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PROTECTED AND CONSERVED AREAS

Science Brief for Target 3 of the
Post-2020 Global Biodiversity Framework



TARGET 3 – PROTECTED AND CONSERVED AREAS

SCIENCE BRIEFS ON TARGETS, GOALS AND MONITORING IN SUPPORT OF THE POST-2020 GLOBAL BIODIVERSITY FRAMEWORK NEGOTIATIONS

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TARGET 3 – PROTECTED AND CONSERVED AREAS

Background on the science briefs

The bioDISCOVERY programme of Future Earth and the Secretariat of the Group on Earth Observations Biodiversity Observation Network (GEO BON), convened a group of experts to prepare six briefs to provide scientific support for the negotiations of the post-2020 global biodiversity framework (GBF) at the fourth meeting of the Working Group on the Post-2020 Global Biodiversity Framework in Nairobi, from 21 to 26 June 2022. This includes four briefs on individual Targets 3, 7, 8 and 10; a brief on the GBF monitoring framework; and a brief on the ecosystem area and integrity objectives of the GBF that incorporates the area-based Targets 1, 2, 3 and 10. **This science brief addresses the area and quality of protection and conservation under Target 3.**

The analysis focuses on the wording of the quantitative and qualitative elements of target 3, definitions of key terminology, and assessment of the adequacy and availability of indicators for tracking achievement of this target.

This analysis is based on the text of the first draft of the post-2020 global biodiversity framework, CBD/WG2020/3/3 and subsequent negotiations of this text:

Target 3. Ensure that at least 30 per cent globally of land areas and of sea areas, especially areas of particular importance for biodiversity and its contributions to people, are conserved through effectively and equitably managed, ecologically representative, and well-connected systems of protected areas and other effective area-based conservation measures and integrated into the wider landscapes and seascapes.

Structure of this brief

- Key messages (1 page summary)
- Background
 - 1) Relevance for biodiversity, nature's contributions to people and good quality of life
 - 2) Target formulation, numerical objectives, indicators and impacts on SDGs
 - 3) Indicators
 - 4) References

KEY MESSAGES CONCERNING THE WORDING, QUANTITY AND QUALITY OBJECTIVES OF TARGET 3

Target 3 is focused on the area-based conservation measures of protected areas (PAs) and Other Effective Conservation Measures (OECM) as defined by the CBD and must focus on both quality and quantity elements. Limited kinds of sustainable use, in many cases in relation to customary use and the rights and tenure of Indigenous Peoples and Local Communities (IPLCs), are permitted in some IUCN Protected Area categories and under OECM guidance. Large scale, intensive and/or industrial exploitation (in agriculture, fishing and forestry) that are managed sustainably with biodiversity conservation outcomes are not compatible with Target 3 and are covered under Targets 5, 9 and 10.

Quantity:

- The target level “*at least 30%*” is well supported in the scientific literature as the lower limit for effective biodiversity conservation. PAs and OECMs are intended to protect a range of biodiversity values (e.g., species and ecosystems at risk, representativity, ecological viability, geographically restricted species, in-site carbon, etc.), and the greater the inclusion of multiple values, the higher the proportion that needs to be protected.
- There are concerns that a focus on the 30% area target, as occurred with achieving the area-based target of Aichi Target 11, will detract from the quality elements of target 3. Substantial increases in resources, capacity and international collaboration will be critical to ensure that the quality elements of this target are met.

Quality elements:

The Quality elements in Target 3 focus on several distinct elements, which are at least as important as the quantity element for achieving the objectives of this target:

- ***Areas of importance for biodiversity***—It is possible to be far more efficient and effective in avoiding biodiversity loss by selecting those areas important for conservation, such as Key Biodiversity Areas.
- ***... and its contributions to people***—the importance of nature’s contributions to people, which always result from biodiversity, emphasises the importance of many PAs and OECMs for ecosystem services, including for Indigenous Peoples and Local Communities. These considerations induce significant trade-offs for spatial optimization with solely a biodiversity focus.
- ***Effectively managed***—successful biodiversity outcomes at the site level require effective management, often lacking in the current system of PAs and OECMs.
- ***Equitably governed***—protected areas require social licence provided by a shared voice in decision-making and equitable benefit sharing, and free, prior and informed consent (FPIC).
- ***Biodiversity representative***— PAs and OECMs should be designed so that the full ranges of biodiversity, including genes, species, and ecosystems, have some level of area-based conservation.
- ***Well-connected and integrated into wider landscapes and seascapes***—biological connectivity and wider land, sea and freshwater scape integration are essential for the integrity of the sites.

