

# Revenues for Nature Guidebook Series

## Habitat Banks, Colombia

October 2024



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# Revenues for Nature Project

**Revenues for Nature (R4N)** is a global project led by the [Green Finance Institute Hive](#), in partnership with [UNDP Biodiversity Finance Initiative \(BIOFIN\)](#) and [UNEP Finance Initiative \(UNEP FI\)](#).

R4N aims to contribute to the achievement of [Target 19](#) of the Kunming-Montreal Global Biodiversity Framework (GBF) by supporting countries in identifying and implementing effective models for mobilising private sector finance into nature restoration and conservation.

The project's three pillars of work include:

- 1. Knowledge Sharing**, with the publication of a series of detailed Guidebooks capturing how to establish, replicate and scale high-integrity nature-based revenue models. The Guidebooks are complemented by a database of nature-based revenue models and markets that mobilise private sector finance into nature conservation and restoration.
- 2. Multistakeholder Learning** via a Community of Practice which includes the private sector, governments, investors and funders, and project developers to support shared learning for the development of nature models and markets.
- 3. Implementation** plans to support governments and relevant partners in rolling out impactful nature-based revenue models.

R4N is funded by the [Gordon and Betty Moore Foundation](#).

## Guidebook Series

The R4N Guidebook Series provides an in-depth analysis of models across the globe that unlock private sector capital into nature restoration or protection, including nature-based solutions (NbS). Each Guidebook offers detailed insights into the development of these models, the enabling conditions that allowed them to succeed, along with key lessons learned. The series examines the ecological, political, and socio-economic factors that support the replicability and scalability of these models in diverse regions, and explores how these models can generate revenue and improve biodiversity while leveraging some private sector financing.

The R4N Guidebook Series currently include:

- Biodiversity Net Gain, England – October 2024
- Wetland Mitigation and Endangered Species Habitat Banking, United States – October 2024
- Habitat Banks, Colombia – October 2024
- Nature-based Models for Unlocking Private Investment into Water Quality and Availability, Part 1– October 2024

The next publications of the R4N Guidebook Series will be released in the first half of 2025.

The Guidebook Series is aimed at policymakers, corporates and investors who are interested in scaling high-integrity models to mobilise private sector capital at scale into conservation and nature-positive outcomes.





## About this Guidebook

The establishment of a Habitat Bank system was introduced in Colombia as a way to improve the efficiency of environmental offsets, facilitating the development of collective schemes and allowing environmental authorities to more easily track their progress. This Guidebook details the policies of this model alongside the status of its supply and demand. A comparison with US Mitigation Banking is provided throughout the Guidebook and practical lessons learned to inform the scaling as well as the replication of this model are shared.

In November 2024, the Revenues for Nature project will update this Guidebook to ensure that the learnings from the CBD COP16 taking place in Cali, Colombia are reflected in this document, acknowledging the extensive number of events that will discuss this model at the conference.

## About EPIC

Founded in 2017, the Environmental Policy Innovation Center (EPIC) is a US non-profit whose mission is to build solutions that accelerate the pace and scale of environmental progress. Working collaboratively at the intersection of government, industry, and the environmental movement, EPIC's programs include wide-ranging projects in restoration and mitigation, water infrastructure, agriculture, and technology. EPIC's growing staff of 37 includes policy experts, scientists, advocates, and technologists unsatisfied with the status quo in environmental stewardship—and dedicated to building policies and strategies to change it.

Views expressed here are EPIC's and do not reflect the policy or positions of our funders.

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The Biodiversity Finance Initiative (BIOFIN) was launched in 2012 and supports over 130 countries to design and implement national biodiversity finance plans. For more information: [www.biofin.org](https://www.biofin.org)

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# List of abbreviations

- ANLA:** National Environmental Licensing Authority
- BCA:** Biodiversity Credits Alliance
- BFP:** Biodiversity Finance Plan
- BIOFIN:** Biodiversity Finance Initiative
- BNG:** Biodiversity Net Gain
- CARs:** Regional Autonomous Corporations
- CBD:** Convention on Biological Diversity
- CDPQ:** Caisse de dépôt et placement du Québec
- COP:** Colombian Peso
- ESA:** Endangered Species Act
- GRI:** Global Reporting Initiative
- ISSB:** International Sustainability Standards Board
- MIF:** Multilateral Investment Fund
- Minambiente:** Ministry of Environment and Sustainable Development of Colombia
- PAB:** Biodiversity Action Plan
- PNGIBSE:** National Policy for Biodiversity Management
- REAA:** Single Registry of Ecosystems and Environmental Areas
- SBTN:** Science-Based Targets for Nature
- SIB:** National Biodiversity System
- SIAC:** Environmental Information System of Colombia
- SMEs:** Small and Medium-sized Enterprises
- TNFD:** Taskforce on Nature-Related Financial Disclosures
- UNDP:** United Nations Development Programme
- USACE:** United States Army Corps of Engineers
- USD:** United States Dollar
- VBC:** Voluntary Biodiversity Credit





## Executive summary

Habitat banking in Colombia is a mechanism for biodiversity conservation, developed to offset environmental impacts from development projects through ecosystem restoration and preservation. Formally introduced in 2016, the system allows the purchase of biodiversity credits, or “cupos,” which represent conserved or restored hectares of ecosystems, as a mechanism to compensate for environmental impacts. By doing so, habitat banking fosters the restoration and protection of diverse ecosystems, aligning with Colombia’s national biodiversity strategies and the Kunming-Montreal Global Biodiversity Framework. It directly supports Colombia’s ambition of achieving “no net loss” of biodiversity, a critical goal for one of the world’s “megadiverse” countries.

The primary demand for biodiversity credits is driven by regulatory obligations tied to environmental licenses, particularly in sectors like hydrocarbons, mining, and infrastructure. Despite a promising start, the market faces some challenges, including a limited supply of credits, complex regulatory approval processes, and low awareness of habitat banking among potential buyers.

However, the potential for growth is significant. By expanding the supply of biodiversity credits and scaling up the capacity to fulfil the demand for compensation, Colombia’s market is poised to expand many times over. In parallel, developers are also building a market for voluntary biodiversity credits, offering significant opportunities for Colombia to advance conservation efforts while attracting international investments and engaging with the private sector on environmental stewardship.



**Key recommendations for replicability:** Colombia's experience with habitat banking provides valuable insights for other countries seeking to integrate biodiversity conservation into their development planning.

- 1. Establish clear policy frameworks:** Countries considering habitat banking should implement clear legal definitions, a transparent registry for biodiversity credits, and efficient processes for bank approval and credit transactions to encourage uptake and ensure compliance.
- 2. Capacity building:** Capacity-building efforts for government officials, businesses, and communities are vital to expanding market supply and ensuring high-integrity outcomes.
- 3. Involvement of Indigenous Peoples and local communities:** These groups should be meaningfully involved in the development of habitat banks to ensure equitable participation and maximize conservation outcomes. This is particularly relevant in countries where they own and manage a significant portion of biodiverse lands such as in Colombia.
- 4. Sustainability and monitoring:** Habitat banks should be subject to long-term commitments of 20 to 30 years to ensure ecological restoration efforts are sustained, with rigorous monitoring to track biodiversity gains.
- 5. Governmental and financial support:** Government backing, through financing pilot projects and incentivizing habitat bank development and use of credits in compensation, is essential to scaling supply and overcoming early-stage challenges. The public sector should promote these mechanisms to close the biodiversity financing gap and support global conservation goals.

By ensuring clear governance, robust and clear framework, processes and capacity, and the active participation of all stakeholders, habitat banking can play a crucial role in achieving global biodiversity targets.





# 1. Conceptual and regulatory development of habitat banks in Colombia

## Policy origins, development models, and rationale

Habitat banks are intended to achieve “no net loss” of the resources through compensation of environmental impacts and to improve ecological outcomes by developing standard requirements for all offset developers. The foundations of habitat banking originated in the United States (US) during the 1970s, with the enactment of the 1972 “Clean Water Act” including the regulation of impacts to wetlands and streams as well as the Endangered Species Act (ESA) in 1973 to prevent extinction and recover threatened and endangered species. However, the regulatory framework for offsets did not develop in the US until decades later, when environmental laws were passed which formalized the mechanisms to compensate for impacts. To improve the efficiency of this compensation process, the US Army Corps of Engineers (USACE) introduced wetland mitigation banks in the 1980s, creating a market for wetland mitigation credits.

Subsequently, the ESA and policies developed later enabled the development of mitigation banks for at-risk species, later referred to as conservation banks. By 1995, the US had started to solidify its legal framework for conservation banking, most notably through California's Conservation Banking Policy. These policies established guidelines for site selection, legal agreements, conservation easements (legal instruments that restrict certain land uses), and monitoring and reporting responsibilities. Additionally, they defined habitat banks as market-based tools, where the number of banks would be shaped by market dynamics and the willingness of property owners to engage<sup>1</sup>. More formal guidance at the national level came about in 2003<sup>2</sup>, but lacked any overarching national offset policy or regulation until 2016. This latter guidance, together with adjustments in 2023<sup>3</sup> confirmed a “no net loss” goal and other critical regulations that have provided conservation banking with a more rigorous framework like wetland and stream banking.<sup>4</sup>

Outside the US, similar models have emerged:

- **Australia:** Australia has developed a biodiversity banking and offset system known as the BioBanking scheme. Introduced in New South Wales, it allows landowners to earn BioBanking credits by enhancing biodiversity on their properties. These credits can be sold to developers required to offset their environmental impacts. The scheme is widely used in urban development and conservation, with an emphasis on transparent transactions and biodiversity gains<sup>5</sup>. In 2023, Australia passed the Nature Repair Act<sup>6</sup>, which sets up a voluntary market for credits. While offsetting was debated during the legislative process, the Act was passed only to support a voluntary market, for which the operating rules are currently in development<sup>7</sup> - the market is expected to launch in 2025.
- **Europe:** Countries such as Germany, Spain, France, and England have adopted biodiversity offset mechanisms as part of their development regulations. In **Germany**, a strong legal framework mandates that biodiversity offsets for land development and conservation banking are integrated into regional planning. In **Spain**, habitat banks are legally recognized through Law 21 of 2013, allowing for the creation of “nature conservation banks” to compensate for biodiversity loss. **France** has established its own version of biodiversity offsetting through the “Natural Compensation Pools” (sites naturels de compensation). This system, much like the US model, allows developers to purchase conservation credits from established conservation sites to offset their environmental impacts<sup>8</sup>. Launched in 2008, the proposed system appears to remain in effect, though perhaps limited in scale, with four listed pilot projects contributing to the supply of compensatory credits<sup>9</sup>. **England** has adopted holistic biodiversity offsetting within its planning policies that came into force in early 2024. This framework requires developers to deliver 10% biodiversity “net gain” through compensatory offsets, and like the US system, became a reality through secondary legislation and guidance building upon 15 years of development and legislation (“Schedule 7A of the Town and Country Planning Act 1990, as inserted by Schedule 14 of the Environment Act 2021”). For a more in-depth review of Biodiversity Net Gain (BNG), see the R4N Guidebook, England BNG<sup>10</sup>, 2024, published concurrently with this document.
- **Latin America:** Although still in its early stages, countries like **Brazil**, **Mexico**, and **Costa Rica** are exploring habitat banking models.

<sup>1</sup> Carroll, N., Fox, J., & Bayon, R. (2008). Conservation & Biodiversity Banking: A Guide to Setting Up and Running Biodiversity Credit Trading Systems. Routledge.

<sup>2</sup> [US DOI Fish and Wildlife Service, 2003](#)

<sup>3</sup> [US Fish and Wildlife Service, 2023, Fish and Wildlife Service Mitigation Policy](#)

<sup>4</sup> For a more in-depth review of US offset systems, see Madsen, et al 2024, published concurrently with this document

<sup>5</sup> Madsen, B., Carroll, N., & Moore Brands, K. (2010). State of Biodiversity Markets: Offset and Compensation Programs Worldwide.

<sup>6</sup> [Parliament of Australia, 2023, Nature Repair Bill.](#)

<sup>7</sup> [Australian Government Department of Climate Change, Energy, the Environment and Water, 2023 Nature Repair Market](#)

<sup>8</sup> Madsen, B., Carroll, N., & Moore Brands, K. (2010). State of Biodiversity Markets: Offset and Compensation Programs Worldwide.

<sup>9</sup> [Government of France, 2023, Éviter, réduire et compenser les impacts sur l'environnement](#)

<sup>10</sup> [Green Finance Institute, Revenues for Nature.](#)



These international models demonstrate how habitat banks have been adapted to different legal and ecological contexts, providing flexible mechanisms to balance economic development needs with biodiversity conservation. The adoption of these models is driven by the same rationale: to provide measurable conservation outcomes while facilitating development, ensuring compliance with environmental regulations, and encouraging private investment in conservation.

## 1.2. Policy development in Colombia

The introduction of habitat banks in Colombia started in the last decade when Colombia acknowledged a growing need for areas appropriate for environmental offset initiatives, a backlog of unmet obligations, and some deficiencies in the country's environmental offset framework in areas such as traceability, coherence, consistency, quality, sustainability, and flexibility<sup>11</sup>.

The establishment of a habitat bank system was introduced to improve the efficiency of environmental offsets, facilitating the development of collective schemes and allowing environmental authorities to more easily track their progress<sup>12</sup>. Habitat banks were also seen as an opportunity to create economic incentives for rural communities to engage in conservation efforts<sup>13</sup>.

Colombia recognized habitat banks as a mechanism for implementing the mandatory investment through Decree 2099 of 2016. This mandatory investment establishes that projects requiring an environmental license and making direct use of water from natural sources must allocate no less than 1% of the total investment for the recovery, conservation, preservation, and monitoring of the watershed that feeds the respective water source.

## 1.3. Alignment with international frameworks

Colombia's commitment to biodiversity conservation is deeply rooted in its constitution, which mandates the protection of natural resources and guarantees the right to a healthy environment. As a signatory to the Convention on Biological Diversity (CBD), the country has pledged to implement strategies that safeguard ecosystems, restore degraded areas, and recover threatened species.

Habitat banks are a valuable tool in achieving these goals. These conservation measures, which involve the preservation or restoration of natural habitats, align with the CBD's definition of in-situ conservation. By protecting ecosystems and supporting viable populations of species in their natural environments, habitat banks have the potential to contribute significantly to Colombia's efforts to maintain biodiversity and ensure a sustainable future.

In addition, the recent Kunming-Montreal Global Biodiversity Framework of 2022 explicitly mentions "biodiversity offsets and credits" as innovative instruments to mobilize resources, as part of Target 19.<sup>14</sup> With countries, including Colombia, now requested to revise and update their National Biodiversity Strategies and Action Plans (NBSAPs) aligned with the Kunming-Montreal Global Biodiversity Framework and its goals and targets, increasing attention will be placed on such instruments, and how countries can adapt them to national context. "Mandatory biodiversity offsets and voluntary biodiversity credits" have also been identified as one of the finance solutions stemming from Colombia's Biodiversity Finance Plan (BFP), now under implementation with the support of UNDP BIOFIN.

