Conservation Letters

WILEY

Conservation Letters
A journal of the Society for Conservation Biology
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Financier Performance Standard Misaligned With Emerging Nature Positive Requirements: An Orangutan Case Study

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Received: 7 March 2026 | **Revised:** 7 July 2026 | **Accepted:** 10 August 2026

Keywords: conservation | Convention on Biological Diversity | development finance | great apes | International Finance Corporation | net gain | no net loss | offsets | Pongo

ABSTRACT

Aimed at conserving biodiversity and sustainably managing natural resources, the International Finance Corporation's (IFC) Performance Standard 6 (PS6) is a key environmental safeguard for development projects. Among the species most affected by projects subject to PS6 are great apes, whose survival depends on stringent conservation measures. Of these great ape species, the three orangutan (*Pongo* spp.) species are rapidly declining due to habitat loss and fragmentation and unsustainable mortality rates. We assessed the types of net outcomes PS6 requires when development projects affect the habitat of Critically Endangered orangutans, which are highlighted in the PS6 for special protection needs. While PS6 may require relative gains—for example, slowing the rate of biodiversity decline compared to a deteriorating baseline—it falls short of requiring the absolute gains necessary to halt biodiversity loss by 2030, in line with international commitments such as the 2022 Kunming-Montreal Global Biodiversity Framework. Implementation of PS6 in areas of critical orangutan habitat is, therefore, unlikely to prevent further losses for species like orangutans. In the context of a review of the IFC's Performance Standards, which were last updated in 2019, we recommend revisions that align PS6 with global commitments to absolute improvements in biodiversity.

1 | Introduction

Nonhuman great apes ("great apes" hereafter) are facing existential threats. Those that remain are concentrated in regions characterized by rapid human population growth, poverty, and food insecurity, where they are under intense pressures from agriculture, mining, infrastructure development, and poaching (Meijaard et al. 2023). Orangutans (*Pongo* spp.) are especially vulnerable due to a combination of slow reproductive rates and high mortality from habitat destruction, killing and removal from the wild (Emery Thompson and Sabbi 2024). Over two decades, an estimated 100,000 orangutans were lost, despite USD 1 billion in conservation investments (Santika et al. 2022; Voigt et al. 2022). To prevent further decline, it is essential to avoid habitat destruction, implement strict threat management, and ensure effective long-term habitat conservation (Meijaard et al. 2022)—an especially challenging task in the face of human development imperatives.

The challenge of reconciling the pressure to develop with the imperative to protect species like orangutans is reflected in policies and guidance of development project financiers including the International Finance Corporation (IFC), a part of The World Bank Group. The IFC finances private-sector projects in emerging

