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Innovative Finance for Nature and People:

Opportunities and Challenges for Biodiversity-Positive Carbon Credits and Nature Certificates

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Glossary

Additionality

The extent to which an intervention directly results in changes (e.g., Improvements in biodiversity, reductions in threat or lowering atmospheric CO2) that would not have occurred in the absence of the intervention (Additionality Guide, 2008).

Biodiversity-Positive Carbon Credit

Carbon credits that include additional and specific management actions linked to the enhancement, conservation and/or restoration of biodiversity and nature.

Biodiversity Offset

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 (BBOP, 2018).

Bundling

Combining multiple benefits produced by nature-based projects within a project area and the selling of such units or credits as a single product to a single buyer, as opposed to stacking (see below for definition of stacking).

Carbon Credit

A tradable financial instrument that is issued by a carbon-crediting programme. A carbon credit represents a greenhouse gas emission reduction to, or removal from, the atmosphere equivalent to one metric ton of carbon dioxide equivalent (CO_2e), calculated as the difference in emissions from a baseline scenario to a project scenario. Carbon credits are uniquely serialized, issued, tracked and retired or administratively cancelled by means of an electronic registry operated by an administrative body, such as a carbon-crediting programme.

Carbon Offset

A measurable and tradable certificate or permit representing the right to emit a set amount of CO2 (usually one metric ton) or the equivalent amount of a different greenhouse gas. The use of a carbon credit as a substitute for within value chain emissions abatement and counted as reductions toward an emissions reductions target.

Claim

Statement reflecting what the final buyer of a credit/certificate is entitled to upon retirement of the corresponding credit/certificate. Biodiversity credits generated under offset schemes enable the final buyers to claim compensation of its residual impact on biodiversity. Major international initiatives are currently working on redefining what claims can be associated with carbon credits to improve demand-side integrity.

Compliance Market

Carbon trading markets that are the result of national, regional, or international policy or regulatory requirements in which companies, national and subnational governments are required to account for greenhouse gas emissions (Verra). Compliance markets include cap-and-trade (e.g., Emissions Trading Scheme in the European Union or China) and sectoral schemes (e.g., Carbon Offsetting and Reduction Scheme for International Aviation, CORSIA).

Demand Side Integrity

Buyers of credits/certificates are the mechanisms to support genuine emissions reductions and/or biodiversity restoration and conservation in line with achieving net-zero and global biodiversity goals (New Forests Carbon, 2021).

Free, Prior and Informed Consent

A principle protected by international human rights standards that states that all peoples have the right to freely determine their political status and freely pursue their economic, social and cultural development (FAO, 2016).

Fungibility

Any commodity that is interchangeable and whereby buyers are willing to pay the same price for the commodity regardless of the source.

Global Biodiversity Framework

A new framework adopted by Parties to the UN Convention for Biological Diversity. At the center of the agreement lies the ambition to halt and reverse biodiversity and nature loss and protect the rights of indigenous people. The agreement sets out four overarching goals and 23 targets to achieve for nature by 2030 (CBD, 2022).

High Forest Low Deforestation

A unique context experienced by a few countries, regions, and areas globally where primary forests are largely intact and have evaded rates of high deforestation.

Leakage

Phenomena whereby the reduction in emissions (relative to a baseline) in a jurisdiction/sector/project associated with the implementation of mitigation policy is offset to some degree by an increase outside the jurisdiction/sector/project through induced changes in consumption, production, prices, land use and/or trade across the jurisdictions/ sectors. Leakage can occur at a number of levels, be it a project, state, province, nation or world region (IPBES, 2019).

Market Integrity

Participants enjoy equal access to markets, price discovery and trading practices are fair, and high standards of governance are met (World Federation of Exchanges, 2018).

Mitigation Hierarchy

A set of prioritized steps to limit negative impacts, as much as possible, through avoidance, mitigation (or reduction), restoration, and beyond value chain mitigation. These prioritized steps are used in environmental frameworks from waste management to climate and biodiversity impact mitigation.

Nature-Based Solution

Actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits (UNEA, 2002).

Nature Certificate

A quantifiable unit representing a biodiversity conservation and/or enhancement claim, which cannot be used as an offset, i.e., to claim the compensation of residual impacts on biodiversity. A nature certificate may enable its final buyer to claim a contribution to nature-positive goals, when the buyer has properly implemented the mitigation hierarchy and compensated its residual impact, if any, under appropriate offset schemes. The terminology is still evolving with frequently used terms ranging from biodiversity credits to tokens, biocredits and certificates. This report uses the term nature *certificates* instead of *credits* to avoid confusion with offsets.

