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POLICY FORUM

Achieving 'nature positive' requires net gain legislation

Reforms underway in Australia highlight key challenges

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The concept of 'nature positive' has gained popularity since its introduction in 2020 and adoption by G7 leaders (1). Nature positive is defined as a measurable increase from a 2020 baseline in the health, abundance, diversity, and resilience of species, populations, and ecosystems so that nature is visibly and measurably on the path to recovery within a stipulated time frame (1). It has been widely embraced by companies, financiers, and governments (2), now nations are grappling with the task of translating these commitments into meaningful biodiversity conservation policy. Australia is among the first nations to commit to 'nature positive' law reforms (3) but, as we discuss below, proposed reforms raise critical issues that must be rectified if its laws are to align with a nature positive future, act as a template for other nations, and support achievement of the 2030 Targets and Mission outlined by the Kunming-Montreal Global Biodiversity Framework (GBF).

Australia is a notable signatory to the GBF, both for its globally important, distinctive, and mostly endemic species, and as an extinction hotspot (4). The call for nature positive in Australia and elsewhere emerged as a response to humanity's repeated failure to curb the loss of biodiversity despite decades of global commitments to do so (1). As delegates gather this month at the sixteenth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 16) in Cali, Colombia, we call for nations to commit to policies that will achieve genuine nature positive outcomes through mitigating impacts to biodiversity from development, as well as conserving and recovering nature (beyond mitigation). We propose four key steps: (i) legislate for 'absolute net gain' and aligned biodiversity targets, (ii) limit and fully compensate for any biodiversity loss from development, (iii) take substantial additional conservation actions to tackle other threats, and (iv) resource effective and transparent implementation and enforcement of such policies. This approach reflects existing scientific recommendations, which have hitherto fallen short of driving meaningful reform and action. However, the global momentum toward achieving 'nature positive' outcomes—and the explicit commitments to it by multiple nations, including Australia—could mark a pivotal shift. COP 16 is a timely opportunity for nations to align their policies with this vision.

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Legislate absolute net gain for threatened biodiversity

Absolute net gain means improvements in biodiversity over time relative to a fixed baseline state (for 'nature positive', relative to the state of biodiversity in 2020) (1). This distinguishes absolute net gain from 'relative net gain', which refers to improvements relative to 'business as usual', such as a counterfactual scenario of declining biodiversity (5). Policies requiring only relative net gain are common (5), and generally allow for decline in biodiversity over time (Figure 1). For example, increasing an endangered species population from 100 to 120 individuals within a fixed time frame is an absolute net gain target. In contrast, if that same population was expected to decrease from 100 to 80 individuals under a business as usual scenario, then relative net gain could be achieved by decreasing the population to 90 individuals. As such, relative net gain allows claims of improvement, even though biodiversity has still declined.

A genuine nature positive outcome means more nature in the future than we have now, which aligns with GBF's 2030 mission, to halt and reverse biodiversity loss to put nature on a path to recovery (see table S1) (2). This is necessary because many ecosystems have been so degraded that they no longer support ecosystem functioning or sustain nature's contributions to people. Given our economies, livelihoods, communities, and overall well-being are intricately linked to the natural world, it is now well understood that halting the loss of nature is no longer sufficient, and recovery is needed. Thus, to achieve nature positive outcomes, reforms must require absolute net gain for biodiversity, particularly for threatened species and ecological communities.

However, the Australian Government's proposed 'Nature Positive Plan' reforms, which are currently underway (3), do not require absolute net gain outcomes. Instead, most elements rely on relative net gain of biodiversity (Figure 1). Further, the Australian Government's definition of 'nature positive' in its draft law reforms, is ambiguous: 'an improvement in the diversity, abundance, resilience and integrity of ecosystems from a baseline'. While this definition superficially resembles the original concept, it lacks quantifiable requirements for absolute net gain that are present in the original definition, and importantly, does not specify the baseline year (1). Without requiring absolute net gain as the standard outcome from all decisions affecting biodiversity, and having a baseline year from which to measure outcomes, biodiversity losses will likely continue to accrue.