National contributions – While there is an expectation for all countries to contribute to global targets, all countries might not be able to protect 30% of their lands and seas in protected areas and OECMs. Thus, some countries might need to protect more than 30%, to protect areas with globally significant biodiversity importance. Coordinated spatial planning across countries is essential to assure the global target is met jointly.

BACKGROUND ON THE WORDING, QUANTITY AND QUALITY OBJECTIVES OF TARGET 3

1) Relevance for biodiversity, nature's contributions to people and good quality of life

Goal A: Target 3 is focused directly on Goal A; on in-situ, or ecosystem-based, conservation of nature using protected areas (PAs) and other-effective area-based conservation measures (OECMs) as defined under the CBD. Target 3 responds primarily to the direct driver of change in land and sea use (also called habitat loss, degradation and fragmentation), because protected areas and OECMs, by definition, act to prevent them. Land and sea use are the largest direct drivers of biodiversity loss in terrestrial, freshwater and marine ecosystems including direct exploitation (Díaz et al. 2019, O'Hara et al. 2021).

Protected Areas and OECMs also reduce other direct drivers of biodiversity loss, such as harmful direct exploitation (Target 5), pollution (Target 7) originating within or adjacent to them, invasive alien species (Target 6), and by storing and sequestering carbon and providing a measure of resilience to climate change (Target 8).

Goal B: Target 3 contributes significantly to Nature's Contributions to People through PAs and OECMs providing an enormous range of ecological services (e.g., material services such as food, clean water, medicinal plants, and spill-over fishing benefits, and non-material services such as aesthetic inspiration and spiritual health), depending on the uses permitted within or adjacent to them (IPBES, 2019).

Goal C: Protected areas and OECMs provide important species inventories, regulate the access to those species and can ensure benefit sharing following agreed principles established by the CBD.

2) Target formulation, numerical elements, indicators, and impacts on SDGs

Note that Target 3 is focused only on the area-based conservation measures of protected areas and OECMs as defined by the CBD. Limited kinds of sustainable use are compatible with some IUCN PA categories (Dudley 2008) and are foundations of OECM based on customary use and the rights and tenure of Indigenous Peoples and Local Communities (CBD Decision 14/8, WCPA Task Force on OECMs, 2019). Specifically, the following is advised in the scientific literature, guidance documents and CBD decisions:

Protected Areas: By definition, all protected areas have as the primary objective the conservation of nature, but only categories Ia, Ib, II, III and VI include the requirement that biodiversity (from genes to species to ecosystems) is as close to a natural state as possible. The primary objective of the remaining IUCN categories (IV, V) is to conserve specific species and/or landscapes (Dudley 2008), which represent different management approaches to conserving nature. All categories are important, and all should be managed, first and foremost, for nature conservation.

OECMs: CBD Decision 14/8 defining other-effective area-based conservation measures include a criterion for OECMs that focuses on “associated ecosystem functions and services and cultural, spiritual, socio-economic and other locally relevant values”, with two sub-criteria: i) on ecosystem functions and services, and j) on “cultural, spiritual, socio-economic, and other locally relevant values”. Biodiversity conservation may not be the primary management objective, but the use and management of any service or value must not negatively impact the value of biodiversity conservation (page 7, WCPA Task Force on OECMs 2019). Supporting the implementation of OECMs (Gurney et al. 2021, Jonas et al. 2021) will be essential for achieving the GBF not only for Target 3, but also Target 21 and Goals A and B, and in support of wildlife and sustainable use targets 5 and 9, respectively.

Commercial, intensive, and large-scale exploitation (in agriculture, fishing, forestry, or other sectors) that are managed sustainably with some biodiversity conservation outcomes are not compatible with Target 3, but are covered under Target 10, on sustainable management of production land and waterscapes (see Target 10 brief). Specific sustainable use outcomes could be covered under Targets 5 and 9.

Target 3 contains several interrelated elements that can be grouped under the headings of quantity (area) and quality, both of which are essential to the achievement of the Target (see also Ecosystem Brief, sections 1b and 1c, respectively):

Quantity: PAs and OECMs are intended to protect a range of biodiversity values—species and ecosystems at risk, representativity, ecological viability, geographically restricted species and ecosystems, species aggregations, climate refugia, high carbon ecosystems, and biological connectivity. The range of values to be protected results in varying proportions of area that should be protected. There is strong scientific support that maintaining a subset of these values (e.g., rare species and representivity) requires the protection of at least 30% of a region, or globally, while maintaining the entire value set listed above results in values up to 70% (reviewed in Woodley et al. 2109). Managing the top-ranked 30% of land areas for biodiversity conservation, will conserve 81% of species (Jung et al. 2021). Similar ranges have been assessed for measures of ocean biodiversity (Zhao et al. 2020).