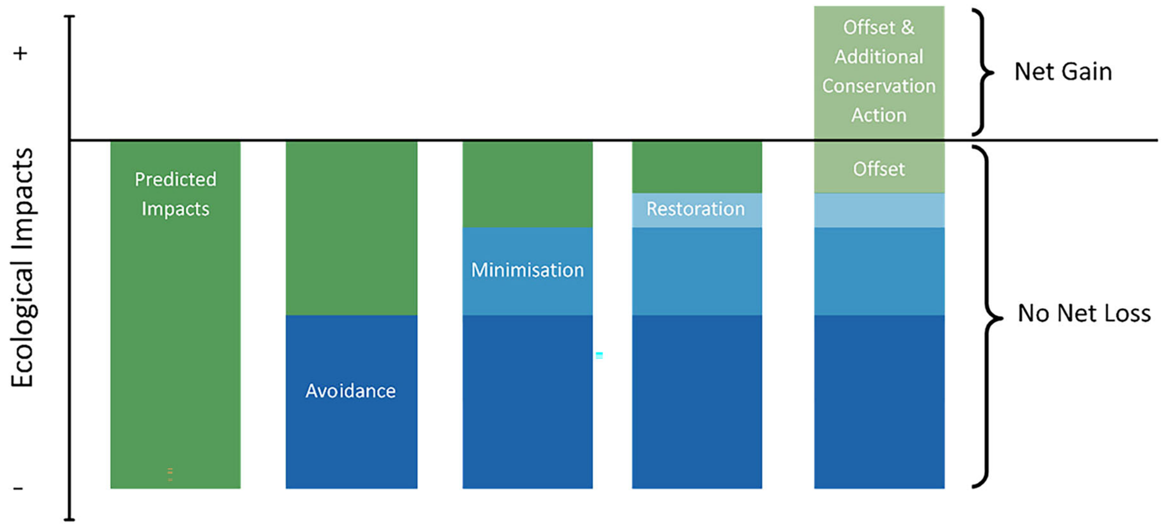

FIGURE 1 | The mitigation hierarchy requires the following steps in decreasing order of preference: avoiding, mitigating, restoring, and offsetting impacts. Impacts that remain after avoidance, minimisation, and restoration are called residual impacts, and these need to be offset.

economies, including in orangutan range states, Indonesia and Malaysia. In recognition of the risk of undesirable impacts from these projects, IFC requires clients to adhere to a series of performance standards. The "IFC's Performance Standard 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources" (IFC 2012), is often considered the industry's best practice standard for safeguarding biodiversity. Over 37 other development banks and 130 private banks (Equator Principle Financial Institutions) have benchmarked their financing requirements against the IFC standards (Narain et al. 2023). IFC Performance Standards (PS) are applied to billions of dollars in project financing globally on an annual basis, with 23 billion USD routed through IFC in 2025 alone (IFC 2025).

Launched in 2012 (IFC 2012), with updates in 2019 (IFC 2019), PS6 recognizes that protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources are fundamental to sustainable development. PS6 requires that appropriate avoidance, minimization, and restoration measures are applied. To achieve this outcome in situations where residual impacts persist after applying the mitigation hierarchy, biodiversity offsets are required (Figure 1).

Biodiversity offsets are measures taken to counterbalance negative impacts on biota. Effective offsetting requires that for a given residual negative impact, an equivalent benefit in type, amount, and duration is created elsewhere (BBOP 2012; Gardner et al. 2013). The aim is to achieve at least no net loss, or net gain. While this sounds straightforward, 'net gain' can vary in its meaning, depending on the baseline or counterfactual approach adopted (Bull et al. 2013; Maron et al. 2018). Most offset approaches only require no net loss, or net gain, to be achieved relative to a counterfactual scenario—what would have happened without the impact and the offset (Maron et al. 2025). It is, therefore, possible for offsets to achieve relative no net loss or net gain, but for there to be less of the biota in question after the impact than before it.

The requirements set out in IFC PS6 have been guided by the Convention on Biological Diversity (CBD) (IFC 2019). However, the 2022 Kunming-Montreal Global Biodiversity Framework (GBF) has raised the ambitions of the CBD, to "take urgent action to halt and reverse biodiversity loss to put nature on a path to recovery" by 2030. The overarching goal of the Kunming-Montreal Global Biodiversity Framework is to halt and reverse nature loss by 2050 from a 2020 baseline (CBD 2024). This is conceptually aligned with Nature Positive, a global societal goal to have more nature by 2030 than in 2020 (Nature Positive Initiative 2023).

We examined how the provisions of IFC PS6 apply in the context of impacts on an iconic group of species, the Critically Endangered orangutans. All three species of orangutan (*P. pygmaeus*, *P. abelii*, and *P. tapanuliensis*) are in decline (IUCN 2026); therefore, any project development impacting them would occur in contexts of declining past and likely ongoing population declines. More than 50% of wild orangutans occur outside legally protected areas (e.g., national parks, nature reserves) (Meijaard et al. 2022), where IFC PS6 or similar standards do not automatically prevent financing of mining, plantation agriculture, plantation forestry, energy, infrastructure, and other developments.