Importantly, even the most effective legislation can be repealed or unwound. Cycles of strengthening and weakening of environmental protection laws driven by changes in ruling political parties are evident in Brazil, for example (6). To ensure that effective environmental laws endure, strong institutions and the building of community support are crucial. Mechanisms for creating a robust system of environmental protections include community education programs, mechanisms for facilitating community feedback, support for strong civil society organizations, adequate funding for enforcement and monitoring activities, and establishment of environmental watchdogs such as environment protection authorities (4). In addition, other legislation that doesn't focus solely on biodiversity conservation can, and should, contribute to achieving net gain. For example, laws that recognize the intergenerational right to nature, or support Indigenous land management practices, have been shown to improve biodiversity conservation outcomes (7).

Fully compensate biodiversity losses from development

Nature positive cannot be achieved if irreversible biodiversity impacts continue to accumulate. This is especially important for already-depleted biodiversity, including threatened species and ecosystems. In practice, this means impacts on such biodiversity elements must be

mitigated through avoidance, minimization, and rehabilitation, before any residual impact is more than fully compensated (i.e., though offsets) to achieve absolute gains. This 'mitigation hierarchy' is fundamental to nature positive (2). Impacts on threatened biodiversity that cannot be compensated through offsets are simply not compatible with nature positive. However, in many policies worldwide there has been a recent trend for more 'flexibility' favoring development (8), such that difficult-to-compensate impacts are still permitted in exchange for benefits to other, easier-to-restore species or ecosystems. Such flexibility undermines the incentive to avoid or mitigate development impacts (8) and ultimately leads to further accumulation of biodiversity losses for those species and ecosystems that are most challenging to recover.

Australia's proposed new approach embeds the mitigation hierarchy in law—but at the same time, it falls foul of best practice 'like for like' requirements for ecological compensation. It would allow developers to compensate for impacts through a payment to a government-managed fund, which is not necessarily required to use these funds to purchase benefits for the same biodiversity impacted (3). From similar schemes operating in some Australian states, we know that reliance on such funds carries increased risks for biodiversity. First, securing offsets for rare and threatened biodiversity can often be prohibitively expensive, or impossible for irreplaceable habitats (8). This scarcity should provide a clear price signal to proponents incentivizing avoidance of impacts on that aspect of biodiversity. However, if the development is instead allowed to proceed with a payment, regardless of how realistic it is to offset the loss, this is likely to lead to the accumulation of undeliverable offset liabilities. Though funds may eventually be spent on other biodiversity, the effect would be the exchange of irreplaceable biodiversity with habitats or ecosystems that are easier to recreate (2), ultimately leading to the continued decline and increased extinction risk for particular species and ecosystems. Second, even in cases where compensation is possible, experience with similar funds suggests payments are often inadequate to cover the full cost of compensation (8). Similarly, this may result in the funds being spent on biodiversity that is easier and cheaper to recover or a failure to meet offset requirements fully. Other challenges that bedevil existing offset funds include keeping pace with the rate at which offset liabilities accrue. Such deficiencies in government-managed funds extend beyond Australia, as evidenced by similar findings in China's eco-compensation scheme (9).

Evidence suggests that Australia's existing sub-national offset funds are all failing to effectively compensate for biodiversity loss from development. In Queensland, for example, since 2015, 90% of proponents have chosen to pay into a fund rather than secure their own biodiversity offsets (10). However, the Government has only acquitted 2% of the funds, based on the latest offset register data (10). A similar situation has played out in another Australian state, New South Wales, where payments are being made into the Biodiversity Conservation Trust (BCT) fund five times more quickly than the Government can acquit the funds (11). Highlighting these deficiencies, a recent independent review suggested that the BCT fund should be completely phased out and strategies to reduce the backlog of unacquitted credits developed (11). Habitat banking, where the biodiversity gain is achieved before the impact occurs, could reduce the risk of failure to achieve adequate compensation, but uncertainty about the ability to eventually sell the gain for an attractive price hinders development of such banks in Australia.

Here, we have focused on compensating direct impacts to biodiversity from development. Crucially, achieving nature positive means extending beyond these requirements, to also address the suite of direct and indirect impacts embedded within value-chains (Target 15 of the GBF), even when those impacts occur beyond jurisdictional borders (2). For example, the proposed United Kingdom Climate and Nature Bill explicitly refers to halting and reversing biodiversity loss, considering both direct and indirect impacts within the United Kingdom and overseas. This will require integrated and effective 'whole of system' policy assessments, rather than a sole focus on individual project mitigation.