<sup>11</sup> More details in the publication [PNUD-BIOFIN, 2024. Bancos de Hábitat en Colombia: su evolución y su manejo contable y tributario](#)

<sup>12</sup> [Sarmiento, M., & López, A., 2015. Hacia los bancos de hábitat como herramienta de compensación ambiental en Colombia.](#)

<sup>13</sup> [Soto, A., & Sarmiento, M., 2014. Hidrocarburos y compensaciones por pérdida de biodiversidad: oportunidad para el desarrollo sostenible. Revista de Ingeniería, 40, 63–68](#)

<sup>14</sup> [Convention on Biological Diversity, 2030 Targets](#)



## 2. Overview of habitat banking in Colombia

### 2.1. Legislative background and formal guidance

The development of the habitat bank framework in Colombia has been a gradual process, influenced by both national and international priorities regarding biodiversity conservation and environmental compensation. The key steps in the development of habitat banks can be outlined as follows:

- **1993:** Law 99<sup>15</sup>, establishes that environmental licenses are mandatory for projects that could harm renewable natural resources or the environment. The law also introduces a fee for water usage, for projects requiring an environmental licence and relying on natural water sources. The law mandates the projects to allocate at least 1% of their investment for watershed conservation and restoration. Fundamental elements of effective compensatory banks were not yet incorporated into policy, including additionality, liability transfer, and durability of offsets.
- **2008:** The “Compensation Manual of the Biotic Component” (*Manual de Compensaciones del Componente Biótico*) is released by the Colombian Ministry of Environment and Sustainable Development of Colombia, providing a much more detailed degree of guidance and standards for compensation, including principles such as “no net loss” of biodiversity, the mitigation hierarchy, additionality, and credit calculation methods, which provided the basis for growth and investment in bank creation. In the Colombian context, credits intended for use in compliance contexts are referred to as “cupos” – roughly translated as “quota” or “share”, while “crédito” is more often understood to be a credit in the voluntary market. Each cupo represents one hectare of a conserved, rehabilitated, or restored ecosystem that has been technically, financially, and legally managed by the habitat bank.<sup>16</sup> Note: the present document may refer to credits in a more comprehensive sense (inclusive of both concepts) and “cupo” when used specifically when referencing the unit created and sold by habitat banks for use in compensation.
- **2012:** Resolution 1517 adopted the “Manual for the Assignment of Biodiversity Loss Offsets.” This resolution recognised various environmental offset measures for biodiversity loss, including voluntary conservation agreements, incentives for habitat preservation, and ecological easements.

<sup>15</sup> Colombia Ministerio de Ambiente y Desarrollo Sostenible, 1993

<sup>16</sup> Colombia Ministerio de Ambiente y Desarrollo Sostenible, 2012



- **2015:** Decree 1076 included in the environmental offsets those from the mandatory investment of no less than 1%, setting the stage for habitat banks as a compensation mechanism in Colombia.
- **2016:** Decree 2099 formally recognised habitat banks, among other options, as a compensation mechanism for the mandatory 1% of investment due for projects requiring an environmental license and making direct use of water from natural sources, for the recovery, conservation, preservation, and monitoring of the watershed.
- **2017:** Resolution 1051 provided the regulations for habitat banks, setting the scope, conditions and requirements needed for establishing habitat banks in Colombia.<sup>17</sup>

The development of habitat banks has also been supported by the publication of relevant documents and guidance beyond the formal text of the legal statutes listed above that create detailed protocols for integrity principles, credit issuance processes, best practices and other guidance for both compensatory (offset) markets for, as well as a new parallel market for non-offset “voluntary” credits:

- The first operational manual for a habitat bank in Colombia<sup>18</sup>.
- The working paper on “Biodiversity Credit Systems”<sup>19</sup>.
- The “Analysis of desirable areas for the creation of habitat banks”<sup>20</sup>.
- The first “Protocol for the issuance of voluntary biodiversity credits”<sup>21</sup>.

Habitat banks in Colombia, in addition to the regulatory framework for environmental compensation, are closely linked to various national policies and plans aimed at ecosystem restoration and biodiversity conservation. These include the National Policy for Biodiversity Management (PNGIBSE), the Biodiversity Action Plan (PAB) 2016-2030, the National Restoration Plan, and the National Climate Change Policy, among others.

## 2.2. Development and operation of habitat banks

### Overall guidance

Resolution 1051 of 2017<sup>22</sup> represents a key document as it establishes how habitat banks operate in Colombia, outlining the conditions, applicability and administration of the system. As described in UNDP-BIOFIN’s 2024 publication “Bancos de Hábitat en Colombia: su evolución y su manejo contable y tributario”, the resolution defines:

#### 1. Conditions of a habitat bank:

- Additionality
- Complementarity
- Sustainability and permanence
- Performance-based payment
- Knowledge management

#### 2. Financing mechanisms:

- Investments from the public sector, private sector, and individuals
- International cooperation resources
- Mandatory investment resources of no less than 1% related to environmental license and/or environmental compensations

<sup>17</sup> [Colombia Ministerio de Ambiente y Desarrollo Sostenible, 2017](#)

<sup>18</sup> [Terrasos, 2016](#)

<sup>19</sup> [UNDP BIOFIN, 2020.](#)

<sup>20</sup> [Terrasos, 2021.](#)

<sup>21</sup> [Terrasos, 2022.](#)

<sup>22</sup> [Colombian Ministry of Environment 2017. Resolution 1051.](#)

**3. Legal applicability:**

- Individuals or legal entities that wish to create or operate a habitat bank
- Authorities responsible for the evaluation, approval, and monitoring of compensation
- Buyers of cupos or compliance credits:
  - Holders of compensation obligations and mandatory investments derived from the 1% who wish to compensate through habitat banks.
  - Individuals or legal entities interested in participating in a habitat bank when they are not holders of compensation obligations.

**4. The procedure and management:**

- Registration with the Directorate of Forests, Biodiversity, and Ecosystem Services of Minambiente (Ministry of Environment and Sustainable Development of Colombia)
- Submission of monitoring reports to the authorities every six months if no compensations are implemented in the habitat banks, and every 12 months if there are compensations.

**Requirements**

It should be noted that habitat banks established or to be established in the country must comply both with the conditions outlined above and the following constitutive elements for their registration:

1. Justification of the suitability of the selected area to achieve the expected results in terms of biodiversity and hydrological regulation, as well complementarity (with planning, environmental management, and conservation priority), as well as additionality.
2. Location, extent, and characteristics of the area, including the number of hectares.
3. Delimitation of the habitat banks in digital (GIS) format.
4. Characterization and baseline of physical and biotic components, as well as ecosystem identification, based on official national ecosystem maps.
5. Description of conservation objectives, including the area of restoration, conservation, and sustainable use.
6. Work plan that includes management and impact milestones that will be the basis of payments for success.
7. Monitoring plan specifying qualitative and quantitative indicators, and indicator species.
8. Certificate of ownership and title history of the linked properties (land plots).
9. Description of the legal structure authorizing the use of the property where the habitat bank will be established.
10. Description of financial mechanisms for the operation of the habitat bank.

**Registration of habitat banks**

When all the requirements listed above are met, the application is submitted to the relevant authority i.e. the Directorate of Forests, Biodiversity, and Ecosystem Services of Minambiente in this case. After the verification of the submitted information by the same authority, if the habitat bank is compliant with the regulation, it is registered in the Single Registry of Ecosystems and Environmental Areas (REAA – *Registro Único de Ecosistemas y Áreas Ambientales*) within 30 days. In case the information provided is not compliant with the regulations, the authority notifies the applicant of the reasons for rejecting the registration<sup>23</sup>. Once a habitat bank is recognised, it becomes eligible for use in environmental offsets. However, it is the environmental permittee with compensation obligations that has to notify the competent authority of its intention to utilize this mechanism for compensation purposes. Regulatory agencies will then make a separate assessment of whether the approved habitat bank can be used to provide biodiversity credits for the development project in question.

<sup>23</sup> PNUD-BIOFIN, 2024. [Bancos de Hábitat en Colombia: su evolución y su manejo contable y tributario.](#)



Other important aspects which regulate habitat banks are mentioned in the following list, as indicated in the UNDP BIOFIN report<sup>24</sup>:

- “When multiple obligations are grouped within the same habitat bank, there must be no overlap between them. Therefore, a biodiversity credit (*cupo*) can only be sold once, and the corresponding areas must allow for independent measurement of the compensation area to facilitate monitoring. Moreover, at no time is the environmental obligation of the holder transferred to the operators of the habitat bank.
- Habitat banks cannot be established on properties subject to judicial or administrative processes, such as those related to land restitution.
- The regulation establishes reporting and monitoring requirements according to the work plan and monitoring plan.
- By regulation, habitat banks are designed to operate under a pay-for-performance scheme.”

The “Compensation Manual of the Biotic Component” was updated in 2018<sup>25</sup> to provide technical guidelines and procedures for assigning compensation obligations related to natural terrestrial ecosystems and secondary vegetation. It covers compensations linked to environmental licensing, forest reserve reductions, and single-use natural forest exploitation. Key principles in the manual include no net loss, the mitigation hierarchy, and additionality. It also recognizes habitat banks as a mechanism for managing compensation plans, enabling the establishment of fiduciary trusts in collaboration with legal entities operating these banks. Compensations can be managed individually or pooled within the same habitat bank to maximize biodiversity benefits.

The 2018 Guide to Habitat Banks<sup>26</sup> is another key resource for implementing habitat banks, though it lacks binding authority. It outlines the requirements and operation of habitat banks, emphasizing the need for permanence, sustainability, and a minimum duration of 20 years. The guide highlights key steps for compensation through this mechanism, such as verifying the existence of the habitat bank, submitting compensation plans to the authorities, and setting up a pay-for-performance scheme. It also explains the benefits of habitat banks, including higher success rates for compensation measures, reduced transaction costs, economic opportunities for landowners, and enhanced environmental outcomes. Additionally, it details the roles and responsibilities of involved actors, as summarised in the following table.

<sup>24</sup> [PNUD-BIOFIN, 2024. Bancos de Hábitat en Colombia: su evolución y su manejo contable y tributario.](#)

<sup>25</sup> [Ministry of Environment needs to be changed to Ministry of Environment and Sustainable Development of Colombia.](#)

<sup>26</sup> [Ministry of Environment needs to be changed to Ministry of Environment and Sustainable Development of Colombia.](#)

**Table 2:** Roles and responsibilities in the context of habitat bank in Colombia, source: UNDP BIOFIN Colombia.

Actor	Role	Responsibilities
Ministry of Environment and Sustainable Development of Colombia	Regulates the habitat banks and the National Compensation Strategy	Establish guidelines for the development and implementation of the National Compensation Strategy and generate general guidelines for habitat banks.
Directorate of Forests, Biodiversity, and Ecosystem Services (Minambiente)	Registers and monitors habitat banks	Approve or reject habitat bank registration requests and monitor compliance with the goals set in the management plan.
Environmental Authorities	Authorize impacts and compensation measures, 1% investment, and lifting of prohibitions	Apply the methodology for biodiversity loss compensation and evaluate eligible compensation measures for habitat banks.
Project development companies	Generate the impact and have environmental requirements or obligations	Propose and implement compensation measures and submit respective reports, as part of environmental impact studies, compensation plans, and investment requirements.
Habitat bank managers	Individuals or legal entities that create or operate a habitat bank	Structure habitat banks, ensure compliance with habitat banks principles, and ensure their permanence through effective financial resource management.
Landowners, holders, or tenants	Contribute their land ownership rights as assets in the structure of the habitat bank	Facilitate the use and usufruct of the property and guarantee the permanence of the habitat bank through contractual agreements.
Third-party Verifiers	Verify the performance milestones of the habitat banks	Ensure compliance with the objectives set to develop the payment-for-performance scheme.



### 2.3. Current market for habitat banks in Colombia

As of August 2023, the number of habitat banks registered with the Ministry of Environment and Sustainable Development (Minambiente) of Colombia is 18, conserving and managing various ecosystems, primarily in the Andean zone, the Caribbean region, and the Orinoquía. Five operators have registered banks (Ecocarbono SAS ZOMAC, HC Asesorías, Terrasos, Poligrow, and Consorcio BH), with the majority (11) of the banks developed by Terrasos. Their duration is generally 20 or 30 years, with three of the banks at just 12 years, and the bank sizes range from circa 125 hectares to more than 1500. Finally, all but one of the banks were registered just in the last three years, with five in 2023, suggesting an increase in the pace and scale of development. A detailed overview of the registered habitat banks in Colombia is shown in Table 1.

Of these registered banks, to date, only four (all developed by Terrasos) have transacted cupos to be used as formal fulfilment of permit holders' compensatory obligations, though a single bank may transact with more than one permittee and through multiple transactions. Cupo prices vary according to the market context and contractual terms between buyer and seller but are roughly USD 10,000 per cupo (i.e. per hectare of operational and registered habitat bank). In terms of the total scale of the market, transactions to date total fewer than 20, with fewer than 10 total buyers. Collectively these transactions range from USD 5 to 10 million in total value<sup>27</sup>.

Prices are largely set by the market through negotiations between buyer and seller, though the presumed pricing dynamics of a mature market may be quite different than these early transactions. The availability of credits in the right geography, and the specifically defined sub-biome is default criterion for any transaction, and the supply is quite limited overall. However, potential buyers are not obligated to buy cupos from habitat banks as there are alternative routes to meeting compensatory obligations, and indeed, unfulfilled obligations may stay on permittees' books for years without resolution. Sellers at this early stage in the market are seeking to tap into existing and new demand but are offering a relatively new solution to the market, and actively try to sell cupos for compensatory use.

While available cupos may indeed appear in the REAA registry, their use in compensation must then be approved by ANLA, and this invokes another round of agency scrutiny separate from the bank approval and registration process. This staged process can be streamlined to increase the ease with which cupos can be transacted and improve the attractiveness of habitat banks as options for compensation.

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<sup>27</sup> Market scale Information from interviews with Terrasos staff.