Nature Positive

Reflects conceptual thinking shaping global ambitions and approaches to nature in which society is able to "halt and reverse the loss of nature measured from its current status, reduce future negative impacts alongside restoring and renewing nature, to put both living and non-living nature measurably on the path to recovery" (IUCN, 2022).

Permanence

Permanent carbon offsets are reductions that cannot be reversed. In other words, the carbon removed cannot be reintroduced into the atmosphere. Carbon stored in vegetation and soils can be released back into the atmosphere by man-made or natural events, thereby reversing the environmental benefit of the sequestration project. Sequestration is typically regarded as permanent if it is maintained on a net basis for 100 years. A permanence obligation means the carbon stored by a project must be maintained for a chosen period, often 100 or 25 years, according to scheme design rules.

Payment for Ecosystem Services

A process whereas a beneficiary or user of an ecosystem service makes a direct or indirect payment to a provider of that service. PES involves a series of payments to land or other natural resource owners in return for a guaranteed flow of ecosystem services or certain actions likely to enhance what would otherwise be provided in the absence of payment (UNDP, 2018).

REDD+ (Reducing emissions from deforestation and forest degradation)

Framework created by the Conference of the Parties to the UN Framework Convention on Climate Change to guide activities in the forest sector that reduces emissions from deforestation and forest degradation, as well as the sustainable management of forests and the conservation and enhancement of forest carbon stocks in developing countries. It aims at the implementation of activities by national governments to reduce human pressure on forests that result in greenhouse gas emissions at the national level, but as an interim measure also recognizes subnational implementation. The implementation of REDD+ activities is voluntary (UNFCCC).

Stacking

Packaging of various ecosystem services provided by nature-based projects on a single area of land into a range of different credit types or units of trade that together form a stack. The components of the stack can then be sold individually to different buyers and separate payments received for each set of services (von Hase et al., 2018), as opposed to bundling (see above).

Supply Side Integrity

Credits/certificates are generated from project sites that deliver the emissions reductions they claim to represent based on validation, verification and issuance of credits/certificates using robust monitoring and reporting methodologies (Climate Policy Initiative; New Forests Carbon, 2021).

Voluntary Market

Markets in which demand is driven by voluntary commitments from both individuals and organizations (UNREDD).

Executive Summary

Forests, particularly primary tropical forests, are critical natural capital for meeting the Sustainable Development Goals, the objectives of the Paris Climate Agreement, and the goals and targets of the Kunming-Montreal Global Biodiversity Framework, especially in ways that benefit host countries and Indigenous People and Local Communities (IPLCs). The One Forest Summit in Libreville on 1-2 March 2023, co-hosted by France and Gabon, provides an opportunity to ensure that these ecosystems are safeguarded and restored for their environmental, economic, cultural and social benefits.

This report presents the state-of-play, diagnostics, and recommendations for unlocking new financial resources for the conservation, sustainable use and restoration of biodiversity in a socially inclusive manner, with a focus on two emerging instruments: biodiversity-positive carbon credits[1] and nature certificates[2]. It was developed by a High-Level Working Group supported by an Expert Panel listed on the acknowledgement section of this document. Taking stock of lessons learnt and suggesting a way forward applicable to all ecosystems, the document pays particular attention to critical forest ecosystems that are irreplaceable for the biodiversity they host, the carbon they store, the water they produce, and their generally overlooked role in keeping the climate cooler through their absorption of excess carbon dioxide (CO2) in the atmosphere and their separate biophysical regulating effects on atmospheric temperature and circulation patterns.

Concerted efforts are needed to close the significant gap in global biodiversity financing. Accordingly, the Kunming-Montreal Global Biodiversity Framework includes a commitment by the Parties to the Convention on Biological Diversity (CBD) to substantially and progressively, increase the level of financial investments from all sources, including public, private, domestic, and international, to $200 billion[3] per year by 2030, while substantially and progressively reducing incentives, including subsidies harmful for biodiversity, by at least $500 billion per year by 2030.

Public finance is crucial yet insufficient and not sustainable: it needs to be used wisely to catalyze additional private finance and increased action and effectiveness, and mobilize public resources effectively. A range of innovative financing instruments are being deployed in both developed and developing countries, including efforts supporting forest dwellers, payments for ecosystem services (PES), blended finance, debt-for-nature swaps and other debt instruments, carbon markets and the emerging concept of nature certificates. Among them, the report focuses on (1) the up-scaling of high-integrity, biodiversity-positive carbon credits and (2) the development of nature certificate schemes. Both instruments have are generating considerable interest at the moment – both among policy makers and corporates. Target 19 of the Kunming-Montreal Global Biodiversity Framework notably references biodiversity credits among the innovative schemes that should be stimulated, and calls for the optimization of co-benefits and synergies of finance targeting the biodiversity and climate crises. This report maps the, emerging landscape of heterogeneous initiatives related to these instruments and provides guidance for their further development.