Securing net gains beyond development impacts

Biodiversity conservation policies must also address and reverse biodiversity decline beyond simply addressing new development impacts to achieve nature positive (2). Alongside habitat loss, many important drivers of biodiversity decline are diffuse and hard to attribute to individual actors: e.g., climate change, introduced species, and disease. These threats all require appropriately resourced management both within and beyond jurisdictional borders to minimize their impact on biodiversity. Actions to secure net gain for targeted species or ecosystems may include habitat protection and restoration, threat abatement, and other species recovery programs. These actions align with several of the Targets set under the GBF, including Target 2 (restoring degraded areas) and Target 6 (reducing invasive species). Mechanisms to ensure adequate long-term funding for required actions is critical. Funding for actions such as weed management or feral pest control is too often short term and severely inadequate. Target 19 of the GBF is to mobilize $200 billion a year for biodiversity acknowledges the present shortfall in funding. However, the required increase in annual investment in biodiversity globally, if we are to sufficiently address threats and recover habitat and species, is estimated to be as large as US$436 billion by 2025 and US$542 billion by 2030 (12).

In Australia, most threatened species are not monitored, do not have a recovery plan in place, and their recovery is unfunded. Even for known threatened species, an approximately 20-fold increase in annual expenditure (US$684m/year to US$1.27b/year reflecting 2018 values) was estimated to be required to avoid extinctions and recover threatened species (13). Rather than a sole focus on minimizing loss of biodiversity from development, we argue that nature positive legislation must also require the funding and implementation of actions that will lead to absolute gain in biodiversity. While the first of Australia's nature positive reforms set up a structure for a 'nature repair market', it will rely on voluntary private sector investment, the scale of which is highly uncertain.

Effective enforcement and monitoring

Without strong enforcement to foster compliance with conservation laws, improved policy to achieve biodiversity net gain will fail. In Australia, minimal enforcement has contributed to failure of national biodiversity conservation law to protect threatened species (4). As part of the proposed nature positive law reforms, an independent national environment protection agency, armed with additional regulatory power to improve enforcement effectiveness, has been proposed. However, its independence and powers have been criticized as suboptimal (14). The success of such enforcement agencies hinges on adequate resourcing and ensuring objective, independent decision-making that is free from discretionary biases (4).

Reporting progress towards nature positive commitments requires robust and transparent data and monitoring. In alignment with Target 21 of the GBF, providing the best-available biodiversity data aids in making informed decisions to achieve nature positive outcomes. Good monitoring requires careful selection of a relevant set of indicators for biodiversity and, where appropriate, key ecological processes and ecosystem services. As part of the reforms

underway, the Australian Government has recently proposed the establishment of Environment Information Australia, to provide biodiversity-related information to track conservation outcomes and inform development decisions (3). Effective monitoring enables the tracking of key biodiversity against a baseline year of 2020, and reporting net biodiversity outcomes. A detection and attribution framework that identifies specific drivers of biodiversity gains and losses at a national scale could enable timely effective intervention where net losses are continuing (15).

Next steps for a nature positive future

On the verge of major conservation law reforms, Australia has the opportunity to set the global standard for aligning national conservation legislation, and all associated policies and regulations, with its stated nature positive ambitions. However, its current proposals fall short. Ultimately, a nature positive future can only be achieved if all nations commit to – and deliver - absolute net gain of biodiversity. Achieving this requires enforcing strict ecological compensation, adequate funding for biodiversity conservation beyond compensation for development impacts, and rigorous law enforcement, effective monitoring and review. Legislating net gain is a key step to align policy with the 2030 targets and mission agreed upon under the GBF. This will help ensure that genuine, measurable net gains in biodiversity are delivered, consistent with the foundational principles of nature positive.

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Fig. 1. Trajectory of biodiversity under different policy goals. In compensating for biodiversity decline from various impacts such as infrastructure developments, the implementation of absolute net gain involves strict adherence to the mitigation hierarchy, involving sequentially avoid, minimize, rehabilitate and compensate for residual impacts (darker blue) and reversal of decline when targeting absolute net gain (lighter blue and green). The Australian Government's Nature Positive Plan (5) involves relative net gain rather than absolute net gain, and does not provide a baseline year against which to measure progress towards nature positive outcomes, both of which may result in overall biodiversity decline (light blue). In contrast, absolute net gain essentially enables full mitigation of ongoing losses and some recovery of past losses (green).