**Table 1:** General characteristics of registered habitat banks in Colombia. Source: UNDP, BIOFIN, 2024

Year of Registration	Name	Operator	Area (ha)	Department	Duration (years)	Protected Ecosystems
2017	Del Meta	Terrasos	622.3	Meta	30	Natural forests and savannas of the Orinoquía
2021	El Globo	Terrasos	360.77	Antioquia	30	High Andean (cloud) forest
2021	Bosque Seco Tropical - Cañón del Río Cauca	Terrasos	132.67	Antioquia	30	Tropical dry forest
2021	Del Tolima	Ecocarbono SAS ZOMAC	456.17	Tolima	20	High Andean (cloud) forest
2021	La Lope	Terrasos	475.6	Cesar	30	Tropical dry forest
2021	Nueva Bethania	Terrasos	348.9	Cesar	30	Tropical dry forest
2022	El Tunal	HC Asesorías	368	Cundinamarca	12	High Andean Forest
2022	Servatilla	HC Asesorías	400	Tolima	12	High Andean Forest
2022	El Amparo	Terrasos	430	Casanare	30	Helobiome Altillanura and Peinobiome Altillanura
2022	Mesa de San Pedro	Terrasos	256	Casanare	30	Helobiome Casanare, Helobiome Piedemonte Orinoquia, Humid Tropical Zonobiome Casanare, Humid Tropical Zonobiome Piedemonte Orinoquia
2022	Aguadulce	Terrasos	124.76	Cundinamarca	30	Tropical dry forest
2022	2022 Santa Clara Tesorito	HC Asesorías	242.58	Tolima	12	High Andean Forest
2023	El Tigrillo	Terrasos	569.77	Meta	30	Riparian and gallery forest, natural savannas, shrublands, and flood-prone forests
2023	Poligrow	Poligrow	1564.13	Meta	20	Gallery forests and morichal
2023	Cañón río Sogamoso	Terrasos	600.52	Santander	30	Tropical dry forest
2023	Mata de Lata	Terrasos	710.35	César	30	Tropical dry forest
2023	Montes de Oca	ConsortioBH	226.57	La Guajira	30	Tropical dry forest, Andean Forest
<b>Total</b>			<b>7,889.09</b>			

**Note:** one additional bank registered more recently by Terrasos is not shown in this table.



The substantial increase in new habitat bank registrations since 2021 suggests growing interest in the mechanism, improving supply to meet the increasing demand for their use in environmental compensation processes. Likewise, the rise in registrations is accompanied by new players in the habitat bank market, including new landowners, project developers, and companies purchasing biodiversity credits through them.

## 2.4. Market potential of biodiversity credits in Colombia

Colombia is a pioneer in the development of both compliance and voluntary biodiversity credit markets and has significant opportunities to expand its supply, driven by its institutional progress and rich biological potential. Three factors suggest a robust market is possible despite the relatively early stage of development. Both established and new bank developers have the opportunity to engage with a latent demand potential of unexecuted obligations (for compensation) of existing environmental permittees. Expectations of economic growth – especially in key sectors that are likely to require compensation such as extractive industries and infrastructure development – suggest a further, and ongoing growth in demand.

Additionally, the approved Law 2327 (13 September 2023) is set to enhance financing for conservation efforts. This law defines environmental liabilities<sup>28</sup> and outlines guidelines for managing them. Key provisions include the establishment of an Environmental Liabilities Information System and the creation of a National Committee for Environmental Liabilities Management. The law mandates the implementation of public policy for comprehensive environmental liability management and the execution of specific intervention plans. This legal framework could drive the mobilization of resources from unexecuted environmental offsets, facilitated by the monitoring tools and systems and processes introduced by the law.

Colombia has key enabling conditions that support the implementation of biodiversity credits. First, institutional frameworks are in place that support a nationally regulated biodiversity credit market. While there is room for further improvements, these frameworks provide essential elements such as institutional structures and foundational requirements for building a high-integrity supply, primarily through habitat banks. Additionally, Colombia has a significant unmet demand for environmental offset processes, further supporting the potential for growth.

On the other hand, the voluntary biodiversity credit landscape can also have potential, as it is significantly influenced by the proliferation of standards that promote disclosure of information on nature-related risks and impacts and increased expectations among stakeholders on the environmental performance of global businesses. This trend may accelerate demand for voluntary credits, as companies seek investments that allow them to reliably communicate their positive impacts, in line with frameworks and standards such as the Taskforce on Nature-Related Financial Disclosures (TNFD), the Science-Based Targets for Nature (SBTN), Global Reporting Initiative (GRI) and International Sustainability Standards Board (ISSB). In addition, attracting international demand for credits stands as a valuable financing option, facilitating the transfer of resources from the global north to the global south, within the framework of common but differentiated responsibilities.

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<sup>28</sup> The law defines environmental liabilities as “Environmental impacts caused by anthropogenic activities, whether authorized or not, cumulative or not, susceptible to being measurable, locatable and geographically delimitable, which generate risk to life, human health or the environment, and for whose control there is no current environmental or sectoral instrument.” [Colombian Government, 2023, law 2327.](#)



## 3. Demand drivers and buyer-side program elements

### 3.1. Response to regulation

The core driver of demand for habitat bank credit, also known as “cupos”, originates with the sequence of legislation and formal guidance that have shaped the environmental permitting process. This began with Law 99 of 1993, which mandated environmental compensation, though it did not establish habitat banks as a formal mechanism to fulfil these obligations. It was not until the 2008 Compensation Manual of the Biotic Component that the frameworks necessary for the creation of a habitat bank market began to take form, supported by a series of subsequent resolutions and guidance aimed at setting standards and formalising the processes.

Despite the regulations, a significant number of compensations remains unexecuted, representing a financing potential of COP 2.17 trillion (approximately USD 520 million)<sup>29</sup>, according to estimates based on ANLA records (2023). The largest share of these obligations comes from the hydrocarbons sector (73.7%), followed by mining (16.6%) and infrastructure (7.8)<sup>30</sup>.

The primary driver of demand for biodiversity credits comes from economic activities requiring environmental permits for their operations (hydrocarbons, energy, mining, infrastructure, among others), particularly environmental licenses, forest exploitation permits, and production from forest reserves.

<sup>29</sup> Considering an exchange rate of COP 4182 for USD 1 (October 2024).

<sup>30</sup> PNUD-BIOFIN, 2024. [Bancos de Hábitat en Colombia: su evolución y su manejo contable y tributario.](#)



Permittees may be required both to seek compensation for the project itself, and the additional requirement of an investment of 1% of the project cost in the watershed (Decree 2099 of 2016). These two elements together create compensation needs which can be fulfilled with habitat banks as a mechanism, but other mechanisms are possible, including direct compensation, carried out directly by the user responsible for the compensation plan and conservation agreements with third parties (NGOs, organised communities, universities).

It is important to note that the credits through the habitat banks are defined on a hectare-by-hectare basis. Given that the economic development and, thus, the demand from the permittee is segmented by different geographies and sub-biomes, this situation may create a mismatch between the available supply and the needs of buyers or sellers in certain areas. The collective national market in Colombia can be viewed as a conglomeration of specific localized markets, between which transactions are not always feasible. While this seems a challenging dynamic for market participants, it ensures that the rich diversity of ecosystems and species in a megadiverse country like Colombia is adequately recognized and compensated.

### 3.2. Scale of demand

The combination of unfulfilled compensatory obligations, and the mandatory 1% investment rule cited above indicates a significant and growing demand for cupos to be used for compensation purposes. According to the financing potential analysis of biotic component compensations and the mandatory investment of no less than 1% in Colombia, using data from the National Environmental Licensing Authority (ANLA), the estimated financing potential for 2023 stands at approximately COP 2.3 trillion (approximately USD 550 million<sup>31</sup>). It should be noted that this figure approximates the financing potential and may vary depending on reports to the environmental authority, as well as records from the Regional Autonomous Corporations (CARs), which were not considered.<sup>32</sup>

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<sup>31</sup> Considering an exchange rate of COP 4182 for USD 1 (October 2024).

<sup>32</sup> [PNUD-BIOFIN. \(2024\). Bancos de Hábitat en Colombia: su evolución y su manejo contable y tributario.](#)



## 4. Supply and seller-side program elements

### 4.1. Equivalency standards and ecological context

Compliant purchases of bank credits are required to be ecologically equivalent to the areas impacted by the permittee, based on criteria such as the type of ecosystem, the structure, condition, composition, and species richness. This requirement ensures that the purchased offset compensates in a like-for-like manner, rather than relying on distantly produced credits that may be ecologically dissimilar. Although achieving 100% ecological equivalence is unattainable, the aim is to strategically align the impact of the permittee's project with the offset to ensure meaningful ecological compensation.

A distinctive feature of Colombia's equivalency framework is the one-to-one matching of compensatory obligation with the *cupo* that is used to compensate it, on a hectare-by-hectare basis. This implies that environmental permit holders may need to buy *cupos* from multiple banks, where available, to ensure each hectare to be compensated is matched with the ecologically appropriate *cupo* (or multiple *cupos*, accounting for compensation factors). When compensation plans are validated by ANLA—confirming the transfer of *cupos* from the bank operator to the buyer—the one-to-one correspondence is upheld.

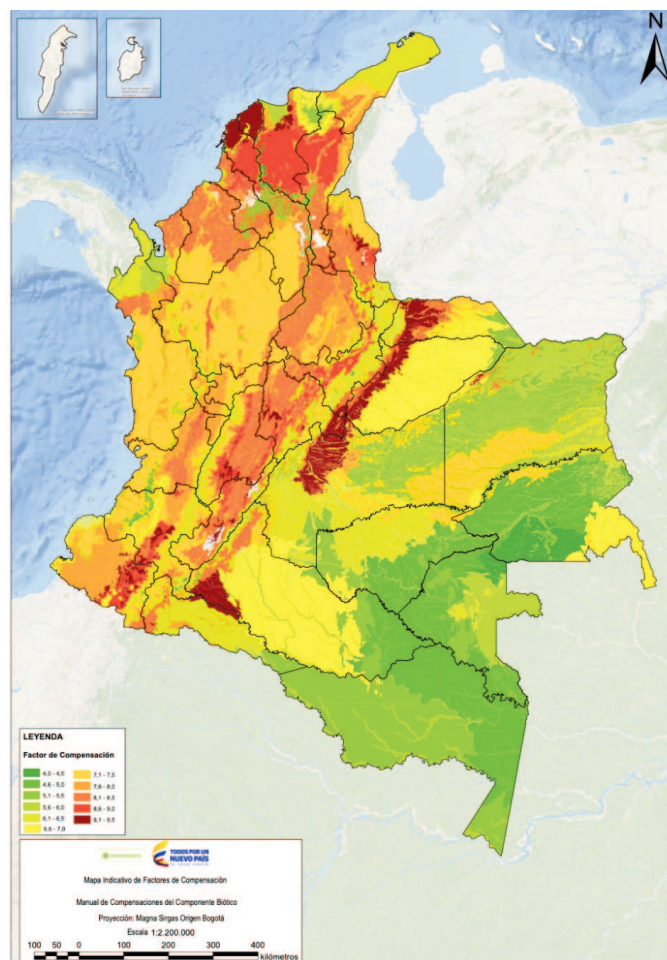
Anticipating this need for precise “matching,” habitat banks developers may seek to develop banks in areas and in biomes where demand is expected. In principle, site selection should respond to and anticipate demand as the market develops. Regions experiencing greater environmental impact require higher levels of compensation, and savvy bank operators will invest accordingly, which should direct investment precisely to those areas with greater impacts and higher compensation factors. And as the market matures, bank developers will invest and create positive biodiversity outcomes before impacts even occur.



## 4.2. Measurement and units

The calculation of the area requiring compensation (the obligation) is based on the impacted area and the “compensation factor,” which serves as a multiplier. This factor is composed of four criteria<sup>33</sup>: 1) representativeness in the national protected areas system (SINAP), 2) rarity of the ecosystem, 3) the remaining extent and, 4) the rate of annual change. These values across Colombia are pre-determined and made publicly available<sup>34</sup> by the Ministry of Environment and Sustainable Development of Colombia. They are based on detailed biome, succession stage (primary or secondary vegetation), and ecosystem-specific mapping. Although this approach does not explicitly influence pricing or other geographically variable incentive factors, it effectively places higher economic value on impacts on areas of higher ecological value. This may function as a de facto incentive to avoid or reduce impacts in areas with higher compensation requirements. The map below (Figure 1) shows how the compensation factors vary across the country, where departments with much less habitat conversion such as Amazonas and Vaupes in the Amazon basin are shown in green (compensation factors of between 4 and 5) while regions with both high rates of endemic biodiversity and more intense conversion pressure such as the eastern slope of the Andes appear in bright red (conversion factor of 8 – 9.5).

**Figure 1:** Map of compensation factors in Colombia. Source: Minambiente, 2021<sup>35</sup>



Habitat bank developers, in turn, base the number of credits (cupos) they can supply on a 1:1 ratio, corresponding to the number of hectares conserved, rehabilitated, or restored that have been technically, financially, and legally managed as a habitat bank. Each cupo is designated to a particular biome, with Colombia’s categorization of biomes extending to the sub-biome level.

<sup>33</sup> [Ministry of Environment and Sustainable Development of Colombia, 2018.](#)

<sup>34</sup> [Ministry of Environment and Sustainable Development of Colombia, 2018. Annex 2 of the Compensation Manual of the Biotic Component.](#)

<sup>35</sup> [Ministry of Environment and Sustainable Development of Colombia, 2021.](#)

It should be noted that parallel guidance has also been developed for production forest management, with its own criteria for compensation based on forest type, threatened tree species and other factors, as detailed in the *Manual de Compensaciones del Componente Biótico*<sup>36</sup>, first issued in 2012 by the Ministry of Environment and Sustainable Development of Colombia.

Once habitat banks are created, its developers are obligated to manage and monitor them based on key indicators at prescribed intervals. Chemical and physical aspects of the soil may be analyzed every five years, while composition and structural characteristics of vegetation such as species richness indices, population levels, vegetation developmental stage and biomass may be annually monitored.

### 4.3. Approval process for credit registry and use

Colombia's process for using habitat bank credits for compensation has two steps. As a first step, credits are approved by the Forests Directorate (*Dirección de Bosques*) at the Ministry of Environment and Sustainable Development (Minambiente) of Colombia through evaluation of the core criteria for operating a habitat bank,<sup>37</sup> and once approved, are listed in the Single Registry of Ecosystems and Environmental Areas (REAA).

As a second step, to carry out the sale of a credit (*cupo*) and fulfil a buyer's compensatory obligation, there is an additional approval process through the National Environmental Licensing Authority (ANLA). Only after ANLA's approval of the use of credits in a formal Compensation Plan (*Plan de Compensación*), *cupos* can be used in compensation.

While a bank may be registered in the REAA, this does not guarantee that *cupos* will be approved for use in a specific compensation plan, as they may later be deemed non-compliant despite initially meeting the required criteria. Additionally, even when a *cupo* is approved, the obligation is not fully transferred. According to Minambiente's 2018 guidance, the original holder remains responsible for submitting the compensation plan and environmental compliance reports. In Colombia, buyers retain certain responsibilities beyond the transaction with the habitat bank operator. This contrasts with a few other countries where the responsibility and liability for compensation are transferred from the credit buyer to the seller.

### 4.4. Investment drivers and sources of capital

With the market in the early years of development, it may be difficult to draw conclusions beyond the individual circumstances of the few dominant market players involved.

A key supplier of registered habitat banks, Terrasos, used a combination of philanthropic capital, equity, and concessional loans to raise capital, which was then deployed through formal grant making processes to support early pilot projects and build supply in this emerging market. According to the Inter-American Development Bank:

*“Concessional financing and patient capital were critical for Terrasos to address the early- stage risks of establishing a habitat bank. The MIF [Multilateral Investment Fund] seeded the Meta habitat bank with an equity investment of US\$760,000 through a special purpose vehicle with Terrasos. With these resources and a supplementary private fund of US\$999,000, in December 2016, Terrasos launched a pilot project to explore the potential of this innovative financial mechanism.”<sup>38</sup>*

<sup>36</sup> [Colombian Ministry of Environment, 2018.](#)

<sup>37</sup> [Ministry of Environment and Sustainable Development of Colombia, 2017. Resolution 1051 of 2017.](#)

<sup>38</sup> [Inter-American Development Bank, 2021, Impact Investment for Biodiversity Conservation Cases from Latin America and the Caribbean.](#)

Institutional investors, due to their regulated mandate, tend not to invest in nascent markets. Therefore, concessional and blended capital is assessed to be the right avenue of financing to focus on at this stage. The national and multilateral banks could play a pivotal role in this process.