The Working Group affirms that with clear policy frameworks and signals, good governance[4] , improved institutional capacities, and inclusive and transparent rules of engagement, biodiversity-positive carbon credits and nature certificates have the potential to markedly complement other financial mechanisms towards meeting the goals and targets of the Global Biodiversity Framework and the Paris Agreement. In particular, they hold promise to address the insufficient pricing signal from current carbon credits, improve effectiveness of the market, and to unlock greater private sector financing for High-Forest Low-Deforestation areas — including highly intact forest landscapes — and related carbon stocks which have been largely excluded from traditional carbon finance to date. Some carbon market experts do not consider these forests sufficiently threatened for credits derived from their protection to demonstrate adequate additionality and qualify as carbon offsets. Others think that introducing such innovative instruments

1 Defined as carbon credits that include additional and specific management actions linked to the enhancement, conservation, and/or restoration of biodiversity and nature.
2 Defined as quantifiable unit representing a biodiversity conservation and/or enhancement claim, which cannot be used as an offset, i.e, to claim the compensation of residual impacts on biodiversity. A nature certificate may enable its final buyer to claim a contribution to nature-positive goals. The terminology is still evolving with frequently used terms ranging from biodiversity credits to tokens, biocredits, and certificates. This report uses the term "nature certificates" instead of "credits" to avoid confusion with offsets, which is a key difference from carbon markets where carbon credits are typically offsets.
3 Figures in this document are reported in US dollars.
4 Good governance, as used in report, refers, inter alia, to (a) clear, secure and equitable land and natural resource rights of ownership, access and control; (b) participatory, transparent and accountable decision-making and resource-allocation processes regarding decisions, investments and actions affecting forests and communities that depend on them; and (c) active efforts to prevent, suppress and sanction crimes and associated corruption having negative effects on forests and forest-dependent communities.

will contribute to addressing current market failures, and notably generate adequate incentives for nature-positive actions at the landscape level.

The Working Group highlights the following lessons learnt from carbon markets, biodiversity offsetting mechanisms and national PES schemes to be considered in the further development of biodiversity-positive carbon credits and nature certificates:

- Integrity, quality, and price per unit are concerns relevant to both the supply side and the demand side. In particular, credit or certificate mechanisms should not undermine the robust implementation of the mitigation hierarchy regarding greenhouse gas (GHG) emissions and impacts on biodiversity.
- The enabling environment is essential for consistent and durable impact, including adequate legal, policy, and institutional frameworks in countries of both the custodians of biodiversity, climate, and community benefits, and the credit/certificate buyers.
- The full participation and engagement of, and equitable sharing of benefits with, IPLCs is necessary to continue ongoing stewardship of vital reserves of carbon and biodiversity.
- Biodiversity is multi-faceted and measuring it in practice remains complex. Agreeing on practical metrics, building benchmarks, and undertaking of robust measurement, reporting, and verification processes to access finance take time.
- A key lesson learned from voluntary carbon markets is that biodiversity-positive carbon credit and nature certificate markets are fundamentally public purpose markets that should deliver equitable, nature-positive outcomes as a goal. Corresponding normative market design principles should be developed.
- Scaling up demand is a challenge, and rests upon shared and robust principles for defining and verifying credits/certificates, consensus on the proper use of credits/certificates, mechanisms to safeguard the market's integrity, engagement of new partners, clear long-term demand and price signals, and legal, policy, and regulatory mechanisms, including fiscal incentives. While some voluntary schemes, including nature-based carbon credits, have markedly grown in volume and have the potential to further grow, large scale has mainly been achieved as a result of regulations or government financing, underscoring their importance in achieving scale.

Recommendations

The Working Group members recognize the local, national, and global environmental, economic, cultural, and social importance of vital reserves of carbon and components of biodiversity, especially in critical forests. The Working Group makes the following recommendations to the One Forest Summit on innovative financial mechanisms, focusing on biodiversity-positive carbon credits and nature certificates:

Recommendations for Governments and Policymakers

- **Recommendation 1: Support the development and scaling up of innovative nature finance, including biodiversity-positive carbon credits and nature certificates, within a comprehensive approach to resource mobilization.** Given the size of the biodiversity finance gap, biodiversity-positive carbon credits and nature certificates are promising innovative mechanisms that should be leveraged along with other instruments to mobilize domestic and international private sector resources. To ensure durability and scaling up, governments are encouraged to promote the convergence of international approaches to carbon credits and nature certificates with national payment for ecosystem services schemes. These actions can contribute towards the mobilization of $200 billion of financial flows for biodiversity by 2030, agreed as part of the Kunming-Montreal Global Biodiversity Framework.
- **Recommendation 2: Provide and maintain clear policies, incentives, and institutional frameworks** to foster demand and enhance certainty and accountability in approach. Target 19 of the Kunming-Montreal Global Biodiversity Framework calls for stimulating innovative schemes, including biodiversity credits. Governments are encouraged to support policy and legal reform, institutional strengthening, and relevant public infrastructure (hard and digital) investments needed to protect and manage the forest and other ecosystem assets. It most notably includes eliminating, phasing out, or reforming negative incentives, including subsidies that are harmful for biodiversity and increasing those that are positive for biodiversity. Support for capacity building and technical assistance for governments to develop and maintain these policies, incentives, and institutions are needed.