Our key question is whether the IFC PS6 guidelines are designed to result in an absolute net gain in orangutan populations, measured across impact and offset sites, or whether the guideline is only likely to yield relative net gain outcomes, such as a slowing of the rate of decline. The former is necessary for alignment with the GBF and with nature positive objectives. To examine this question, we analyzed the requirements in IFC PS6 and its supporting Guidance Notes (IFC 2019) and investigated how they might apply to the on-the-ground conservation contexts of orangutans. We find that much more stringent compensation requirements are needed than currently required by IFC PS6 if absolute gains for orangutans are to be achieved. We recommend changes to the standard and its use to align with the GBF and nature positive ambitions.

TABLE 1 | Key concepts in PS6 and their definitions (IFC 2012, 2019).

Key PS6 terminology	Definition	Passage in PS6 or Guidance Note
Critical Habitat	Areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes.	PS6. Paragraph 16
Natural Habitat	Areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition.	PS6. Paragraph 13
Modified Habitat	Areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area's primary ecological functions and species composition.	PS6. Paragraph 11
Restoration offsets	Restoration offsets remediate past damage to biodiversity (due to factors unrelated to the client's project) via rehabilitation or enhancement of biodiversity components (or even recreation of ecosystems and their associated biodiversity values) at suitable offset sites.	GN 31
Averted loss offsets	Protection or averted loss offsets protect biodiversity and prevent its decline in an area demonstrated to otherwise be under threat of imminent or projected loss (due to factors unrelated to the client's project).	GN 31

2 | IFC PS6 Guidance on Great Apes

IFC PS6 requires habitat that may be affected by a proposed development to be classified as Modified, Natural, or Critical. Potential impacts on each are treated differently (Table 1). Modified Habitats—areas significantly altered by human activity—are prioritized for sustainable use, while Natural Habitats require careful management to minimize impact. Critical Habitats, which include areas of habitat crucial for the survival of Endangered or Critically Endangered species, are subject to the strictest standards.

IFC PS6 is distinct from other standards in including a guidance note that requires specific consideration of great apes, "due to their anthropological significance" (GN73). Any area where there are great apes is "likely" to be treated as Critical Habitat (Guidance Note 6, GN 71) (IFC 2019, Table 1). Depending on the interpretation of the "substantially modified" part of the Modified Habitat definition (Table 1), about half of remaining orangutans occur in areas that would be considered Modified Habitat (agricultural and silvicultural areas) with small patches of Natural Habitat, and the remainder in areas otherwise considered Natural Habitat (timber concessions and protected areas) (Meijaard et al. 2022). However, as per the provisions (GN73) in Guidance Note 6, these areas should all "likely" be treated as Critical Habitat (given that orangutans occur there), although they vary in the extent to which they are modified.

According to IFC PS6, projects in Critical Habitat areas "are acceptable only in exceptional circumstances" (GN 73, IFC 2019) and require offsetting measures that result in a "net gain." Thus, all projects within orangutan range that proceed with IFC funding—or other funding adhering to the same standard—must establish what impacts they may have on orangutans and achieve a "net gain" in orangutan population outcome overall. The Guidance Note 6 also states that "where great apes may potentially occur, the IUCN Species Survival Commission (SSC) Primate Specialist Group (PSG) Section on Great Apes (SGA) and its Avoid, Reduce, Restore, and Conserve (ARRC) Task Force must be consulted as early as possible by the client to assist in the determination of the occurrence of great apes in the project's area of influence."

3 | The Meaning of "Net Gain" in PS6 for Great Apes

The basic starting point for any project adhering to IFC PS6 is to apply the mitigation hierarchy which offers offsetting as the final option when residual impacts remain after avoidance, minimization, and remediation (Figure 2). Project developers, however, tend to use offsetting as the preferred option (Phalan et al. 2018). IFC PS6 mandates that the "net gain" from biodiversity offsets is to be measured against a baseline trajectory. The trajectory is meant to represent a counterfactual scenario in which neither the

