523-1739.1999.97420.x

Hughes AC, Sayer J, and Edwards DP. 2020. Global consequences of deforestation for biodiversity and ecosystem function. Biological Conservation 241: 108368.

Lasco RD and Pulhin FB. 2023. Forest land use and tenure reforms in the Philippines: lessons for sustainable management. Environmental Policy Review 12(2): 45–56.

Mongabay. 2025. Philippines' New Forest Policy Wins Business Backing but Alarms Green Groups. Published August 2025. Available at: https://news.mongabay.com

Murcia C. 1995. Edge effects in fragmented forests: implications for conservation. Trends in Ecology & Evolution 10(2): 58–62. https://doi.org/10.1016/S0169-5347(00)88977-6

Posa MRC, Diesmos AC, Sodhi NS, Brooks TM. 2008. Hope for threatened tropical biodiversity: lessons from the Philippines. BioScience 58(3): 231–240. https://doi.org/10.1641/B580309