- **Recommendation 3: Clarify the contributions of biodiversity-positive carbon credits and nature certificates to the implementation of the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework at the national level, and contribute to major global meetings on finance and sustainable development**. Such work can be spearheaded at the national level as countries develop their own climate and biodiversity ambition and means to support them, articulating how credits and certificates may be part of the suite of solutions and contribute to the implementation of Target 8 of the Global Biodiversity Framework by fostering positive impacts of climate action on biodiversity. Globally, the contributions of the Working Group may be further enhanced for international discourse and initiatives as appropriate, such as the Summit for a New Global Financial Pact, and G7 Summit. In addition, the role of innovative financing instruments can be further explored through high level exchanges and technical dialogues at both UNFCCC and CBD sessions, with engagement of Parties and relevant institutions. The Governments of France and Gabon may wish to continue their engagement by hosting such exchanges, where the Global Environment Facility and the Working Group members may be invited to contribute.
- **Recommendation 4: Pilot and test biodiversity-positive carbon credits and nature certificates as part of national biodiversity and climate strategy and plans.** Countries are encouraged to utilize bilateral and multilateral support opportunities, including those from multilateral development banks, the Global Environment Facility, Green Climate Fund (GCF), and others, as well as philanthropic support, and continue to build on these experiences to move from the pre-market phase and pilots towards a critical mass of trades. Recognizing the need for urgency of action, piloting investments at different scales and modalities, informed by success stories, may serve as a trigger for meaningful and comprehensive scaling.
- **Recommendation 5: Promote effective market governance for nature certificates and enhance the existing carbon governance to include biodiversity elements.** High integrity markets are those that are well governed. Success in nature certificate markets delivering on their public purpose will come down to how they are governed. Good governance should be the precursor for discussing more technical items such as methods and measurements. Full engagement of actors including governments, IPLCs, private sector, philanthropies, and multilateral and bilateral financing partners should be encouraged.

Recommendations for Market-related Institutions (standard bodies, private sector partnerships, project developers, investors, and others)

- **Recommendation 6: Generate and sustain demand incentives for individual buyers and private investors.** More work is needed on how to create markets for nature certificates, to understand drivers of demand. In addition to the role of governments to incentivize corporate demand, non-state actors and partnership can be instrumental in articulating demand generation. For instance, blended finance

may be an effective incentive for the private sector. Future developments linked to Target 15 of the Global Biodiversity Framework to, among others, increase positive impacts of business and financial institutions on biodiversity and reduce their biodiversity-related risks should be harnessed. Progress made in global initiatives such as the Task force on Nature-related Financial Disclosures (TNFD) and the Science Based Targets Initiative (SBTI) already provide relevant insights. The subject of the merits of secondary markets continues to be debated, and their disadvantages compared to their capacity to foster demand at scale require further assessment.

- **Recommendation 7: Engage in collaboration on methodologies, certification standards, and metrics** for simple, cost-effective and scientifically robust measures for carbon and biodiversity. These are needed to ensure rules and requirements for quantifying and reporting biodiversity and carbon benefits are understood and followed, with credibility. Care should be taken that such collaboration will be inclusive to reflect IPLC values, with a view to ensure integrity and quality through a demonstrated participatory approach, maximize demand, promote equity and additionality, especially to benefit High Forest Low Deforestation areas. As appropriate, innovation and application of technology may be encouraged, including , mobile phones, drones, bioacoustics, camera traps, environmental DNA, and distributed ledgers, such as blockchain. Scientific and technological cooperation should be encouraged, with participatory and fully transparent approaches with and among countries.