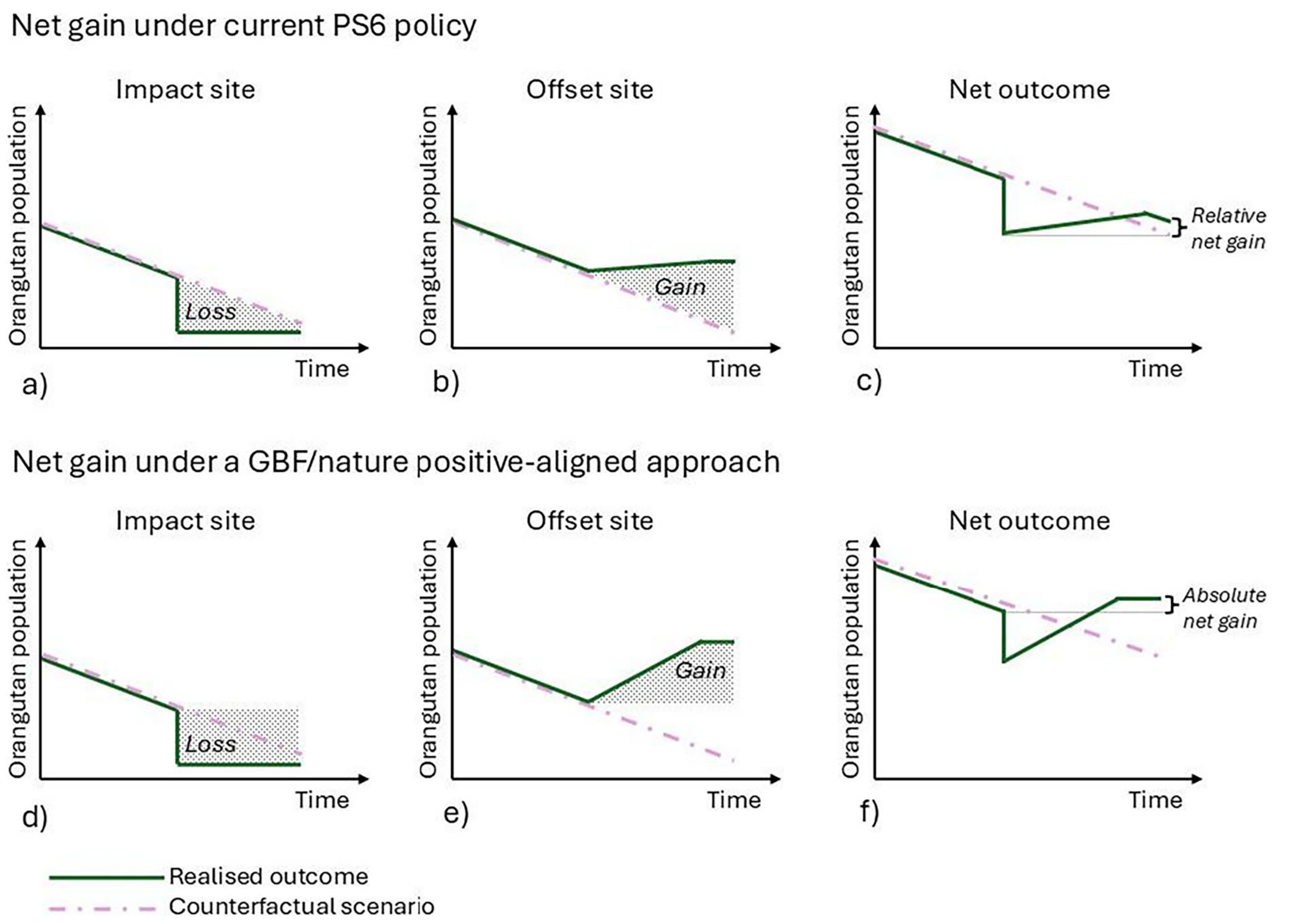

FIGURE 2 | Population trends in impact and offset sites, and in net terms across both, under IFC PS6 and an alternative approach aligned with the GBF and nature positive. (a) The impact from a project development becomes the residual impact that needs to be offset. (b) Using averted loss, even with some absolute population increase in addition, to counterbalance this loss results in a net outcome (c) of relative gain, but absolute loss, even though the gain is greater than the residual impact. An offset that requires the absolute population increase at a site to be larger (e) than the absolute decrease at the impact site (d) would yield an overall net outcome of absolute gain (f). *Note:* Loss is often measured as the instantaneous loss at the time of impact, and gain as instantaneous gain at a future time horizon, rather than both accumulated over time.