There is little debate that reaching 30% area coverage of PAs and OECMs would have tremendous benefits for biodiversity if all the quality elements of Target 3 are also met (IPBES 2019). There is, however, concern that focusing solely on the percent area coverage of this target could be at the detriment of achieving the quality elements of the target (Visconti et al. 2019, Pressey et al. 2021, Roessger et al. 2022), as discussed in the quality elements below. There is evidence from observations and models that the failure to achieve these may largely undermine benefits of increased area coverage (Kuempel et al. 2018, Roessger et al. 2022, Leadley et al. 2022).

Concerns also arise around inadequate management and resources, inadequate levels of protection and lack of representativity that includes all elements of biodiversity (Visconti et al. 2019, Shah et al. 2021). Very substantial increases in resources and capacity will therefore be necessary to achieve the objectives of this target (Geldmann et al., 2021, Robson et al. 2021). Ensuring high levels of protection for the 30% area is also critical for success (Shah et al. 2021, Grorud-Colvert et al. 2021). Finally, ecological connectivity is often a transboundary issue. Therefore, achieving the objectives of this global goal will require international collaboration on setting national objectives and ensuring transboundary connectivity. In some cases, this would involve national objectives that exceed 30% area protection (Visconti et al. 2019, Yang et al. 2020).

Quality elements: The Quality elements in Target 3 focus on several distinct aspects:

Areas of importance for biodiversity—given the uneven distribution of biodiversity on the planet, optimising placement of protected areas and OECMs is critical. It is possible to be far more efficient and effective in avoiding biodiversity loss by selecting areas with important biodiversity values (Butchart et al. 2015), as is now addressed by the global standard for Key Biodiversity Areas (IUCN 2016). The current protected areas system has not been well optimized for biodiversity conservation (Venter, 2018), although it has made significant contribution to halting species loss (Barnes et al. 2016).

... and its contributions to people—the importance of nature’s contributions to people, which always result from biodiversity, is also emphasised given the importance of many PAs and OECMs, as well as intact and shared habitats (see three conditions section below) for Indigenous Peoples and Local Communities. Incorporating peoples’ needs induces significant trade-offs for spatial optimization with solely a biodiversity focus (Mehrabi et al. 2018, Schleicher et al. 2019). Thus, a larger area under protection is needed when both biodiversity and NCPs are considered, so implementing this target equitably requires extensive, well informed and coordinated planning within countries (see Ecosystems and Target 1 Brief) and at local levels (Gurney et al. 2021, Obura et al. 2021), as well as internationally.

Effectively managed—there is now considerable literature that successful biodiversity outcomes at the site level are most often driven by effective management (Geldmann et al. 2018, Gill et al. 2017). Failures in achieving protected area outcomes are most often a result of lack of investment in management, including of drivers and pressures that impact protected areas from outside their boundaries, and staff capacity. Achieving Target 3 will require significant investments and capacity building in PAs and OECMs, which at 30% of the planet, will be the largest land and sea use category.

Equitably governed—protected areas and OECMs have no social licence without a shared voice in decision-making and equitable benefit sharing. There are legitimate concerns that increasing protection to 30% of land and sea area will displace or adversely impact indigenous and local communities. With new approaches and legitimacy (see Target 21 and the theory of change of the GBF) protected areas

should strengthen and recognize local governance. It is well established that Indigenous and community-governed territories often effectively retain their biodiversity conservation values (Schuster et al. 2019).

It is also clear that protecting at least 30% of the earth will not occur without the leadership, support and partnership of Indigenous Peoples and local communities. Protected and conserved areas can provide enormous benefits at the local level, but they should be established and managed with due regard for human rights (Tauli-Corpuz et al. 2020, Ricketts et al. 2019). Conservation works best when it is equitable: based on full participation, shared and transparent decision-making, rights-based approaches, and fair benefit sharing (Borrini-Feyerabend et al., 2013). The 30% target provides a huge opportunity to strengthen security of tenure and support to IPLC-led conservation by demonstrating the global environmental values of such management.