As the investors, including concessional investors, do seek certain levels of certainty in terms of cash flows, the investment horizon going forward is likely to be further shaped by the strengthening of the policy framework.

#### **4.5. Analysis of current undersupply in Colombia**

A few obstacles to the offset market to meet the demand have been identified. These include the scarcity of suitable areas for projects, the lack of organizations offering a reliable portfolio of compensation projects, and challenges in the approval, monitoring, and completion of projects due to the complexity of demonstrating ecological results. These barriers have resulted in an inefficient process for compensating biodiversity losses, leaving more than 1,000 compensation obligations unmet, which represents more than 62,000 hectares.

To a large degree, the undersupply may be considered the result of a new market in the early stages of development, with a relatively low baseline of capacity, lack of established business cases for biodiversity conservation, limited experience with the relevant policy framework across stakeholder groups, limited interest of investors, and other characteristics typical of a new and unfamiliar business and regulatory process. A small group of project developers hold a significant share of the supply. This may likely be attributed to their success in securing capital, managing risks, and extensive knowledge of the relevant policy framework. With time, however, capacity may be more widely available as more interested parties join the market. The relatively small base of industry capacity to expand supply is mirrored by the limited institutional capacity of government agencies to provide support services. While “government support” is sometimes interpreted as formal financial support (grants, subsidies etc), the key lever for success might be better understood as the need to further strengthen government capacity to administer, approve, regulate, and facilitate a high integrity market with robust investment and growth in supply and transactions.

Other factors at play include the difficulty in finding potential habitat banks that would be a) feasible to serve as a baseline for compliance, including the appropriate biome and geography to match supply with demand, b) of sufficient contiguous size and accessibility i.e. not requiring the acquisition or contractual agreement of several small landholdings, and c) free of complex land tenure issues, among others.





## 5. Additional guidance, policy frameworks, and administrative elements

### 5.1. Habitat banks in territorios colectivos

Colombia has a diversity of Indigenous Peoples and local communities. In Colombia “legally recognised territories, whose ownership rests in the hands of Indigenous Peoples, black and peasant communities, cover 33.6% of the country’s land surface”<sup>39</sup>. Indigenous Peoples and local communities also protect 53% of the country’s natural forests<sup>40</sup>.

*Territorios Colectivos* or Collective territories, which include Indigenous Peoples’ territories, Afro-Colombian, and Campesino lands, are characterised by a great biological diversity and include, among others, important areas of moorland, wetlands and natural forest cover<sup>41</sup>. The establishment of habitat banks in collective territories can contribute to attract private capital for the conservation and management of these territories, through the collaboration with and participation of Indigenous Peoples and local communities in the development of projects for biodiversity credit markets, recognising the critical role of Indigenous Peoples and local communities in preserving biodiversity<sup>42</sup>.

The structuring of habitat banks in collective territories requires adjustments to the protocols on habitat banks due to the unique nature of these territories. These lands are collectively owned, governed by multilevel governance systems, and legally protected from being sold, seized, or transferred. To implement habitat banks in these areas, it is essential to establish the framework that ensure the land is dedicated to conservation in line with Indigenous Peoples and local communities’ practices and customs. Identifying key stakeholders, including marginalized groups, and ensuring their full and inclusive participation in governance processes is crucial.

<sup>39</sup> Mosquera, S. L., Tapia, C., & Tamayo, E., 2016. Collective territories and biodiversity. In *Biodiversidad 2015: Estado y Tendencias de la Biodiversidad Continental de Colombia*. Alexander von Humboldt Institute.

<sup>40</sup> IDEAM, & Ministry of Environment and Sustainable Development, 2022. *Update of monitoring figures of forest area and deforestation - Year 2021*.

<sup>41</sup> PNUD-BIOFIN (2024). Lineamientos para el establecimiento de Bancos de Hábitat en territorios colectivos en Colombia.

<sup>42</sup> Biodiversity Credit Alliance, 2023. *Communities and Nature Markets: Building just partnerships in Biodiversity Credits (Discussion Paper)*.

Effective safeguards must be implemented to ensure a successful development of biodiversity credit markets in Colombia<sup>43</sup>. Effective safeguards ensure that the development of projects in collective territories does not generate adverse consequences for Indigenous People and local communities and the nature they protect. At the same time, safeguards strengthen the full and inclusive participation of key stakeholders, including marginalized groups, in all stages of the project, including them as partners in the design of habitat bank.

Biodiversity market developers such as investors, operators, companies, government and organisations should adopt a “do no harm” approach, committing to safeguarding all rights of Indigenous Peoples and local communities, as set out in international human rights and environmental law. To achieve this, it is vital that these actors implement proactive measures to ensure that biodiversity-related systems, regulations and initiatives recognise, protect, identify and comprehensively respect all human rights enshrined in international law and jurisprudence<sup>44</sup>.

## 5.2. Credit tracking, monitoring and enforcement mechanisms

Approved habitat banks are recorded in the Single Registry of Ecosystems and Environmental Areas (REAA), which allows permittees seeking compensatory credits to search by geography and biome to review the availability of appropriate credits for sale that meet the compensatory requirements of their obligations. The current supply of credits and the geographic and biome coverage have been limited, which has resulted in fewer leads for credit purchases. However, as supply grows, this is expected to improve significantly. Banks are required<sup>45</sup> to track the remaining unsold credits that may still be used for compensation through the life of the bank, to avoid double counting and ensure transparency and traceability. While concerns of double counting are common in environmental crediting systems (especially in carbon markets), the Colombian market remains relatively small, and credit tracking and enforcement have not been mentioned as a concern. However, as the market expands, the tracking and enforcement mechanism would require further strengthening.

Current regulation includes reporting and monitoring requirements according to the work plan and monitoring plan for each bank. For banks without already-implemented environmental offsets (i.e. credits sold for compensation), monitoring and follow-up reports must be submitted to the competent authority every six months. For those that do implement offsets, the report must be submitted every 12 months. Additionally, habitat banks are required to report monitoring results to the National Biodiversity System (SIB) as part of the Environmental Information System of Colombia (SIAC).

## 5.3. Development of the voluntary market in Colombia

The Voluntary Biodiversity Credits (VBC) market, although at a nascent stage, offers an option and potential opportunity to advance biodiversity conservation in Colombia. In this market, biodiversity credits represent contributions or investments made by entities or individuals to preserve and restore biodiversity within specific landscapes. In the voluntary market, these credits do not fulfil any legal requirements, as opposed to the mandatory markets<sup>46</sup>.

<sup>43</sup> PNUD-BIOFIN, 2024. Lineamientos para el establecimiento de Bancos de Hábitat en territorios colectivos en Colombia.

<sup>44</sup> PNUD-BIOFIN, 2024. Lineamientos para el establecimiento de Bancos de Hábitat en territorios colectivos en Colombia.

<sup>45</sup> [Ministry of Environment and Sustainable Development of Colombia, 2018.](#)

<sup>46</sup> [Taskforce on Nature Markets, & Nature Finance, 2023. The Future of Biodiversity Credit Markets.](#)

There is no mutually agreed approach or method to quantify VBC and different organisations, including in Colombia, have developed their own standards and protocols that quantify VBC. For instance, Terrasos quantifies a voluntary biodiversity credit (VBC) as “a transactional unit representing at least approximately 10m<sup>2</sup><sup>47</sup> of a preserved and/or restored ecosystem that is technically, financially and legally managed by the project developer to achieve quantifiable biodiversity outcomes”. A few other organisations such as Savimbo and Cercarbono have developed their own protocols and several others such as Biocarbon Registry, South Pole, Wallacea Trust, HC Consultants, and ConsorcioBH are in the process of development. Many of these protocols align with high-integrity principles being developed by reputable governing organisations such as Biodiversity Credits Alliance. These credits are managed by the project developer usually for a minimum of 20 years, ensuring the quality, functionality, and conservation of habitats and ecosystem services.

Within the context of VBC, the Colombian biodiversity credit market has one habitat bank project registered - the “El Globo” Habitat Bank located in Tamesis, Antioquia. The market had its first issue of 62,063 voluntary VBCs in the second half of 2022. Since then, 1072 VBCs have been sold at an average price of USD 30 per credit, indicating a sales volume of approximately USD 32,000. Most transactions were the purchase of a single credit, with isolated purchases of between 10 to 15 credits<sup>48</sup>.

As described in UNDP BIOFIN Colombia report<sup>49</sup> and according to the Biotrust register, biodiversity credits in Colombia have been purchased primarily by individuals and small to medium-sized enterprises (SMEs), with no significant investments yet from large companies or philanthropies. International buyers, particularly from Spain, the United States, and Andorra, are notable contributors, facilitated by digital marketplaces that make it easier for people outside Colombia to support biodiversity conservation.

Colombia’s biodiversity credit market could benefit from stronger regulatory frameworks, particularly in terms of reducing the risks of double counting between the voluntary and compensation market. The voluntary market in Colombia will also benefit from improved requirements around transparency and disclosure.

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<sup>47</sup> While compliance credits represent an entire hectare, these voluntary credits represent an area of 10 m<sup>2</sup> of ecosystem protected for 30 years.

<sup>48</sup> [PNUD-BIOFIN, 2024. Estado del mercado de créditos de biodiversidad voluntario colombiano y propuestas para su desarrollo.](#)

<sup>49</sup> [PNUD-BIOFIN, 2024. Estado del mercado de créditos de biodiversidad voluntario colombiano y propuestas para su desarrollo.](#)





## 6. Lessons learned and replicability of the Colombian experience with habitat banks

### 6.1. A review of challenges in the early years of implementation, and what has improved

Like in other countries, the early development of habitat banks in Colombia faced several challenges due to the newness of the market and its supporting tools and policies. Many participants lacked experience, and the evolving and further strengthening of regulations, although critically important, added complexities. Building capacity and piloting projects in a collaborative manner could address these gaps, which are expected and have been encountered in almost country that has taken this path.

The laws have set a strong foundation for habitat banks. Principles like additionality are key pillars but further specifics and guidance could be developed to ensure consistent application of such principles. Resources, both technical and human, and processes within regulatory agencies could be further strengthened and streamlined to ensure timely review and approval of the habitat banks. This would further enhance the integrity and efficiency of the market, which could be considered a necessary condition for growth.

Another major challenge has been the perception of risk by both habitat bank developers and potential buyers. The lack of understanding on the regulatory framework has been seen as a risk, potentially limiting the supply of saleable credits (*cupos*). Permittees required to meet compensatory obligations have been hesitant to embrace habitat banks, often perceiving other options as more clear or lower risk. Even when trust is established between bank operators and buyers, concerns about the lack of clarity remains. However, as with any emerging market, the ability to learn, build capacity and strengthen guidance will be critical to building trust, ensuring market integrity, and achieving scale over time.

## 6.2. Level of Indigenous Peoples participation in the program

Through the regulatory framework, Colombia has taken significant steps to encourage the equitable participation of people living in “collective territories” in biodiversity credit markets. As the market is in its infancy, not enough data is available to make an informed assessment on the extent to which Indigenous Peoples, Afro-Colombian communities and other groups are included, in practice, in the design, development, governance and management of a project to create a bank. Based on the interviews with leading protocol and project developers, they have made agreements with Afro-Colombian communities in a project in the Pacific Coast Chocó region and with Indigenous Peoples in another project. However, limited information is publicly available on the governance of these projects or on the safeguards that have been deployed. These projects have not yet been registered in the REAA. As further projects are developed, more specific and targeted guidance may be required for effective inclusion of “collective territories”.

## 6.3. Ongoing political and policy debates and concerns

Colombia’s Ministry of Environment and Sustainable Development is currently updating the resolution related to habitat banks, and likewise, the *Compensation Manual of the Biotic Component*, which influence how habitat bank credits are used as one of the viable options for meeting compliance obligations.

In some cases, development of supporting guidance can further enhance the integrity of the market. One such case is that of additionality. The question of how the additionality of habitat banks is evaluated is an area of policy development of central importance to the regulatory structure of habitat bank development, and the applicability of cupos as compliant compensatory credits. While additionality as a concept is an explicitly required criterion for registered banks, the interpretation of additionality across a range of factors, including ecological factors, varies among key stakeholders. As such, a habitat bank may encounter difficulty seeking approval when creating biodiversity uplift on a site that is otherwise partially forested, or in early stages of succession.

Related to additionality, differences and preferences for restoration or preservation may require further guidance and development, just as they continue to be debated in international conversations. The question of how preservation can be evaluated and what should be acceptable as additional when considering evidence of ecological stress factors or threats requires further development.

## 6.4. Recommendations for replicability

Colombia’s experience with habitat banks can serve as an example for other countries looking to design and implement a similar framework. While each country’s context is different and there are areas for improvement, there are also valuable lessons to be learned from Colombia’s approach that other countries and stakeholders could consider and learn from.

- **State support for the mechanism:** Countries aiming to establish habitat banks would benefit from active involvement by state entities to create a reliable mechanism that delivers positive outcomes for biodiversity and supports a robust market. Governments can play a key role in building the supply of habitat banks by launching support programs that facilitate the structuring of new banks. Investment in socializing the existing policy framework, building capacity for the operational and regulatory requirements of bank development and building government capacity to efficiently review bank registration and compensation plans would be beneficial. This approach could accelerate the creation of habitat banks and ensure a healthy supply for both mandatory and voluntary biodiversity markets. Simultaneously, the state can ensure that the market operates efficiently and sustainably by meeting demand for environmental compensations, by simplifying regulatory frameworks and by providing incentives and support for their implementation. Furthermore, the involvement of regional and local environmental authorities is essential to build capacities at all levels for effective management and implementation.