Recommendations for All Partners

- **Recommendation 8: Ensure engagements of, and benefits for, indigenous peoples and local communities** as custodians of ecosystems. This includes requiring that an agreed share of any revenues from schemes in both primary and where instituted, secondary markets reach IPLCs. IPLCs should have meaningful representation in decision-making including free prior and informed consent (FPIC). IPLCs are to be recognized and partnered as project developers and market designers. Capacity building and technical support for IPLCs are needed both to enable their engagement and to learn and share their experiences and knowledge. A participatory approach may also be needed to agree on the value criteria of nature certificates generated in a given location or biome. As mentioned in recommendations for governments and policy makers, policymakers should strive towards political recognition of the IPLC rights and tenure.
- **Recommendation 9: Elaborate and apply integrity principles for both the supply and demand sides of voluntary markets,** including for transparency and sound governance, equity, measurement, reporting and verification, and claim credibility. Both standard development and room for innovation are necessary in the early stages of the nature certificate market development. They both need be taken into consideration for integrity principles. Examples from carbon markets include the Integrity Council for Voluntary Carbon Markets (ICVM) and the Voluntary Carbon Markets Integrity Initiative (VCMI), and for nature certificates the World Economic Forum (WEF) and other processes. Core principles for the voluntary nature certificate market include that (1)it should be distinct from biodiversity offset mechanisms, which should remain within the remit of regulators, and (2) it should be linked to adequate legal, policy, and institutional frameworks at jurisdictional level.
- **Recommendation 10: Establish and support a global partnership and platform** with relevant actors to: (1) accelerate and scale-up biodiversity-positive carbon credit programs and nature certificate programs that deliver equitable, nature positive outcomes; (2) support identification and inventory of suitable priority areas; (3) facilitate collaboration on methodologies, (4) facilitate cooperation, good practice sharing, and cross-learning among existing and emerging initiatives and institutions; (5) collaborate on good governance and enhanced data quality, and exchange on opportunities and risks of national and international markets; and (6) promote financial tracking and accountability. Such partnership should build on existing and emerging initiatives, connect them, and to encourage wider participation of stakeholders in an inclusive manner. Also, collaboration with Positive Conservation Partnerships may be sought to explore cross-linkages on nature certificates and enabling policy. One Forest Summit has served as an effective catalyst to convene various institutions and thought leaders on this important subject. A global partnership and platform can help sustain this momentum, and help accelerate the engagement of additional public and private partners and IPLCs. **The Global Environment Facility, which has led the High Level Working Group, may be encouraged to support such global platform,** and facilitate its member countries to support programs at the national level.

1. Introduction: The Need for Innovative Finance

1.1 Nature's Vital Reserves of Carbon and Biodiversity

'Irrecoverable carbon' refers to the vast stores of carbon in nature that are vulnerable to release from human activity and, if lost, could not be restored by 2050 – when the world must reach net-zero emissions to avoid the worst impacts of climate change (Noon et al., 2021).

Biodiversity hotspots are defined as biogeographic regions with significant levels of biodiversity that are threatened by human habitation. Conservation International has identified 36 areas around the world as biodiversity hotspots, representing 2.4% of the Earth's land surface (Conservation International, n.d.). To qualify as a biodiversity hotspot, two criteria have been ontlined: the region must have at least 1,500 vascular plants as endemics (i.e., the region is home to a high percentage of plant life found nowhere else on the planet); and the region must have 30% or less of its original natural vegetation (i.e., the ecosystem is threatened).

Figure 1 presents an estimation of the areas of overlap between irrecoverable carbon and biodiversity hotspots as developed by Conservation International.[7] The figure shows that many of the world's 'doubly irreplaceable' areas of irrecoverable carbon and biodiversity hotspots are mainly in the tropics. Less than 14% of the Earth's land area contains 75% of its irrecoverable carbon and provides habitat for 91% of its terrestrial vertebrate species (Conservation International, 2021).

[7] This estimation is caveated with the limitations of climate modelling to a granular degree, acknowledging that climate change impacts are not linear, uniform across geographies or necessarily predictable in impact. This map represents the current best available and accessible data on irrecoverable carbon (Noon et al., 2021) and biodiversity hotspots and is reproduced here as a high-level illustration of areas that may warrant prioritisation rather than as a prescriptive or pre-defined geography for support. Further work in defining priority areas would be necessary.