Biodiversity representative—the distribution of protected areas and OECMs should represent the full range of nature so that the range of genetic diversity, species and ecosystems have some level of area-based conservation. Representativity can be indicated by (a) coverage of threatened species and ecosystems and (b) coverage of all species and ecosystems in protected areas. Recognising that extinction risk has only been assessed for 7% of species, representativity can be indicated by both tracking how many species listed as threatened by IUCN are within protected areas, and how well protected areas match overall biodiversity richness (including endemism and rare species). A methodology for mapping overall biodiversity and including threatened species has been demonstrated for the ocean (Zhao et al. 2020, Jefferson et al. 2021). Similar approaches for terrestrial and freshwater environments are available (Chape et al. 2005, Juffe-Bignoli et al. 2016, Bastin et al. 2019).

Well connected—biological connectivity between protected areas and OECMs, and their intervening land and seascapes is essential for the integrity of the sites, allowing daily and seasonal species movement, dispersal, and adaptation to climate changes (Hilti et al. 2020). Area-based conservation needs to move from being site-based to network-based. Connectivity is a concern across marine, terrestrial, and freshwater environments. In the sea, connectivity is assured by maintaining suitable habitat along current flows, and by preventing damaging practices that fragment ecosystems (e.g., trawling, and sedimentation from rivers). On land, connectivity can be increased by increasing the size of individual PAs and OECMs, improving the integrity or condition of natural habitats, and linking sites through natural and semi-natural linear features, such as along riverbanks, hedgerows, etc. In freshwaters, connectivity can be increased by removing artificial physical barriers to migration, reducing sedimentation, and pollution that restricts species dispersal.

Integrated into the wider landscapes and seascapes—protected areas and OECMs need to be managed so they are integrated into surrounding landscapes and seascapes. This aspect is complementary to the element on spatial planning in Target 1 and could potentially be addressed under the component on ‘biodiversity inclusive’ planning in Target 1.

Relationship to the United Nations Sustainable Development Goals

Target 3 addresses directly the United Nations Sustainable Development Goal 15 (Life on Land) and Goal 14 (Life below Water).

National Implementation of the “at least 30%” as a global target:

The Global Biodiversity Framework is a global strategy for biodiversity conservation, meant to be implemented according to national conditions. All countries might not be able to protect 30% of their lands and seas in protected areas and OECMs and some countries might need to protect more than 30% of their lands and seas. The Ecosystem Science Brief (sections 2b and 2c) presents some hypothetical illustrations of national implementation of area-based targets (1, 2, 3 and 10) illustrating differential implementation of Target 3 according to national circumstances.

A useful approach to understanding country-based implementation uses 3 generalised ecological conditions according to levels of human impact (Locke et al. 2019). The general types of *in-situ* conservation actions that Parties may consider can vary across the 3 conditions:

Condition 1—Cities and Farms (17.7 percent of the terrestrial world):

- Increase conservation efforts to secure endangered species and protect all remaining primary ecosystem fragments.
- Mainstream sustainable practices such as protecting good farmland, practising productive regenerative agriculture, and keeping nitrogen out of freshwater.
- Maintain pollinators and increase ecological restoration.
- “Green” cities to reduce carbon emissions, prevent urban sprawl, and provide access to nature for urban dwellers’ health and well-being.
- Small percentages of these areas might qualify for Target 3 but are valid under other targets of the GBF.

Condition 2—Shared Landscapes (55.7 percent of the terrestrial world):

- Establish “biologically representative and well-connected systems of protected areas” while increasing coverage of protected and conserved Key Biodiversity Areas.
- Restore and maintain ecological processes and viable populations of native species (ensure area protected is in the range of 30–75% per ecoregion).
- Across landscapes integrate sustainable natural resource extraction and activities such as tourism, grazing and use of wildlife (where appropriate and sustainable) with indigenous knowledge and well managed, equitable and properly funded PA networks
- Ensure sufficient natural or native habitats to local levels at the square kilometer scale (Garibaldi et al. 2021).
- Areas may qualify for PA and/or OECM criteria under Target 3, sizes may be on the smaller side, but integrated into broader landscape and seascape planning (Obura et al. 2021).

Condition 3—Large wild areas (26.5 percent of the terrestrial world):

- Retain overall ecological integrity and associated global processes such as carbon storage and rainfall generation, fluvial flows and large migrations.
- Prevent further fragmentation allowing only rare nodes of intense industrial development enveloped in a largely wild matrix.
- Secure indigenous knowledge and livelihoods.
- Establish large PAs and indigenous and community conserved areas, may provide the largest contribution of area within countries to Target 3.

Maps are available showing where each country fits into the 3 conditions
<https://naturebeyond2020.com/3conditions/>.