impact nor the offset occurred. This means that, in theory, the baseline trajectory against which a net gain is measured could be one of declining, stable, or increasing biodiversity (Maron et al. 2018; IFC 2012). As such, the "net gain" required is a relative net outcome (Figure 2c), not an absolute increase over time (Figure 2f).

For orangutans, the counterfactual scenario is commonly one of declining populations (Figure 2), because very few populations are stable, and none is demonstrably growing (Meijaard et al. 2018). This means that net outcomes are likely to be evaluated against expected declines rather than a stable population baseline. Because of this, an offset for the loss of a high-quality site could involve actions that prevent, or reduce the rate of, decline at another site, and the outcome of this exchange referred to as "net gain." This is despite the fact that the net result is still one of fewer orangutans after the development than before. This approach—called "averted loss" offsetting (Table 1)—means that an overall net outcome of orangutan declines across the impact and offset site combined can still be considered a successful net gain outcome (Figure 2c).

Relative net gains that result in absolute declines mean that a growing gap appears between the desired societal outcome of halting and reversing nature losses, and the realized outcomes from development activities. Instead, to meet global biodiversity targets, "absolute" no net loss or, indeed, absolute net gain (Figure 2f) is required (Simmonds et al. 2020). The IFC requirements do not, at present, align with this.

4 | Generating Absolute Net Gains for Orangutans

While absolute gains for orangutans are theoretically possible, achieving this through offsetting is highly challenging in practice. Achieving absolute gains requires improvements in the target biota over time at the offset site, in a quantity that is greater than the absolute residual losses at the impact site (Figure 2d). Conservation strategies differ significantly, however, in their ability to generate gains for orangutans (Santika et al. 2022).

Orangutans have low reproductive rates, which result in low population growth rates. Orangutan populations under no external threats can theoretically grow at a maximum of 2% annually (Marshall et al. 2009), but most orangutan populations are at ~5% annual rates of decline and at unnaturally low densities (Sherman et al. 2022), because threats are not effectively negated, even in legally protected areas (Meijaard et al. 2012). If all threats would be eliminated, detectable population growth could occur over decades (Seaman et al. 2024), but only up to habitat carrying capacity. Density-dependence has implications for offsetting strategies, with the lowest growth expected in populations at or near carrying capacity.

Achieving absolute gains for orangutans—absolute population increase across the impact and offset sites over time—is challenging, but possible. It requires direct, effective in-situ management to fully mitigate threats causing declines, in conjunction with increasing populations in areas where past declines have reduced them below carrying capacity. This goal is now more attainable as deforestation rates on Borneo and Sumatra have slowed (Gaveau et al. 2022), though achieving the required population growth also demands further reduction of mortality rates through ongoing patrolling and law enforcement (Seaman et al. 2024; Sherman et al. 2022). The easiest absolute gains could be achieved in landscapes where organizations implement effective management activities in areas over which they have long-term tenure rights. These gains are most likely to be achieved if delays in implementing conservation management are minimized. Ideally, conservation management should start even before the conservation impact is created, that is, the residual impacts are predicted and the conservation strategies to offset them initiated before the impacts occur (Bekessy et al. 2010). As the actual impacts are then quantified during project implementation, the conservation strategies can be amended.

5 | Offset Multipliers for Orangutans

Generating gain through offsets generally requires offsets that are much larger than the impacted areas (Bull et al. 2017; Moilanen and Lehtinen 2025), primarily because of implementation delays, uncertainty, and additionality considerations (Laitila et al. 2014). Such multipliers vary in practice from less than 1 to about 10, although greater multipliers exist (Bull et al. 2017). Such multiplier considerations, however, do not generally consider species-specific reproductive parameters. Here, we show through a simple example that such considerations result in a need for substantial area multipliers when offsetting orangutan impacts.