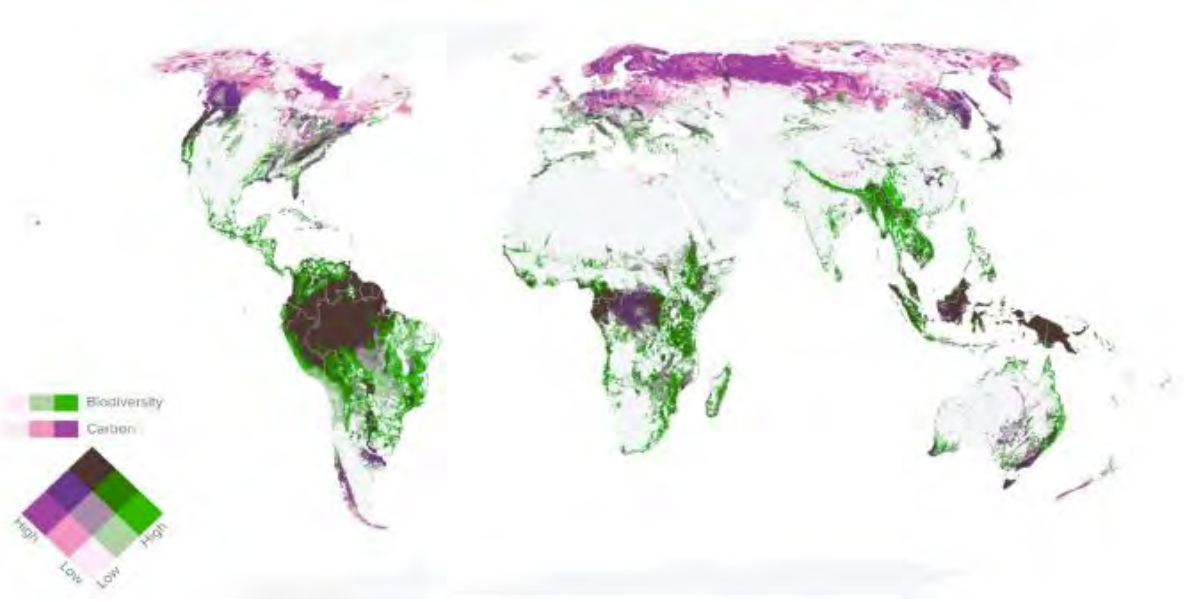


Figure 1: Mapping of the Overlap between Irrecoverable Carbon and Biodiversity Hotspots to Reveal 'Doubly Irreplaceable' Areas
Source: Conservation International, 2021

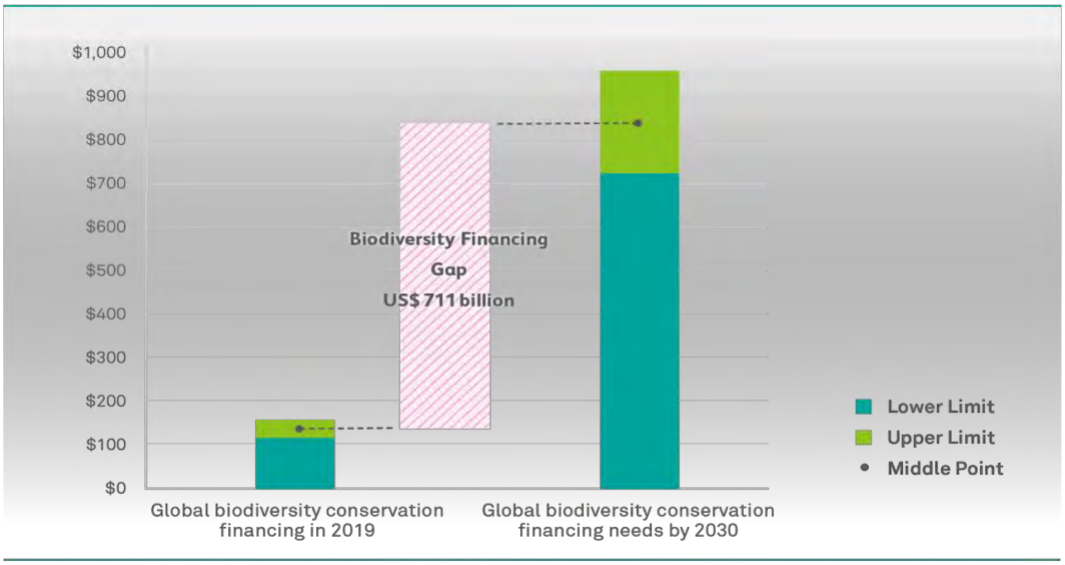
Tropical rainforests are important stores of both irrecoverable carbon and biodiversity hotspots. About 80% of the world's documented species can be found in tropical rainforests, even though they cover only about 6% of the Earth's land surface – less than half the area they previously covered (WWF, n.d.). Protecting areas of primary tropical forests, and fostering secondary forests to develop into primary forests, is particularly important. Primary forests – the oldest and most natural forests – are some of the densest, wildest, and most ecologically significant forests on Earth (Global Forest Watch, 2020). Primary forests are characterized by a stage of ecological maturity to be able to naturally regenerate native tree species and whose structure, composition and dynamics are dominated by ecological and evolutionary processes. Primary forests are not uninhabited by people. On the contrary, much of the world's tropical primary forests are the customary homelands of Indigenous Peoples (IPs), who continue to play a critical role in their protection and conservation management (Mackey et al. 2020).