- **Role of government finance:** In some cases, direct financing of pilot and “proof-of-concept” projects can be instrumental in demonstrating the viability of habitat banks in entirely new markets. Given that investor capital is often cautious about engaging in an unproven market, such funding could be pivotal to test the market and attract future investment. Once governance agreements and monitoring, reporting, and verification mechanisms are in place, these subsidized projects paired with capacity-building efforts can help the market scale the supply of high-integrity credit projects. This step is essential to attract more market participants and enhance competition within the sector. However, subsidies and non-return-oriented financing arrangements should be phased out as soon as possible as the market grows to avoid undercutting competitors in the market with projects priced too low, or otherwise not including all costs due to the subsidies. The ultimate goal is a level playing field for those companies seeking to supply the market, and buyers paying a fair price reflecting the full cost of compensation, as covering this “true” cost is itself a key disincentive to create ecological damage in the first place via the mitigation hierarchy.
- **Policy harmonization and facilitation:** Market participants often face a steep learning curve to familiarize themselves with regulations and norms to build supply and complete transactions. Cohesive policies, transparent and harmonized rules, predictable and efficient approval processes – these can often mean the difference between a vigorous and growing market and a stagnant and risky market. Both habitat bank developers and biodiversity credit buyers need clear and specific criteria for approval, with the expectation that agencies involved share a common vision for the market’s development. While agencies should uphold the highest standard of integrity for projects under their review, they may also take a more collaborative role. By communicating their preferences and guiding market participants, regulatory bodies can help facilitate the smooth functioning of the market, rather than acting solely as gatekeepers or obstacles that slow down the progress.
- **Legal provisions and clarity of habitat bank conditions:** To ensure the effective implementation of habitat banks in other countries, clear legal provisions and conditions are essential, especially on key elements. First, it is important for regulations to clearly define key terms such as “biodiversity credit” or “quota” and to establish a transparent tracking system to prevent issues like double counting or overlapping environmental compensations, which can undermine market integrity. Additionally, a minimum duration for habitat banks should be specified to uphold the permanence of biodiversity uplift and ensure the long-term preservation of biodiversity. International norms recommend a duration of 30 years, with a minimum of 20 years, to prevent incentives that could jeopardize the quality and reliability of the mechanism. Furthermore, compensation outcomes should be linked to the habitat bank’s registration date, ensuring that environmental compensations adhere to the principles of pay-for-performance and additionality, and demonstrate measurable biodiversity gains.
- **Engagement with Indigenous Peoples and local communities:** The establishment of an equitable compensation mechanism for Indigenous Peoples and local communities engaged in conservation is essential to ensure their active partnership in habitat bank projects. This approach will enhance their participation and commitment to long-term conservation, contributing to the success of the mechanism. Furthermore, these initiatives offer opportunities for economic development and returns within their territories. It is vital to apply social and environmental safeguards, treating Indigenous Peoples as equal partners with full autonomy over their territories and rights to fair profit distribution, rather than merely as beneficiaries of assistance programs.



- **Transparency and traceability of habitat bank credits and compensation obligations:** To enhance the effectiveness of habitat banks, transparency and traceability of their development and management are crucial. Open access to information would significantly increase the visibility of habitat banks as both a compensation and biodiversity financing mechanism and ensure accountability. An accessible and easy to use public registry should provide detailed information on habitat banks: commitments in management plans, conservation milestones, biodiversity credits available for sale (regulatory offsets or voluntary credits), as well as credits already sold. Where appropriate, registries may also track potential outstanding obligations of environmental compensation (potential demand). Additionally, information from registration documents and follow-up reports should be made publicly accessible, thereby increasing trust in the mechanism.
- **Developing and strengthening the capacity for reviewing, monitoring, and tracking** the technical, financial, and legal aspects of habitat banks is equally important. Cost-efficient monitoring, verification, and reporting protocols are essential for biodiversity impact, but here too, transparency enables stakeholders to rigorously verify and document conservation outcomes. In tandem, regulatory authorities need to build the capacity of their evaluation teams to ensure that habitat banks make positive contributions to biodiversity and that processes are optimized for greater cost-efficiency in conservation actions. Furthermore, designing a monitoring mechanism that tracks and reports aggregated compensations would be beneficial, particularly for projects involving multiple ecosystems, such as linear infrastructure developments that require compensatory actions in different areas. These data should be made available in a publicly available database as stressed above.
- **Creating incentives for landowners suitable for habitat bank development:** The long-term commitments necessary for habitat bank projects often encounter resistance from landowners. To address this, offering tax incentives—such as freezing or reducing property taxes for the duration of the project—could encourage landowners to dedicate their land to long-term conservation initiatives.
- **Promoting the development and regulation of the voluntary biodiversity market:** The voluntary biodiversity credits market presents a significant opportunity to finance positive environmental contributions. Countries should take early action to regulate and promote the development of this market in a comprehensive and integrated manner. Voluntary biodiversity markets can complement existing compensation mechanisms by addressing long-term conservation needs, particularly in ecosystems that may not attract compliance market interests. Governments should consider aligning voluntary actions with corporate social responsibility initiatives, compliance with sustainability standards, philanthropy, and other incentives for both national and international stakeholders.

# Annex

## Key features of US habitat banking

- **One of the core strengths of bank credits in the US is their efficiency as the fastest path to effective, high integrity, and low friction compliance with compensation mandates.** In the US this advantage is also formally supported by policy through a mitigation preference hierarchy, where bank credits are encouraged before other compliance pathways are considered. This speeds the path towards compliance and bolsters the functioning of the market. Approval processes for banks are unified, and carried out with transparent and consistent criteria, and once approved, bank credits are understood to be fully compatible with meeting a compliance obligation, and their purchase are as retail as possible.
- **US market structures transactions such that liability (for compensation, and ongoing management and performance of a compensation site) is itself transferred as part of the transaction.** Such an approach strengthens the market appeal of bank credits and focuses long term monitoring and performance enforcement on those best able to carry those tasks out – bank operators.
- **A robust and growing market allows developers to effectively match investment to demand.** This focuses investment where it is needed most and creates biodiversity uplift before impact even occurs. Bank developers in the US have learned how to carefully screen potential bank sites to anticipate demand. Because areas under greater threat require more compensation, investment is focused in those areas, and if banks can get a head start on demand, the net gain in restored and preserved habitat creates a virtuous cycle.
- **Confidence in market size and future growth can trigger larger scale private investment.** The US market experimented with multiple pathways for compliance, but only after achieving a significant scale and predictability of demand did it start to attract investment in reaching the scale of USD 100's of millions. For example, earlier this year, Quebec's pension fund CDPQ made an equity investment in a US-based Westervelt Ecological Services (WES)<sup>50</sup> and a group of Danish investment funds invested in Ecosystem Investment Partners (EIP)<sup>51</sup>.
- **Credit buyers include both the private sector and government entities.** Irrespective of the project owner, i.e. whether a private sector owner doing housing development or the government constructing highways, compensation credits are required. There are some advantageous synergies when the government itself must operate within the same market constraints as private buyers.

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<sup>50</sup> Caisse de dépôt et placement du Québec (CDPQ), <https://www.cdpq.com/en/news/pressreleases/cdpq-invests-westervelt-ecological-services-leader-habitat-restoration-long-term>

<sup>51</sup> <https://www.europeanpensions.net/ep/Danish-pension-funds-invest-USD-160m-in-US-nature-and-biodiversity-fund.php#:~:text=Three%20Danish%20pension%20funds%20have,into%20Ecosystem%20Investment%20Partners%20V.>



## Glossary

**Adaptation**, adjustment in natural or human systems to a new or changing environment that exploits beneficial opportunities or moderates negative effects.<sup>52</sup>

**Afforestation** is the establishment of the forest through planting and/or deliberate seeding on land that, until then, was under a different land use, it implies a transformation of land use from non-forest to forest.<sup>53</sup>

**Ambient environment**, non-resource environmental factors that modify the availability of resources or the ability of organisms to acquire them.<sup>54</sup>

**Assets**, a present economic resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity.<sup>55</sup>

**Beyond value chain mitigation**, mitigation action or investments that fall outside a company's value chain, including activities that avoid or reduce Greenhouse Gas (GHG) emissions, or remove and store GHGs from the atmosphere.<sup>56</sup>

**Biobanking (habitat/species)**, measurable conservation outcome resulting from an exchange system (or market) where offset credits can be accumulated and sold to developers to compensate for their species or habitat impacts. Credits are tradable units of exchange defined by the ecological value associated with intentional changes or management of a natural habitat. Biobanking includes habitat banking and species banking and is usually focused on endangered habitats and species. Biobanking shares certain features with tradable permit schemes whereby an objective of no net loss of biodiversity is established and provides developers with flexibility to determine either to invest in their own compensation or offset or to purchase a credit that has been developed by others (environmental banks).<sup>57</sup>

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<sup>52</sup> [TNFD Glossary, V2.0 June 2024](#), adapted from Fourth National Climate Assessment Glossary

<sup>53</sup> [TNFD Glossary, V2.0 June 2024](#), from FAO, On Definitions of Forest and Forest Change (2020)

<sup>54</sup> [Global Ecosystem Topology \(IUCN\)](#), Glossary of selected terms

<sup>55</sup> [TNFD Glossary, V2.0 June 2024](#), from International Financial Reporting Standard, Conceptual Framework: Elements of Financial Statements – Definitions and Recognition (2015)

<sup>56</sup> [TNFD Glossary, V2.0 June 2024](#), from SBTi Beyond value chain mitigation

<sup>57</sup> UNDP BIOFIN, [Catalogue of Finance Solutions](#)



**Biodiversity credits:** A biodiversity credit is a certificate that represents a measured and evidence-based unit of positive biodiversity outcome that is durable and additional to what would have otherwise occurred. In relation to this, a positive biodiversity outcome is an improvement in measures of biodiversity, a reduction in threats to biodiversity, or prevention of an anticipated decline in measures of biodiversity (BCA, 2024).<sup>58</sup>

**Biodiversity offsets** are measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure and ecosystem function and people's use and cultural values associated with biodiversity.<sup>59</sup>

**Biodiversity quota (cupo):** this is the tradable unit of biodiversity in the Colombian mandatory market, and represents 1 hectare of a conserved, rehabilitated or restored ecosystem that has been technically, financially and legally managed by the Habitat Bank.<sup>60</sup>

**Biological diversity / Biodiversity** means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.<sup>61</sup>

**Biomass**, material of biological origin, excluding material embedded in geological formations and material transformed to fossilised material. Biomass includes organic material (both living and dead), such as trees, crops, grasses, tree litter, algae, animals, manure and waste of biological origin.<sup>62</sup>

**Biome**, global-scale zones, generally defined by the type of plant life that they support in response to average rainfall and temperature patterns e.g. tundra, coral reefs, or savannas.<sup>63</sup>

**Biotope** is as a well-defined geographical area, characterised by specific ecological conditions (soil, climate, etc.), which physically supports the organisms that live there (biocoenosis).<sup>64</sup>

**Capital flow and financing**, access to capital markets, improved financing terms or financial products connected to the management of nature-related dependencies, impacts, risks, and opportunities.<sup>65</sup>

**Catchment management agency** is a national or regional government agency that has the authority to make decisions on the allocation of water. This includes catchment management authorities, water resource management agencies, and catchment municipality councils.<sup>66</sup>

**Certification programme** provides procured volumes of a product with an official document attesting to a status or level of achievement against a certain standard.<sup>67</sup>

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<sup>58</sup> [Biodiversity Credit Alliance: Glossary of terms](#), Definition of a biodiversity credit, issue n.3

<sup>59</sup> [TNFD Glossary, V2.0 June 2024](#), from Business and Biodiversity Offsets Programme (2012) Glossary, 2nd Updated Edition, CDP (2022) Forests Reporting Guidance, European Commission (2023) Directive 2022/2464 (CSRD)

<sup>60</sup> [Government of Colombia, Bancos de Hábitat, Mecanismo para la implementación de compensaciones bióticas](#)

<sup>61</sup> [The Convention on Biological Diversity](#), Article 2. Use of Terms,

<sup>62</sup> [TNFD Glossary, V2.0 June 2024](#), from ISO ISO 14021:2016 (2016)

<sup>63</sup> [TNFD Glossary, V2.0 June 2024](#), from Keith A. et al. (2020) IUCN Global Ecosystem Typology 2.0 (2020)

<sup>64</sup> [TNFD Glossary, V2.0 June 2024](#), from European Environment Agency, EEA Glossary

<sup>65</sup> [TNFD Glossary, V2.0 June 2024](#)

<sup>66</sup> [TNFD Glossary, V2.0 June 2024](#), adapted from Meissner, R., Stuart-Hill, S., Nakhooda, Z., The Establishment of Catchment Management Agencies in South Africa (2017)

<sup>67</sup> [TNFD Glossary, V2.0 June 2024](#), adapted from CDP (2022) Forests Reporting Guidance



**Conservation**, an action taken to promote the persistence of ecosystems and biodiversity.<sup>68</sup>

**Conservation easements**, a voluntary and legally-binding agreement, similar to a deed restriction, that permanently limits a property's uses in order to protect conservation values and achieve conservation goals.<sup>69</sup>

**Conversion** is a change of a natural ecosystem to another land use or profound change in a natural ecosystem's species composition, structure, or function. Deforestation is one form of conversion (conversion of natural forests). Conversion includes severe degradation or the introduction of management practices that result in substantial and sustained change in the ecosystem's former species composition, structure, or function. Change to natural ecosystems that meets this definition is considered to be conversion regardless of whether or not it is legal.<sup>70</sup>

**Critical habitat** is any area of the planet with high biodiversity conservation significance, based on the existence of habitat of significant importance to critically endangered or endangered species, restricted range or endemic species, globally significant concentrations of migratory and/or congregatory species, highly threatened and/or unique ecosystems and key evolutionary processes.<sup>71</sup>

**Debt-for-nature swaps**, through debt restructuring agreements, governments are able to write off a proportion of their foreign held debt. The savings accrued will be channelled into domestic conservation initiatives and climate adaptation programmes. This often entails the establishment of a Conservation Trust Fund to channel the funds. Debt-for-nature swaps can target both official and commercial lending, with the former being the most common scheme.<sup>72</sup>

**Deforestation** is the loss of natural forest as a result of: (i) conversion to agriculture or other non-forest land use; (ii) conversion to a tree plantation; or (iii) severe and sustained degradation.<sup>73</sup>

**Degradation** are changes within a natural ecosystem that significantly and negatively affect its species composition, structure, and/or function and reduce the ecosystem's capacity to supply products, support biodiversity, and/or deliver ecosystem services. Degradation may be considered conversion if it: is large-scale and progressive or enduring; alters ecosystem composition, structure, and function to the extent that regeneration to a previous state is unlikely; or leads to a change in land use (e.g., to agriculture or other use that is not a natural forest or other natural ecosystem).<sup>74</sup>

**Dependencies (on nature)** are aspects of environmental assets and ecosystem services that a person or an organisation relies on to function. A company's business model, for example, may be dependent on the ecosystem services of water flow, water quality regulation and the regulation of hazards like fires and floods; provision of suitable habitat for pollinators, who in turn provide a service directly to economies; and carbon sequestration.<sup>75</sup>

Double materiality has two dimensions, namely: impact materiality and financial materiality.<sup>76</sup>

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<sup>68</sup> [TNFD Glossary, V2.0 June 2024](#), adapted from Levin, S. A. ed., The Princeton Guide to Ecology Princeton (2009)

<sup>69</sup> [TNFD Glossary, V2.0 June 2024](#), from IPBES (2018)

<sup>70</sup> [TNFD Glossary, V2.0 June 2024](#), from Accountability Framework initiative, Terms and Definitions (2020)

<sup>71</sup> [TNFD Glossary, V2.0 June 2024](#), from International Finance Corporation, Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources (2012)

<sup>72</sup> UNDP BIOFIN, [Catalogue of Finance Solutions](#)

<sup>73</sup> Shortened from [TNFD Glossary, V2.0 June 2024](#), from Accountability Framework initiative (Afi), Terms and Definitions (2024)