The size of an offset area required for generating absolute population gains sufficient to counterbalance a given area of loss will depend on the density of orangutans at the impact site at the time of the impact, the density of orangutans at the offset site prior to the offset intervention, the amount of time that passed between impact generation and offset implementation (e.g., implementation delays of a decade result in foregone population growth of 35% at annual growth rates of 2%), and the extent to which management can effectively negate threats so that positive population growth is achieved. If we assume that impact and offset population densities are the same, then over, for example, 5 years (from 2025 to 2030 when absolute gains are needed for CBD), a population growing at 2% annually grows to $(1.02)^5 \approx 1.104$, or a ~10.4% net increase. This means the 5-year population gain per km^2 is $0.104 \times$ offset population density (d). To replace the individuals lost from 1 km^2 of habitat, the offset area (A) must satisfy: $0.104 \times d \times A = d$, giving $A \approx 9.6$ km^2. In other words, about 9.6 km^2 of habitat at the same starting population density, managed to sustain 2% annual growth for 5 years, is needed to offset the population decline from 1 km^2 of habitat lost, assuming threats are fully controlled, so growth is actually achieved. If no area-based multiplier is used, so 1 km^2 of impact area is compensated with 1 km^2 of offset, it would take 35 years to reach absolute gains. This, however, would require that offset site populations start enormously below habitat carrying capacity and that carrying capacity is very high. Once carrying capacity is reached, only habitat improvements or dispersal into adjacent areas can generate absolute gains.

Lower starting densities in the offset area or lower growth rates (e.g., 1% in low-quality habitat) will significantly increase the required multiplier. These estimates assume that offset populations remain below carrying capacity to allow for growth. Furthermore, uncertainty regarding the baseline population size and population trends at either the impact or offset location provides another critical justification for adding a multiplier. Finally, additional increases may be required to account for time delays and management risks (Table 2).

These high multipliers heavily restrict realistic offset strategies. For the 700–800 remaining Tapanuli orangutans, industrial damage to critical low-elevation habitat cannot be easily offset within existing marginal, high elevation populations due to ecological limits. Instead, the offset would require establishing new populations via translocation or restoration. Because population growth under these conditions would take decades and demand multipliers of 100 or more, companies are highly unlikely to fund them to achieve absolute gains.

6 | Way Forward

Standards such as IFC PS6 are vital for biodiversity conservation, yet their real-world impact is limited by a fragmented financial ecosystem. A good example is the Batang Toru hydroelectric dam in the Critical Habitat of the Tapanuli orangutan. Because the project could not meet the IFC's benchmark, the ICF and Norwegian state pension fund declined to support it (Jong 2023). However, instead of halting the project, the developers simply bypassed these safeguards by securing funding from lenders with weaker requirements (International Rivers 2021). When financial institutions compete for projects, high environmental standards can be undercut by lenders willing to accept lower benchmarks. With a unified, global minimum standard (Narain et al. 2023), strict standards like PS6 risk shifting destructive projects to less regulated funding streams rather than preventing them.

Another risk that a move to absolute net gain presents is where the primary conservation priority for a species involves ongoing threats from unregulated impacts. Called the "conservation-offset paradox" (ARRC and PSG 2022), requirements to demonstrate absolute population increase bias investments toward sites with high population growth potential, favoring depleted populations, while disincentivizing protection of large, intact populations that exhibit low growth due to density dependence. Reliance on

TABLE 2 | An overview of the factors contributing to offset area multipliers.

Factor	Impact on multiplier
Population growth rate	Higher expected population growth rate reduces the multiplier
Habitat carrying capacity; starting population density	Multiplier increases exponentially the closer the offset site is to carrying capacity at the commencement of the offset
Implementation delay	The longer the delay between impact and offset implementation, the larger the multiplier
Uncertainty and risk	The greater the risk of the offset underperforming, the larger the multiplier

TABLE 3 | Summary of the main differences between offset strategies that aim to achieve relative versus absolute net gain outcomes.