Although primary tropical forests compromise of only around 32% of tropical forest cover, the ecosystem carbon stock of primary tropical forests at 141–159 billion tonnes of carbon is some 49–53% of all tropical forest carbon, the living biomass component of which alone is 91–103% of the remaining carbon budget to limit global warming to below 1.5 degrees above pre-industrial levels. Tropical forests have ongoing sequestration rates equivalent to 8–13% of annual global anthropogenic carbon dioxide (CO_2) emissions. Furthermore, primary forests store around 35% more carbon on average than degraded forests while providing longer and more stable carbon residency time (Mackey et al., 2020). Thus, primary tropical forests concentrate more environmental benefits per surface area than degraded forests, including greater biodiversity, higher carbon stocks and sequestration, and greater resilience of the ecosystem.

However, tropical forest ecosystems are under severe threat. Tropical forest ecosystems are perhaps the most endangered habitat on earth and most vulnerable to deforestation; each year, approximately 140,000 square kilometers (km^2) of tropical forest ecosystems are destroyed (WWF, 2011). Agricultural expansion drives almost 90 percent of global deforestation, responding to multiple underlying drivers including poverty and unsustainable production and consumption patterns (FAO, 2022).

1.2 Biodiversity and Climate Finance Gaps

Estimates from the Paulson Institute, The Nature Conservancy and the Cornell Atkinson Centre for Sustainability (2020) find that to reverse the decline in biodiversity by 2030, countries need to spend between $722-967 billion[8] each year over the next ten years. Taking into account what is being spent currently, that puts the biodiversity financing gap at an average $711 billion, or between $598-824 billion, per year (Figure 2).



Note: Using midpoints of the current estimates and future needs, current global biodiversity conservation financing (upper graph) may need to increase by a factor of 5–7X to meet the estimated global need for biodiversity conservation (lower graph).

Figure 2: Global Biodiversity Conservation Financing Compared to Global Biodiversity Conservation Needs ($ billion)
Source: Paulson Institute, The Nature Conservancy, and the Cornell Atkinson Centre for Sustainability, 2020

At the 15th Conference of the Parties (COP15) to the Convention on Biological Diversity (CBD), held in Montreal in December 2022, the 196 parties to the CBD agreed to an ambitious

[8] Unless specified otherwise, figures in this document are reported in US dollars.

Kunming-Montreal Global Biodiversity Framework (GBF), establishing a set of common global goals to restore and protect biodiversity by 2050, and an urgent set of milestone targets to 2030 to put the world on a path of nature recovery. This includes bridging the biodiversity finance gap by mobilizing $200 billion per year of biodiversity finance from all sources (domestic, international, public, and private) by 2030, increasing international transfer to official development assistance (ODA) recipient countries to $20 billion per year by 2025 and $30 billion per year by 2030. The resource mobilization strategy adopted as part of the COP15 decisions commits the parties to updating their national biodiversity strategies and action plans (NBSAPs) by COP16, due to take place in late 2024.

Box 1: 30 years of GEF Support to Forests

As of May 2022, the Global Environment Facility (GEF) had supported 640 projects dedicated to Sustainable Forest Management (SFM) with a value of $3.65 billion (GEF IEO, 2022). The share of GEF grants supporting forests has steadily increased over GEF phases. From 2% in the pilot phase, it increased to 10% in GEF-3 (2002-2006) and reached 26% in GEF-7 (2018-2022), when $943 million of GEF grants were approved to benefit forest ecosystems.

The GEF support to forests continuously "reinvented itself", renewing its approach at every GEF replenishment. While remaining firmly linked to the implementation of the Multilateral Environmental Agreements the GEF serves and aimed at generating global environmental benefits, the GEF SFM portfolio has responded to changing contexts in international agreements and to national needs. The SFM portfolio has become more integrated, moving towards projects that address multiple environmental dimensions and multiple countries, and run by multi-agency partnerships. It moved from a focus on protected areas to integrated landscape approaches, prioritizing forests with high ecological integrity within a broader transformation agenda.

Over the past 30 years, the GEF has notably invested more than $400 million in grants and leveraged an additional $3 billion in co-financing to support the management of the Amazon biome across eight countries. Experienced showed that, in the Amazon as much as in other places, the threats to the environment could not be solved by individual- single-sector, stand-alone interventions. Implemented over 2018-2027, the Amazon Sustainable Landscapes Program (ASL) benefits from a total GEF grant of $202 million and works in seven countries (Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, and Suriname), covering over 90 percent of the Amazon basin. It promotes integrated investment strategies focused on achieving impacts at a broad scale by addressing multiple drivers of environmental degradation. As of the end of 2021, the program had increased effectiveness in the management of 42.9 million hectares of protected areas; created/increased 4.3 million hectares of new protected areas; promoted sustainable management systems; and restored over 4,000 hectares of forests. Looking beyond the numbers, the program strives to achieve long-term impact through regional and multi-sectoral collaboration. It does so by ensuring the financial sustainability of protected area systems, mainstreaming environmental considerations into other sectors, and facilitating knowledge exchange to build capacity and scale up approaches across the biome. The program is led by the World bank and involves many partners.