<sup>74</sup> [TNFD Glossary, V2.0 June 2024](#), from Accountability Framework initiative, Terms and Definitions (2020)

<sup>75</sup> [TNFD Glossary, V2.0 June 2024](#), adapted from Science Based Targets Network, SBTN Glossary of Terms (2023)

<sup>76</sup> [TNFD Glossary, V2.0 June 2024](#), from European Commission, Directive 2022/2464 (CSRD) (2023)

**Downstream** are all activities that are linked to the sale of products and services produced by the company. This includes the use and re-use of the product and its end of life, including recovery, recycling, and final disposal.<sup>77</sup>

**Drivers of nature change**, all external factors that affect nature, anthropogenic assets, nature's contributions to people and good quality of life. They include institutions and governance systems and other indirect and direct drivers (both natural and anthropogenic).<sup>78</sup>

**Ecological corridor**, a clearly defined geographical space that is governed and managed over the long term to maintain or restore effective ecological connectivity. The following terms are often used similarly: 'linkages,' 'safe passages', 'ecological connectivity areas', 'ecological connectivity zones', and 'permeability areas'.<sup>79</sup>

**Ecological / habitat connectivity**, the degree to which the landscape facilitates the movement of organisms (animals, plant reproductive structures, pollen, pollinators, spores, etc.) and other environmentally important resources, such as nutrients and moisture, between similar habitats. Connectivity is hampered by fragmentation.<sup>80</sup>

**Ecological network (for conservation)**, a system of natural and semi-natural landscape elements designed and managed to maintain or restore ecological functions, conserve biodiversity, and facilitate sustainable natural resource use. It links core habitats, such as protected areas or other effective area-based conservation measures (OECMs), with ecological connectivity areas (e.g. ecological corridors) to enhance connectivity and genetic exchange, thus increasing the chances of survival of threatened species.<sup>81</sup>

**Ecosystem** means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.<sup>82</sup>

**Ecosystem assets**, a form of environmental assets that relate to diverse ecosystems. These are contiguous spaces of a specific ecosystem type characterised by a distinct set of biotic and abiotic components and their interactions.<sup>83</sup>

**Ecosystem condition**, the quality of an ecosystem measured by its abiotic and biotic characteristics. Condition is assessed by an ecosystem's composition, structure, and function which, in turn, underpins the ecological integrity of the ecosystem, and supports its capacity to supply ecosystem services on an ongoing basis.<sup>84</sup>

**Ecosystem connectivity**, the degree to which the landscape facilitates the movement of organisms (animals, plant reproductive structures, pollen, pollinators, spores, etc.) and other environmentally important resources, such as nutrients and moisture, between similar habitats. Connectivity is hampered by fragmentation.<sup>85</sup>

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<sup>77</sup> [TNFD Glossary, V2.0 June 2024](#), adapted from Science Based Targets Network, SBTN Glossary of Terms (2023)

<sup>78</sup> [TNFD Glossary, V2.0 June 2024](#) from IPBES Glossary

<sup>79</sup> [TNFD Glossary, V2.0 June 2024](#) from Hilty, J., et al., Guidelines for Conserving Connectivity through Ecological Networks and Corridors, IUCN (2020)

<sup>80</sup> [TNFD Glossary, V2.0 June 2024](#) from IPBES Glossary

<sup>81</sup> [TNFD Glossary, V2.0 June 2024](#) adapted from Bennett, G. and K.J. Mulongoy (2006).

<sup>82</sup> [The Convention on Biological Diversity, Article 2. Use of Terms](#)

<sup>83</sup> [TNFD Glossary, V2.0 June 2024](#) from Adapted from UN et al., System of Environmental-Economic Accounting - Ecosystem Accounting (SEEA EA) (2021)

<sup>84</sup> [TNFD Glossary, V2.0 June 2024](#) adapted from UN et al., System of Environmental-Economic Accounting - Ecosystem Accounting (SEEA EA) (2021)

<sup>85</sup> [TNFD Glossary, V2.0 June 2024](#) from IPBES Glossary



**Ecosystem extent**, area coverage of a particular ecosystem, usually measured in terms of spatial area.<sup>86</sup>

**Ecosystem function**, the flow of energy and materials through the biotic and abiotic components of an ecosystem. This includes many processes such as biomass production, trophic transfer through plants and animals, nutrient cycling, water dynamics and heat transfer.<sup>87</sup>

**Ecosystem Functional Group**, a group of related ecosystems within a biome that share common ecological drivers, which in turn promote similar biotic traits that characterise the group. Derived from the top-down by subdivision of biomes.<sup>88</sup>

**Ecosystem health** is used to describe the condition of an ecosystem, by analogy with human health. Note that there is no universally accepted benchmark for a healthy ecosystem. Rather, the apparent health status of an ecosystem can vary, depending upon which metrics are employed to assess it and which societal aspirations are driving the assessment.<sup>89</sup>

**Ecological integrity** is defined as the system's capacity to maintain structure and ecosystem functions using processes and elements characteristic for its ecoregion.<sup>90</sup>

**Ecosystem services** are functions of an ecosystem that directly or indirectly benefit human wellbeing. Specifically, ecosystem services include both portions of the natural capital itself, such as timber or fish, that are harvested from ecosystems as well as the flows of services, such as watershed protection or climate regulation, that can be derived from and rely on stocks of natural capital.<sup>91</sup>

**Endangered species** are species considered to be facing a very high risk of extinction in the wild.<sup>92</sup>

Environmental assets are the naturally occurring living and non-living components of the Earth, together constituting the biophysical environment, which may provide benefits to humanity.<sup>93</sup>

**Ex-situ conservation** means the conservation of components of biological diversity outside their natural habitats.<sup>94</sup>

**Extinction risk (species)**, threat status of a species and how activities/pressures may affect the threat status. The indicator may also measure change in the available habitat for a species as a proxy for impact on local or global extinction risk.<sup>95</sup>

**Final ecosystem services**, when an ecological end-product transitions to being either an economic benefit or something that can be directly used or appreciated by people.<sup>96</sup>

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<sup>86</sup> [TNFD Glossary, V2.0 June 2024](#) from United Nations et al. System of Environmental-Economic Accounting – Ecosystem Accounting (2021)

<sup>87</sup> [TNFD Glossary, V2.0 June 2024](#) from Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Global Assessment Report on Biodiversity and Ecosystem Services (2019)

<sup>88</sup> [The IUCN Global Ecosystem Typology](#)

<sup>89</sup> [TNFD Glossary, V2.0 June 2024](#) from IPBES Glossary

<sup>90</sup> [Biodiversity Credit Alliance: Glossary of terms](#), Definition of a biodiversity credit, issue n.3, from Dorren et al. (2004)

<sup>91</sup> UNDP BIOFIN, [The Little Book of Investing in Nature](#), from Daly and Farley, 2004; Voldoire and Royer (2004)

<sup>92</sup> [TNFD Glossary, V2.0 June 2024](#) adapted from International Union for Conservation of Nature, IUCN Red List Categories and Criteria: Version 3.1 (2012)

<sup>93</sup> [TNFD Glossary, V2.0 June 2024](#) from United Nations et al., System of Environmental-Economic Accounting – Ecosystem Accounting (2021)

<sup>94</sup> [The Convention on Biological Diversity, Article 2. Use of Terms](#)

<sup>95</sup> [TNFD Glossary, V2.0 June 2024](#) from European Commission, Annex 1 to the Commission Delegated Regulation, supplementing Directive 2013/34/EU (2023)

<sup>96</sup> [TNFD Glossary, V2.0 June 2024](#) from Finisdore, J. et al. (2020) The 18 Benefits of Using Ecosystem Services Classification Systems, Climate Disclosure Standards Board, Framework Application Guidance for Biodiversity-related Disclosures (2021)

**Forest**, land spanning more than 0.5 hectares with trees higher than five meters and a canopy cover of more than 10%, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use. Forest includes natural forests and tree plantations. For the purpose of implementing zero deforestation supply chain commitments, the focus is on preventing the conversion of natural forests.<sup>97</sup>

**Forest degradation** entails a reduction or loss of the biological or economic productivity and complexity of forest ecosystems resulting in the long-term reduction of the overall supply of benefits from forest, which includes wood, biodiversity and other products or services, provided that the canopy cover stays above 10%.<sup>98</sup>

**Forest ownership**, generally refers to the legal right to freely and exclusively use, control, transfer, or otherwise benefit from a forest. Ownership can be acquired through transfers such as sales, donations, and inheritance.<sup>99</sup>

**Freshwater**, all permanent and temporary freshwater bodies as well as saline water bodies that are not directly connected to the oceans.<sup>100</sup>

**Grassland** can be broadly defined as areas dominated by grasses and other similar plant families, where there is a limited amount of trees or shrubs.<sup>101</sup>

**Habitat** means the place or type of site where an organism or population naturally occurs.<sup>102</sup>

**Habitat Bank**: according to Resolution 1051 of 2017, habitat banks in Colombia are “private or public areas that are managed for their high natural resource values. In return for the protection, management and permanent monitoring of the area, the person responsible for the habitat bank may establish agreements with third-party environmental duty holders to satisfy their legal requirements and compensate for the environmental impacts of development projects.”<sup>103</sup>

**Habitat fragmentation** is a general term describing the set of processes by which habitat loss results in the division of continuous habitats into a greater number of smaller patches of lesser total and isolated from each other by a matrix of dissimilar habitats. Habitat fragmentation, which leads to a barrier effect, may occur through natural processes (e.g. forest and grassland fires, flooding) and through human activities (e.g. forestry, agriculture, urbanisation).<sup>104</sup>

**Habitat loss** is the reduction in the amount of space where a particular species, or group of species can survive and reproduce.<sup>105</sup>

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<sup>97</sup> [TNFD Glossary, V2.0 June 2024](#) from FAO Forest Resources Assessment - Terms and Definitions, Accountability Framework Initiative Terms and Definitions (2020)

<sup>98</sup> [TNFD Glossary, V2.0 June 2024](#) from FAO and UNEP, The State of the World's Forests (2020)

<sup>99</sup> [TNFD Glossary, V2.0 June 2024](#) from FAO, Forest Resources Assessment - Terms and Definitions (2020)

<sup>100</sup> [TNFD Glossary, V2.0 June 2024](#) from The United States Geological Survey, Water Science Glossary of Terms, WHO (2017) Guidelines for Drinking-Water Quality (2018)

<sup>101</sup> [TNFD Glossary, V2.0 June 2024](#) from Bardgett, R.D. et al., Combatting Global Grassland Degradation. Nature Reviews Earth & Environment 2: 720–735 (2021)

<sup>102</sup> [The Convention on Biological Diversity, Article 2. Use of Terms](#)

<sup>103</sup> [Colombia Ministerio de Ambiente y Desarrollo Sostenible, 2017](#)

<sup>104</sup> [TNFD Glossary, V2.0 June 2024](#) from IPBES Glossary

<sup>105</sup> [TNFD Glossary, V2.0 June 2024](#) from UC Berkeley, Understanding Global Change

**Hinterlands** are a city's surrounding areas which receive high demand for resources and services from the city. The hinterland in a way is not limited by geographic proximity to the city, given the trend to procure services from an increasingly broad area. With the growth of cities and the parallel globalisations, the hinterlands are becoming international and global.<sup>106</sup>

**Indigenous Peoples** are inheritors and practitioners of unique cultures and ways of relating to people and the environment, and have retained social, cultural, economic, and political characteristics that are distinct from those of the dominant societies in which they live. The UN Declaration on the Rights of Indigenous Peoples does not include a definition of Indigenous Peoples and self-identification as Indigenous is considered a fundamental criterion.<sup>107</sup>

**Indigenous Peoples and Local Communities Conserved Territories and Areas (ICCAs)**, natural and/or modified ecosystems containing significant biodiversity values and ecological services, voluntarily conserved by (sedentary and mobile) Indigenous and local communities, through customary laws or other effective means.<sup>108</sup>

**Indigenous rights**, Indigenous Peoples' human rights are protected by a multitude of instruments, declarations, jurisprudence, and authoritative interpretations developed by international and regional human rights mechanisms. Those rights are most clearly articulated through The UN Declaration on the Rights of Indigenous Peoples (UNDRIP) which expresses and reflects legal commitments under the Charter of the United Nations, as well as treaties, judicial decisions, principles, and customary international law.<sup>109</sup>

**Indigenous (=native) species**, a species or lower tax on living within its natural range (past or present) including the area which it can reach and occupy using its natural dispersal systems.<sup>110</sup>

**In-situ conditions** are conditions where genetic resources exist within ecosystems and natural habitats, and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.<sup>111</sup>

**In-situ conservation** means the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.<sup>112</sup>

**Key Biodiversity Area**, a site contributing significantly to the global persistence of biodiversity.<sup>113</sup>

**Land** includes all dry land, its vegetation cover, nearby atmosphere, and substrate (soils, rocks) to the rooting depth of plants, and associated animals and microbes.<sup>114</sup>

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<sup>106</sup> [TNFD Glossary, V2.0 June 2024](#) from Lee, S. E. et al., Advancing City Sustainability via Its Systems of Flows: The Urban Metabolism of Birmingham and Its Hinterland. Sustainability 8, 220 (2016)

<sup>107</sup> [Biodiversity Credit Alliance: Glossary of terms](#), Definition of a biodiversity credit, issue n.3 from United Nations Department of Environmental and Social Affairs

<sup>108</sup> [Biodiversity Credit Alliance: Glossary of terms](#), Definition of a biodiversity credit, issue n.3 from World Parks Congress (2003)

<sup>109</sup> [Biodiversity Credit Alliance: Glossary of terms](#), Definition of a biodiversity credit, issue n.3 from Expert Mechanism on the Rights of Indigenous Peoples (2017)

<sup>110</sup> [TNFD Glossary, V2.0 June 2024](#) from International Council for the Exploration of the Sea, Glossary of Terms (2022)

<sup>111</sup> [The Convention on Biological Diversity, Article 2. Use of Terms](#)

<sup>112</sup> Ibid.