Aspect	Relative net gain	Absolute net gain
Net outcome goal	Improvement compared to counterfactual (what would happen without the interventions). Population can still decline	Improvement compared to fixed baseline, for example, state prior to impact. Population must increase
Baseline	Dynamic counterfactual, trajectory-based	Fixed baseline, state at point in time
What counts as gain at offset site	Averted loss and improvement gains	Improvement gains only
Gain estimate sensitivity	Sensitive to counterfactual assumptions and assumptions about effectiveness of interventions	Sensitive to baseline choice and assumptions about effectiveness of interventions
Prediction reliance	Need to estimate both counterfactual and offset scenario	Only need to estimate offset scenario
Offset types incentivized	Favours declining systems	Favours systems with growth potential
Alignment with nature positive	Weak	Strong
Key risk	Slowing decline counted as gain	No incentive to use offsets to prevent losses

offsets for the delivery of all conservation needs is undesirable, and the shift away from averted loss offsetting would require alternative protection approaches for already intact sites with no gain potential.

Current IFC standards require updating to reflect the global shift toward nature-positive outcomes, as emphasized in the Kunming-Montreal Global Biodiversity Framework. The upcoming review of PS6 (Geary and Willis 2025) is a timely opportunity to mandate absolute biodiversity gains from a 2020 baseline, replacing the current focus on relative gains (see Table 3 for summary of key differences).

Regardless of the net outcome goal, the effectiveness of the standards depends on effective implementation and strong compliance. Given the uncertainties in offsetting impacts, avoidance of impacts on orangutan habitat should always be the highest priority. Critical Habitat supporting viable orangutan populations should be off-limits for development, as successful offsetting in these areas is extremely unlikely. Assessment of projects in great ape habitats should require baseline surveys prior to any project-related disturbance, incorporate both direct and indirect impacts across ecologically relevant spatial scales, and explicitly include modified habitats where apes are known to occur.

Where development is unavoidable, offsets must be large, initiated early, and financed over the long term (Pope et al. 2021). Greater emphasis should be placed on estimating absolute abundance and, where possible, establishing monitoring programs that generate trend data over time. Effective orangutan management requires long-term institutional authority, secure funding, and clear accountability, supported by transparent monitoring of measurable outcomes (Meijaard et al. 2022). Ring-fenced offset trust funds should finance only proven, like-for-like conservation actions that deliver demonstrable gains.

While our case study focuses on orangutans, it likely applies to all great apes and other species with similar reproductive and ecological characteristics. The IUCN Red List of Threatened Species, for example, lists 3465 Critically Endangered species, many of which are associated with steep (> 80% over three generations) population declines and require habitat protection, and IFC policies should reflect their recovery needs.

We recommend revising IFC PS6 to mandate clear, measurable gains against a 2020 biodiversity baseline, strengthen avoidance, and ensure any necessary offsets are large enough (requiring a multiplier), robustly managed and perpetually funded. Development banks and other financial institutions should adopt these stringent conservation goals to align with the Kunming-Montreal Global Biodiversity Framework's objective to halt and reverse biodiversity loss by 2030. By implementing these recommendations, the IFC and its partners can support a truly nature-positive future, preserving essential habitats and species.

Acknowledgments

Thanks to Julie Sherman for providing advice on the text, and two reviewers for their constructive feedback.

Open access publishing facilitated by The University of Queensland, as part of the Wiley - The University of Queensland agreement via the Council of Australasian University Librarians.

Funding

No funding to declare.

Conflicts of Interest

EM and RAD declare they are owners of Borneo Futures, a company based in Brunei Darussalam. MM is a director of The Australian Wildlife Conservancy and holds volunteer roles with the Wentworth Group of Concerned Scientists, The Biodiversity Council, and the IUCN's Impact Mitigation and Ecological Compensation Thematic Group, part of the Commission on Ecosystem Management. She provides advice on impact mitigation in both unpaid and consultancy capacities to a range of government and non-government organisations.

Data Availability Statement

No original data used in this review.

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