In this classification, countries like Belgium, Rwanda, India, and Germany have little or no condition 3 so would not have high responsibility for area contributed under Target 3, while they may nevertheless make irreplaceable contributions to conservation for certain globally critical ecosystems (e.g., Sundarbans) and species (e.g., mountain gorillas, tigers) and protected areas and OECMs within condition 2 landscapes. Countries like Canada, Russia, and Brazil, with 30–60% area under condition 3, would have a high global responsibility for maintaining it. The equity in implementation of CBD targets comes from the resource mobilisation package (see Ecosystem Science Brief).

A similar framework for the 3 conditions can be applied to marine and freshwater habitats, and is currently under development by the IUCN-WCPA’s Beyond the Aichi Targets Task Force.

3) Indicators

Most recent indicators (as of 14 March 2022)

Headline indicator in bold, component indicator in plain and complementary indicator in italics.

3.0.1 Coverage of Protected areas and OECMS (by effectiveness)

- By ecosystem
- By Key Biodiversity Area
- By effectiveness category (Protected Area Management Effectiveness or PAME)

Component indicators

3.1 Area protected and conserved. The effects of management on biodiversity are better communicated by grouping that present IUCN Protected Area Categories according to their effect on biodiversity, i.e., those that:

- (a) fully (Ia) and
- (b) partly protect (Ib, II) biodiversity and aim for it to be in a natural state, and
- (c) other categories that limit focus to particular species, habitats or landscapes (III to VI).

3.2 Areas of particular importance for biodiversity to be protected and conserved

3.3 Effective management and equitable governance of the system of protected areas and other effective area-based conservation measures

3.4 Connectivity within the system of protected areas and other effective area-based conservation measures

Complementary indicators

t3.1. Protected area downgrading, downsizing and degazettement (PADDD)

t3.2. Status of Key Biodiversity Areas

t3.3. Protected area coverage of key biodiversity areas

t3.4. Protected area coverage of coral reefs and other marine biomes

t3.5. IUCN Green List of Protected and Conserved Areas

t3.6. Number of hectares of UNESCO designated sites (natural and mixed World Heritage sites and Biosphere Reserves)

t3.7. Proportion of terrestrial, freshwater and marine ecological regions which are conserved by protected areas or other effective area-based conservation measures

t3.8. Species Protection Index

t3.9. Protected Area Connectedness Index (PARC-Connectedness)

t3.10. Ramsar Management Effectiveness Tracking Tool (R-METT)

t3.11. Number of protected areas that have completed a site-level assessment of governance and equity (SAGE)

t3.12. Number of certified forest areas under sustainable management with verified impacts on biodiversity conservation

t3.13. Percentage of biosphere reserves that have a positive conservation outcome and effective management

t3.14. Extent of indigenous peoples and local communities' lands that have some form of recognition

Possible additional indicators

Additional work is being led by UNEPs World Conservation Monitoring Centre to develop appropriate measures of protected area quality.

Measuring quality of protection and conservation

Area indicators for PAs and OECMs aggregate to contribute to the area headline indicator for Goal A, 'A.0.1. Extent of selected natural and modified ecosystems'.

However, no headline indicator has been identified corresponding to the quality elements of Target 3 and the ecosystem integrity elements of Goal A. Effective management under Target 3 should contribute directly to biodiversity condition in the areas managed, so relevant ecosystem integrity indicators should be included in the monitoring framework under development. As noted in the Monitoring Brief (section 'Data collection, curation and sharing of existing knowledge on biodiversity'), the primary resource for such data is in local, national and regional monitoring programmes established for varied purposes, providing primary data that could be integrated to serve the purposes of monitoring effective implementation of the GBF. These may include:

- Primary measures of ecosystem condition, such as primary productivity, intactness, fragmentation and structural integrity for forests (Naase et al. 2018, Hansen et al. 2019), productivity and phenology for grasslands (Weber et al. 2018), or corals, algae and fish diversity and abundance for coral reefs (Souter et al. 2021, Obura et al. 2019). These measures will allow for bottom-up population of the monitoring framework from existing national and long-term monitoring programmes and provide a focus for resource mobilization for the GBF monitoring framework.
- Integrated ecosystem indices such as the Red List of Ecosystems (Keith et al. 2013, Rodriguez et al. 2011), which is a well-established methodology applicable across any ecosystem worldwide, incorporating ecosystem-specific variables such as in the examples above, and incorporates the spatial and temporal aspects needed to assess status and potential future trends in the state of ecosystems from national to global scales.
- Complementary indicators for the extent and condition of critical ecosystems, including primary forests (Hansen et al. 2019).

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