<sup>113</sup> TNFD Glossary, V2.0 June 2024 from International Union for Conservation of Nature, A Global Standard for the Identification of Key Biodiversity Areas: Version 1.0 (2016)

<sup>114</sup> [TNFD Glossary, V2.0 June 2024](#) from IUCN, Global Ecosystem Typology (2023)



**Landfilling** refers to the final depositing of solid waste at, below or above ground level at engineered disposal sites.<sup>115</sup>

**Land use change** is the transformation from one land use category (e.g., cropland, grassland, forest/woodland, urban/industrial, wetland/tundra) to another category (e.g., transformation from natural forest to cropland).<sup>116</sup>

**Local Communities** is a term used based on the characteristic listed by the Convention on Biological Diversity and its article 8 (j) which refer to: 'Local communities embodying traditional lifestyles relevant for the conservation and sustainable of biological diversity'. Local Communities living in rural and urban areas of various ecosystems may exhibit some of the following characteristics:

- Self-identification as a local community;
- Lifestyles linked to traditions associated with natural cycles (symbiotic relationships or dependence), the use of and dependence on biological resources and linked to the sustainable use of nature and biodiversity;
- The community occupies a definable territory traditionally occupied and/or used, permanently or periodically. These territories are important for the maintenance of social, cultural, and economic aspects of the community;
- Traditions (often referring to common history, culture, language, rituals, symbols and customs) and are dynamic and may evolve;
- Technology/knowledge/innovations/practices associated with the sustainable use and conservation of biological resources;
- Social cohesion and willingness to be represented as a local community;
- Traditional knowledge transmitted from generation to generation including in oral form;
- A set of social rules (e.g., that regulate land conflicts/sharing of benefits) and organisational-specific community/traditional/customary laws and institutions;
- Expression of customary and/or collective rights;
- Self-regulation by their customs and traditional forms of organization and institutions;
- Performance and maintenance of economic activities traditionally, including for subsistence, sustainable development and/or survival;
- Biological (including genetic) and cultural heritage (bio-cultural heritage);
- Spiritual and cultural values of biodiversity and territories;
- Culture, including traditional cultural expressions captured through local languages, highlighting common interest and values;
- Sometimes marginalised from modern geopolitical systems and structures;
- Biodiversity often incorporated into traditional place names;
- Foods and food preparation systems and traditional medicines are closely connected to biodiversity/environment;
- May have had little or no prior contact with other sectors of society resulting in distinctness or may choose to remain distinct;
- Practice of traditional occupations and livelihoods;
- May live in extended family, clan or tribal structures;
- Belief and value systems, including spirituality, are often linked to biodiversity;
- Shared common property over land and natural resources;
- Traditional right holders to natural resources;
- Vulnerability to outsiders and little concept of intellectual property rights.<sup>117</sup>

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<sup>115</sup> [TNFD Glossary, V2.0 June 2024](#) from GRI (2022) GRI Standards Glossary from UN, Glossary of Environment Statistics, Studies in Methods, Series F, No. 67 (1997)

<sup>116</sup> [TNFD Glossary, V2.0 June 2024](#) from SBTi (2023) Forest, land and agriculture science- based target-setting guidance and IPCC, Annex I: Glossary (2019)

<sup>117</sup> Shortened from [TNFD Glossary, V2.0 June 2024](#) from Report of the Expert Group Meeting of Local Community Representatives within the Context of Article 8(j) and Related Provisions of the Convention on Biological Diversity 1 Territory is interpreted as lands and waters

**Mandatory market credit schemes** enable businesses, governments, non-profit organisations, universities, municipalities, and individuals to offset their impacts on biodiversity. In a compliance market, trading and demand is created by a regulatory mandate.<sup>118</sup>

**Mitigation hierarchy (and conservation hierarchy)** is the sequence of actions to anticipate and avoid, and where avoidance is not possible, minimise, and, when impacts occur, restore, and where significant residual impacts remain, offset for biodiversity-related risks and impacts on affected communities and the environment. The conservation hierarchy goes beyond mitigating impacts, to encompass any activities affecting nature. This means that conservation actions to address historical, systemic, and non-attributable biodiversity loss can be accounted for in the same framework as actions to mitigate specific impacts.<sup>119</sup>

**Natural Capital** refers to “the stock of renewable and non-renewable resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people.”<sup>120</sup>

**Naturally regenerating forest**, forest predominantly composed of trees established through natural regeneration.<sup>121</sup>

**Nature**, the natural world, with an emphasis on the diversity of living organisms (including people) and their interactions among themselves and with their environment.<sup>122</sup>

**Nature-based revenue model**, mechanism which can attract commercial investments - i.e. investments linked to commercial terms, such as market-rate returns, and/or commercially acceptable tenor - to enable actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits (defined as nature-based solutions).<sup>123</sup>

**Nature-based solutions**, actions to protect, conserve, restore, sustainably use, and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems that address societal, economic, and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits.<sup>124</sup>

**Nature positive** is a global societal goal defined as ‘halt and reverse nature loss by 2030 on a 2020 baseline, and achieve full recovery by 2050’. Nature positive is a global and societal goal. Individual entities, geographies and countries can and must demonstrate their sufficient contribution to a global nature-positive outcome. In operationalising nature positive, tackling drivers and the negative and positive impacts is central. Companies and financial institutions can contribute to the Nature Positive goal by taking these high-level actions: Assess their material impacts, dependencies, risks and opportunities; shift their business strategy and models; commit to science-based targets for nature; report their nature-related issues to investors and other stakeholders; transform by avoiding and reducing negative impacts, restoring, and regenerating nature; collaborate across land, seascapes and river basins; and advocate to governments for policy ambition.<sup>125</sup>

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<sup>118</sup> [TNFD Glossary, V2.0 June 2024](#) adapted from Carbon Offset Research and Education Program Carbon Offset Guide

<sup>119</sup> [TNFD Glossary, V2.0 June 2024](#) adapted from Cross Sector Biodiversity Initiative (2015) and Science Based Targets Network, Step 4. Act (2023)

<sup>120</sup> UNDP BIOFIN, [The Little Book of Investing in Nature](#), from the Natural Capital Coalition

<sup>121</sup> [TNFD Glossary, V2.0 June 2024](#) from FAO, Forest Resources Assessment - Terms and Definitions (2020)

<sup>122</sup> [TNFD Glossary, V2.0 June 2024](#) adapted from Díaz, S et al., The IPBES Conceptual Framework – Connecting Nature and People (2015)

<sup>123</sup> From WWF and South Pole, [Common Success Factors for Bankable Nature-based Solutions](#), (2022)

<sup>124</sup> [TNFD Glossary, V2.0 June 2024](#) adapted from IUCN, The IUCN Global Standard for Nature-based Solutions (2020)

<sup>125</sup> [TNFD Glossary, V2.0 June 2024](#) from Nature Positive Initiative (2023)

**Nature-related physical risks** are risks resulting from the degradation of nature (such as changes in ecosystem equilibria, including soil quality and species composition) and consequential loss of ecosystem services that economic activity depends upon. These risks can be chronic (e.g. a gradual decline of species diversity of pollinators resulting in reduced crop yields, or water scarcity) or acute (e.g. natural disasters or forest spills). Nature-related physical risks arise as a result of changes in the biotic (living) and abiotic (non-living) conditions that support healthy, functioning ecosystems. These risks are usually location-specific.<sup>126</sup>

**Net gain** is the point at which project-related impacts on biodiversity and ecosystem services are outweighed by measures taken according to the mitigation hierarchy, so that a net gain results. May also be referred to as net positive impact.<sup>127</sup>

**No net loss** is defined as the point at which project-related impacts are balanced by measures taken through application of the mitigation hierarchy, so that no loss remains.<sup>128</sup>

**Nutrient trading**, measurable conservation outcome resulting from a trading system (or market) where nutrient reduction credits are established and traded. These credits can have a monetary value that may be paid to the seller for utilising management practices that reduce nitrogen, phosphorous, or sediment. In general, water quality trading utilizes a market-based approach that allows one source of water pollution to maintain its regulatory obligations by using pollution reductions created by another source. Trades can take place between point sources (e.g. wastewater treatment plants), between point and nonpoint sources (e.g. a wastewater treatment plant and a farming operation) or between nonpoint sources (such as agriculture and urban stormwater sites or systems). Systems can be voluntary or compliance.<sup>129</sup>

**Ocean**, all connected saline ocean waters characterised by waves, tides, and currents.<sup>130</sup>

**Payment for ecosystem services (PES)** is a type of market-based instrument that is increasingly used to finance nature conservation. Payment of ecosystem services programmes allow for the translation of the ecosystem services that ecosystems provide for free into financial incentives for their conservation, targeted at the local actors who own or manage the natural resources.<sup>131</sup>

**Peat** is a deposit of partially decayed organic matter in the upper soil horizons.<sup>132</sup>

**Pesticide**, any substance intended for preventing, destroying, attracting, repelling, or controlling any pest including unwanted species of plants or animals during the production, storage, transport, distribution and processing of food, agricultural commodities, or animal feeds or which may be administered to animals for the control of ectoparasites. The term includes substances applied to crops either before or after harvest to protect the commodity from deterioration during storage and transport. The term normally excludes fertilisers, plant and animal nutrients, food additives, and animal drugs.<sup>133</sup>

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<sup>126</sup> [TNFD Glossary, V2.0 June 2024](#)

<sup>127</sup> [TNFD Glossary, V2.0 June 2024](#) from Cross-Sector Biodiversity Initiative (2015) A Cross-sector Guide for Implementing the Mitigation Hierarchy

<sup>128</sup> Ibid

<sup>129</sup> UNDP BIOFIN, [Catalogue of Finance Solutions](#)

<sup>130</sup> [TNFD Glossary, V2.0 June 2024](#)

<sup>131</sup> Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), [Policy Instrument](#), Retrieved 11 September 2024

<sup>132</sup> [Global Ecosystem Topology \(IUCN\)](#), Glossary of selected terms

<sup>133</sup> [TNFD Glossary, V2.0 June 2024](#) from FAO & WHO, Codex Alimentarius Commission Procedural Manual (2019)



**Plantation forest** is defined as planted forest that is intensively managed and meets all the following criteria at planting and stand maturity: one or two species, even age class and regular spacing.<sup>134</sup>

**Primary forest** is a naturally regenerated forest of native tree species, where there are no clearly visible indications of human activities, and the ecological processes are not significantly disturbed.

Explanatory notes:

1. Includes both pristine and managed forests that meet the definition.
2. Includes forests where Indigenous Peoples engage in traditional forest stewardship activities that meet the definition.
3. Includes forests with visible signs of abiotic damages (such as storm, snow, drought, and fire) and biotic damages (such as insects, pests, and diseases).
4. Excludes forests where hunting, poaching, trapping or gathering have caused significant native species loss or disturbance to ecological processes.
5. Examples of key characteristics of primary forests:
  - They show natural forest dynamics, such as natural tree species composition, occurrence of dead wood, natural age structure and natural regeneration processes;
  - The area is large enough to maintain its natural ecological processes;
  - There has been no known significant human intervention, or the last significant human intervention was long enough ago to have re-established natural species composition and processes.<sup>135</sup>

**“Prior and informed consent” or “free, prior and informed consent” or “approval and involvement”** free implies that Indigenous Peoples and local communities are not pressured, intimidated, manipulated or unduly influenced and that their consent is given, without coercion. Prior implies seeking consent or approval sufficiently in advance of any authorisation to access traditional knowledge respecting the customary decision-making processes in accordance with national legislation and time requirements of Indigenous Peoples and local communities. Informed implies that information is provided that covers relevant aspects, such as: the intended purpose of the access; its duration and scope; a preliminary assessment of the likely economic, social, cultural and environmental impacts, including potential risks; personnel likely to be involved in the execution of the access; procedures the access may entail and benefit-sharing arrangements. Consent or approval is the agreement of the Indigenous Peoples and local communities who are holders of traditional knowledge or the competent authorities of those Indigenous Peoples and local communities, as appropriate, to grant access to their traditional knowledge to a potential user and includes the right not to grant consent or approval. Involvement refers to the full and effective participation of Indigenous peoples and local communities, in decision-making processes related to access to their traditional knowledge. Consultation and full and effective participation of Indigenous Peoples and local communities are crucial components of a consent or approval process.<sup>136</sup>

**Protected area**, a clearly defined geographical space, recognised, dedicated, and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.<sup>137</sup>

**Realm**, one of five major components of the biosphere that differ fundamentally in ecosystem organisation and function: terrestrial, freshwater, marine, subterranean, atmospheric and combinations of these (transitional realms). Because variation in nature is continuous, we also include transitional realms, where the realms meet and have their own unique organisation and function.<sup>138</sup>

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<sup>134</sup> [TNFD Glossary, V2.0 June 2024](#) from FAO, Forest Resources Assessment – Terms and Definitions (2020)

<sup>135</sup> *Ibid.*

<sup>136</sup> [TNFD Glossary, V2.0 June 2024](#) from Convention on Biological Diversity, Glossary of Relevant Terms (2018)

<sup>137</sup> [TNFD Glossary, V2.0 June 2024](#) from IUCN, Guidelines for Applying Protected Area Management Categories (2018)

<sup>138</sup> [The IUCN Global Ecosystem Typology](#)

**Reforestation** is the conversion to forest of land that has previously contained forests but that has been converted to some other use.<sup>139</sup>

**Regenerative agriculture**, there is no scientific consensus definition of regenerative agriculture; rather there are process (use of cover crops, reduced tillage, etc.), principle and outcome-based definitions (improved soil health, etc.). The most cited outcomes as part of a definition of regenerative agriculture in scientific literature include improved soil health, increased carbon sequestration and increase in biodiversity.<sup>140</sup>

**Rehabilitation** refers to restoration activities that move a site towards a natural state baseline in a limited number of components (i.e. soil, water, and/or biodiversity), including natural regeneration, conservation agriculture, and emergent ecosystems.<sup>141</sup>

**Resilience** is defined as having the capacity to live and develop with change and uncertainty. It provides capacities for turning risks into opportunities. This includes: (1) adaptive capacities to absorb shocks and turbulence and avoid unpleasant tipping points, thresholds, and regime shifts; (2) capacities to prepare for, learn from, and navigate uncertainty and surprise; (3) capacities for keeping options alive and creating space for innovation; and (4) capacities for systemic transformation in the face of crises and unsustainable development pathways and traps.<sup>142</sup>

**Resources**, five fundamental resources in the environment that are essential to sustaining all life: water, nutrients, oxygen, carbon, and energy.<sup>143</sup>

**Restoration** is any intentional activity that initiates or accelerates the recovery of an ecosystem from a degraded state. Active restoration includes a range of human interventions aimed at influencing and accelerating natural successional processes to recover biodiversity ecosystem service provision. Passive restoration includes reliance primarily on natural process of ecological succession to restore degraded ecosystems, but may include measures to protect a site from processes that currently prevent natural recovery (e.g. protection of degraded forests from overgrazing by livestock or unintentional human-induced fire).<sup>144</sup>

**Restoration status** is characterised by three phases described as the following:

In preparation: [resources], funds committed, area [designated] for restoration, activities have not yet begun, and impacts of restoration may not yet be measurable.

In progress: ongoing restoration activities and depending on the time that the activities have been ongoing, impacts may start to be measurable.

Post-completion monitoring: restoration activities completed and efforts in place to monitor the restoration results.<sup>145</sup>

**Rewetted**, all deliberate actions that aim to bring the water table of a drained peatland (i.e. the position relative to the surface) back to that of the original, peat-forming peatland. When this goal has been reached, the peatland is 'rewetted'.<sup>146</sup>

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<sup>139</sup> [TNFD Glossary, V2.0 June 2024](#) adapted from the IPCC, Annex I: Glossary (2019)

<sup>140</sup> Shortened from [TNFD Glossary, V2.0 June 2024](#) from Newton et al., What is Regenerative Agriculture? A Review of Scholar and Practitioner Definitions Based on Processes and Outcomes, *Front Sust.* (2020)

<sup>141</sup> [TNFD Glossary, V2.0 June 2024](#) from IPBES Glossary

<sup>142</sup> [TNFD Glossary, V2.0 June 2024](#) from Folke, C. et al. (2016) Social-Ecological Resilience and Biosphere-Based Sustainability Science, *Ecology and Society*; Rockström, J. et al. Krishnan, L. Warszawski, and D. Nel., Shaping a Resilient Future in Response to COVID-19, *Nature Sustainability* (2023)

<sup>143</sup> [Global Ecosystem Topology \(IUCN\)](#), Glossary of selected terms

<sup>144</sup> [TNFD Glossary, V2.0 June 2024](#) from IPBES Glossary

<sup>145</sup> [TNFD Glossary, V2.0 June 2024](#) from CBD, Guidance on using the indicators of the monitoring framework of the Kunming-Montreal Global Biodiversity Framework (2024)

**Rewilding** aims to restore ecosystems and reverse biodiversity declines by allowing wildlife and natural processes to reclaim areas no longer under human management. Well-applied rewilding can restore ecosystems at a landscape scale, help mitigate climate change, and provide socio-economic opportunities for communities. Evidence-based rewilding principles will guide practitioners to rewild safely, help assess the effectiveness of projects, and incorporate rewilding into global conservation targets.<sup>147</sup>

**Semi-natural forest** is a forest of native species, established through planting, seeding, or assisted natural regeneration. Explanatory notes:

1. Includes areas under intensive management where native species are used and deliberate efforts are made to increase/optimize the proportion of desirable species, leading to changes in the structure and composition of the forest.
2. Naturally regenerated trees from species other than those planted or seeded may be present.
3. May include areas with naturally regenerated trees of introduced species.
4. Includes areas under intensive management where deliberate efforts, such as thinning or fertilising, are made to improve or optimise desirable functions of the forest. These efforts may lead to changes in the structure and composition of the forest.<sup>148</sup>

**Soil degradation**, a change in soil health status, resulting in a diminishing capacity of the ecosystem to provide goods and services for its beneficiaries. The main types of soil degradation are defined by four categories: 1) soil erosion, 2) soil fertility reduction, 3) soil fertility reduction, 4) soil salinisation, 5) waterlogging.<sup>149</sup>

**Soil fertility** is defined as the ability of a soil to sustain plant growth by providing essential plant nutrients and favourable chemical, physical and biological characteristics as a habitat for plant growth.<sup>150</sup>

**Soil carbon stocks** express a balance between organic inputs and their stepwise decomposition by soil biota. The stock (tC ha<sup>-1</sup>) can be estimated as the sum over annual inputs (tC ha<sup>-1</sup> year<sup>-1</sup>) multiplied with mean residence time (year) similar to tree cover transition.<sup>151</sup>

**Soil salinisation** is an increase in the salt content of the soil, often as a result of irrigation practices. Excess salt uptake hinders crop growth by obstructing the ability to uptake water, causing loss of soil fertility and desertification.<sup>152</sup>

**Species** are a fundamental category for the classification and description of organisms, defined in various ways but typically on the basis of reproductive capacity; i.e. the members of a species can reproduce with each other to produce fertile offspring but cannot do so with individuals outside the species.<sup>153</sup>

**Species extinction risk**, threat status of a species and how activities/pressures may affect the threat status. The indicator may also measure change in the available habitat for a species as a proxy for impact on local or global extinction risk.<sup>154</sup>

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<sup>146</sup> [TNFD Glossary, V2.0 June 2024](#) from Ramsar Convention, Global Guidelines for Peatland Rewetting and Restoration (2021)

<sup>147</sup> [TNFD Glossary, V2.0 June 2024](#) from IUCN Issue Brief: The Benefits and Risks of Rewilding (2021)

<sup>148</sup> [TNFD Glossary, V2.0 June 2024](#) from FAO, Global Forest Resources Assessment Update (2005)

<sup>149</sup> [TNFD Glossary, V2.0 June 2024](#) from FAO, Guidance on Core Indicators for Agrifood Systems: Measuring the Private Sector's Contribution to the Sustainable Development Goals (2021)

<sup>150</sup> [TNFD Glossary, V2.0 June 2024](#) from FAO, Global Soils Partnership

<sup>151</sup> [TNFD Glossary, V2.0 June 2024](#) from Van Noordwijk M., Climate Change: Agricultural Mitigation, Encyclopedia of Agriculture and Food Systems (2014)

<sup>152</sup> [TNFD Glossary, V2.0 June 2024](#) from Kumar and Droby, Microbial Management of Plant Stresses (2021)

<sup>153</sup> [TNFD Glossary, V2.0 June 2024](#) from Levin, S. A. ed., The Princeton Guide to Ecology (2009)

<sup>154</sup> [TNFD Glossary, V2.0 June 2024](#) from European Commission Directive 2022/2464 (CSRD)



**Stressed watersheds** are watersheds, where the demand for water exceeds the available amount during a certain period, or when poor quality restricts its use. Water stress freshwater resources to deteriorate in quantity (aquifer over-exploitation, dry rivers, etc.) and quality (eutrophication, organic matter pollution, saline intrusion, etc.).<sup>155</sup>

**Structural connectivity for species**, a measure of habitat permeability based on the physical features and arrangements of habitat patches, disturbances, and other land, freshwater or seascape elements presumed to be important for organisms to move through their environment. Structural connectivity is used in efforts to restore or estimate functional connectivity where measures of it are lacking.<sup>156</sup>

**Supply chain**, the linear sequence of processes, actors, and locations involved in the production, distribution, and sale of a commodity from start to finish.<sup>157</sup>

**Sustainable forest management**, a dynamic and evolving concept, intended to maintain and enhance the economic, social, and environmental value of all types of forests for the benefit of present and future generations, considering the following seven thematic elements as a reference framework:

1. extent of forest resources;
2. forest biodiversity;
3. forest health and vitality;
4. productive functions of forest resources;
5. protective functions of forest resources;
6. socio-economic functions of forests; and
7. legal, policy and institutional framework.<sup>158</sup>

**Sustainable use** means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.<sup>159</sup>

**Third party certification standards**, a third party with no stake in the business has determined that the final product complies with specific standards for safety, quality, or performance.<sup>160</sup>

**Third-party verifier (of voluntary biodiversity credits)** carry out the monitoring and verification of conservation and restoration actions, and the accounting of the voluntary biodiversity credits issued by a conservation and restoration project. It is the insurers who ensure that the management of voluntary biodiversity credits is transparent and that their sale is reflected in demonstrable biodiversity gains.<sup>161</sup>

**Threatened ecosystem** is an ecosystem assessed as facing a high risk of collapse in the medium-term.<sup>162</sup>

**Threatened species**, species assessed as facing a high risk of extinction in the wild in the medium-term. This includes flora and fauna listed in the International Union for Conservation of Nature (IUCN) Red List.<sup>163</sup>

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<sup>155</sup> [TNFD Glossary, V2.0 June 2024](#) adapted from European Environment Agency, Environment in the European Union at the Turn of the Century (1999)

<sup>156</sup> [TNFD Glossary, V2.0 June 2024](#) from Hilty, J. et al. (2019) Corridor Ecology: Linking Landscapes for Biodiversity Conservation and Climate Adaptation. 2nd ed. Washington, DC: Island Press; as cited in Hilty, J. et al., Guidelines for Conserving Connectivity through Ecological Networks and Corridors. Best Practice Protected Area Guidelines Series No. 30 (2020)

<sup>157</sup> [TNFD Glossary, V2.0 June 2024](#) from Taskforce on Nature-related Financial Disclosures, Guidance on Scenario Analysis for Non-Financial Companies (2020)

<sup>158</sup> [TNFD Glossary, V2.0 June 2024](#) from FAO, Sustainable Forest Management

<sup>159</sup> [The Convention on Biological Diversity, Article 2. Use of Terms](#)

<sup>160</sup> [TNFD Glossary, V2.0 June 2024](#) from FAO, Environmental and Social Standards, Certification and Labelling for Cash Crops (2003)

<sup>161</sup> Terrasos, 2022.

<sup>162</sup> [TNFD Glossary, V2.0 June 2024](#) from IUCN, Guidelines for the application of IUCN Red List of Ecosystems Categories and Criteria (2017)

<sup>163</sup> [TNFD Glossary, V2.0 June 2024](#) from IUCN Red List categories and criteria (2012)

**Threshold (ecological)**, the point at which a relatively small change in external conditions causes a rapid change in an ecosystem. When an ecological threshold has been passed, the ecosystem may no longer be able to return to its state by means of its inherent resilience.<sup>164</sup>

**Total surface area owned or leased**, a clearly defined geographical space which an entity has the power to govern financially and operationally so as to obtain benefits from its activities.<sup>165</sup>

**Traditional knowledge** is the knowledge, innovations, and practices of Indigenous and Local Communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity.<sup>166</sup>

**Tree cover loss**, conversion of a tree-dominated land use type to a non-tree-dominated land use type. Note that deforestation is included in this, but that not all tree cover loss is deforestation, as it could also include tree cover loss within commercial forest plantations.<sup>167</sup>

**Upstream**, all activities associated with suppliers, such as production or cultivation, sourcing of commodities or goods, and the transportation of commodities to manufacturing facilities.<sup>168</sup>

**Valuation**, the process of estimating the relative importance, worth, or usefulness of natural capital to people (or to a business), in a particular context. Valuation may involve qualitative, quantitative, or monetary approaches, or a combination of these.<sup>169</sup>

**Value at Risk** is a measure of a potential loss in a portfolio, which estimates how much a set of investments might lose at a maximum, with a given probability (e.g. 99.5%, 99.9%), in a set time period. It requires estimation of the probability distribution for the changes in the value of the portfolio.<sup>170</sup>

**Value chain**, the full range of interactions, resources and relationships related to a reporting entity's business model and the external environment in which it operates. A value chain encompasses the interactions, resources and relationships an entity uses and depends on to create its products or services from conception to delivery, consumption and end-of-life, including interactions, resources and relationships in the entity's operations, such as human resources; those along its supply, marketing and distribution channels, such as materials and service sourcing, and product and service sale and delivery; and the financing, geographical, geopolitical and regulatory environments in which the entity operates.<sup>171</sup>

**Voluntary credit markets** enable businesses, governments, non-profit organizations, universities, municipalities, and individuals to offset their impacts on biodiversity outside a regulatory regime. Trading and demand in the voluntary market are created only by voluntary buyers (corporations, institutions, and individuals).<sup>172</sup>

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<sup>164</sup> [TNFD Glossary, V2.0 June 2024](#) from IPBES Glossary

<sup>165</sup> [TNFD Glossary, V2.0 June 2024](#)

<sup>166</sup> [TNFD Glossary, V2.0 June 2024](#) from Convention on Biological Diversity, Glossary of Relevant Terms (2018)

<sup>167</sup> [TNFD Glossary, V2.0 June 2024](#)

<sup>168</sup> [TNFD Glossary, V2.0 June 2024](#) from Science Based Targets Network, SBTN Glossary of Terms (2023)

<sup>169</sup> [TNFD Glossary, V2.0 June 2024](#) from Capitals Coalition, Natural Capital Protocol (2016)

<sup>170</sup> [TNFD Glossary, V2.0 June 2024](#) from Taskforce on Nature-related Financial Disclosures, Forward-Looking Financial Sector Metrics (2020)

<sup>171</sup> [TNFD Glossary, V2.0 June 2024](#) from International Financial Reporting Standard, S1 General Requirements for Disclosure of Sustainability-related Financial Information (2023)

<sup>172</sup> [TNFD Glossary, V2.0 June 2024](#) adapted from Carbon Offset Research and Education Program Carbon Offset Guide

**Water catchment (also known as a watershed or basin)** is an area of land where all water flows and is directed into a single stream or river. Natural boundaries of water catchments can vary in scale and can be very small for a single stream or river, or very broad for a large river such as the Amazon or Congo Rivers. Land and freshwater use in a watershed can affect the entire length of river depending on the intensity of the use and impact.<sup>173</sup>

**Water quality**, the biological, chemical, and physical properties of water, often assessed against a usage standard, such as whether its quality can support freshwater biodiversity, be used for drinking water for people, or irrigation. Note that standards and definitions of water quality vary across use cases.<sup>174</sup>

**Water scarcity** refers to the volumetric abundance, or lack thereof, of freshwater resources. Scarcity is human driven; it is a function of the volume of human water consumption relative to the volume of water resources in a given area. As such, an arid region with very little water, but no human water consumption would not be considered scarce, but rather arid. Water scarcity is a physical, objective reality that can be measured consistently across regions and over time. Water scarcity reflects the physical abundance of freshwater rather than whether that water is suitable for use. For instance, a region may have abundant water resources (and thus not be considered water scarce), but have such severe pollution that those supplies are unfit for human or ecological uses.<sup>175</sup>

**Water sources** include water withdrawn from surface water, groundwater, seawater, produced water and third-party water.<sup>176</sup>

**Water stress (areas of)** is formally defined as the ability, or lack thereof, to meet human and ecological demands for water. Water stressed (region): defined in three levels: 25%, below which no water scarcity exists; 60%, indicating approaching scarcity; 75%, above which strong water scarcity is identified. Anything above the 60% figure, approaching scarcity, is considered 'water stressed'.<sup>177</sup>

**Wetland banking**, measurable conservation outcome resulting from a trading system (or market) where offset credits are tradable units of exchange defined by the ecological value associated with verifiable changes and management of a natural wetland habitat. A mitigation bank is a wetland, stream, or other aquatic resource area that has been restored and preserved for the purpose of providing compensation for expected adverse impacts to similar ecosystems nearby. The value of a bank is defined in compensatory mitigation credits that can be traded or sold. Most systems are designed for no net loss of wetlands even following residual development impacts.<sup>178</sup>

**Wild species** refers to populations of any native species that have not been domesticated through multigenerational selection for particular traits, and which can survive independently of human intervention that may occur in any environment. This does not imply a complete absence of human management and recognises various intermediate states between wild and domesticated.<sup>179</sup>

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<sup>173</sup> [TNFD Glossary, V2.0 June 2024](#) adapted from Freshwater Information Platform

<sup>174</sup> [TNFD Glossary, V2.0 June 2024](#) from UNEP, Water Quality Index for Biodiversity Technical Development Document (2008)

<sup>175</sup> [TNFD Glossary, V2.0 June 2024](#) from The CEO Water Mandate (2014) Corporate Water Disclosure Guidelines, European Commission, Annex 2 to the Commission Delegated Regulation, supplementing Directive 2013/34/EU as amended by Directive 2022/2464 (CSRD), as regards sustainability reporting standards (2023)

<sup>176</sup> [TNFD Glossary, V2.0 June 2024](#) from GRI, GRI 303: Water and Effluents (2018)

<sup>177</sup> [TNFD Glossary, V2.0 June 2024](#) adapted from UN Water (2021) Summary Progress Update 2021: SDG 6 — water and sanitation for all and WWF, Contextual Water Targets: A Practical Guide to Setting Contextual Corporate- and Site-level Water Targets (2021)

<sup>178</sup> UNDP BIOFIN, [Catalogue of Finance Solutions](#)

<sup>179</sup> [TNFD Glossary, V2.0 June 2024](#) from IPBES Sustainable Use of Wild Species Assessment, Chapter 1 (2022)



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