Implemented over 2021-2027, the Congo Basin Sustainable Landscape Impact Program (Congo IP) aims at catalyzing transformational change in conservation and sustainable

management of the Congo Basin through landscape approaches that empower local communities and forest-dependent people, and through partnership with the private sector. Supported by a total $62 million grant from the GEF and close to $390 million of co-finance, the program engages six countries from the heart of the Congo Basin—Cameroon, Central African Republic, Democratic Republic of Congo, Equatorial Guinea, Gabon, and Republic of Congo. The program is led by UNEP and involves many partners.

Recognizing that the conservation and sustainable management of the remaining primary forests is an imperative and a cost-efficient solution to the twin crises of climate change and biodiversity loss, the GEF is currently developing a new integrated program entirely dedicated to maintaining the integrity of globally important tropical forests. The GEF allocated close to $360 million and expects $2 billion of co-funding for the "Critical Forest Biomes Integrated Program", which will be the largest program to be launched in the new 2022-2026 GEF-8 period. The GEF will continue to support the Amazon and Congo basins and extend its forest program to other regions, including the Indo-Malay, Papua New Guinea, Mesoamerica, and the Guinean forests of West Africa. Beyond the large blocks of tropical forests in the world, smaller patches of primary forests can indeed constitute biodiversity refugia and can serve as cornerstone for ecological restoration efforts in fragmented landscapes.

In 2022 just prior to COP15, the GEF approved funding for an *Umbrella Program to Support Development of Biodiversity Finance Plans* to enable countries to mobilize resources at scale to implement the GBF. Implemented by UNDP, this global program supports the development of national biodiversity financing plans, including baseline diagnostics, capacity, and institutional arrangements. It will ultimately support over 90 countries that have not benefited from the UNDP Biodiversity Finance Initiative (BIOFIN), which has been rolled out in 41 countries.

On the climate finance side, the Climate Policy Institute (CPI) (2022) finds that although global finance flows for climate action have almost doubled over the past decade to reach $653 billion in 2019/2020, this is still nowhere near enough to limit global warming to a 1.5 degree pathway, let alone to address the climate impacts, particularly on the poorest and most vulnerable societies and people (Figure 3).

Climate finance flows are unevenly distributed across geography, sectors, and themes. CPI analysis finds that most financing remains in its country of origin with 76% of climate finance in 2019/2020 raised domestically, and is primarily concentrated in the advanced economies of East Asia and the Pacific (dominated by China), Western Europe, and North America (IHLEG, 2022; CPI, 2022). In 2019/20, these regions also attracted the majority of private finance (81%). However, emerging markets and developing countries other than China will need to spend around $1 trillion per year by 2025, and around $2.4 trillion per year by 2030, so addressing the financing gap for these countries is of the essence.

Bilateral and multilateral climate finance flows from developed to developing countries have been a central element in the international climate accords from the outset. Under the United Nations Framework Convention on Climate Change (UNFCCC), developed countries committed to mobilize $100 billion a year by 2020 to support developing countries on climate action, a commitment that had not been met with a shortfall of around $17 billion in 2020 (IHLEG, 2022).

Further, the majority of all climate finance (51%) goes to energy systems, and the next largest sector receiving financing is transport (26%) (IHLEG, 2022). This leaves 23% of financing going to all other areas of need, including water and waste, buildings and infrastructure, land use and

forests, and other mitigation, adaptation, and resilience-building needs. There are also a plethora of challenges in the delivery of climate finance, including the limited predictability of support, still inadequate focus on adaptation and on poor and vulnerable communities, difficulties in accessibility of climate finance, particularly by poor and vulnerable communities most affected by losses and damages, and a low share of grants (72% of public climate finance between 2016 and 2020 was provided as loans) (IHLEG, 2022).

CPI (2022) analyzed and aggregated scenarios to explore climate finance needs for energy systems, buildings, industry, transport and other mitigation and adaptation solutions. They conclude that climate finance would need to increase by at least 590% (to $4.35 trillion annually by 2030 to meet global climate objectives, that is a tripling of the cumulative average annual growth rate of climate finance to 21% from the current 7% CPI (2022) argues that there is enough liquidity in the global financial markets (for example, $200 trillion is held by investors in 2020), but barriers impeding deployment exist. Additionally, delayed investment will only further

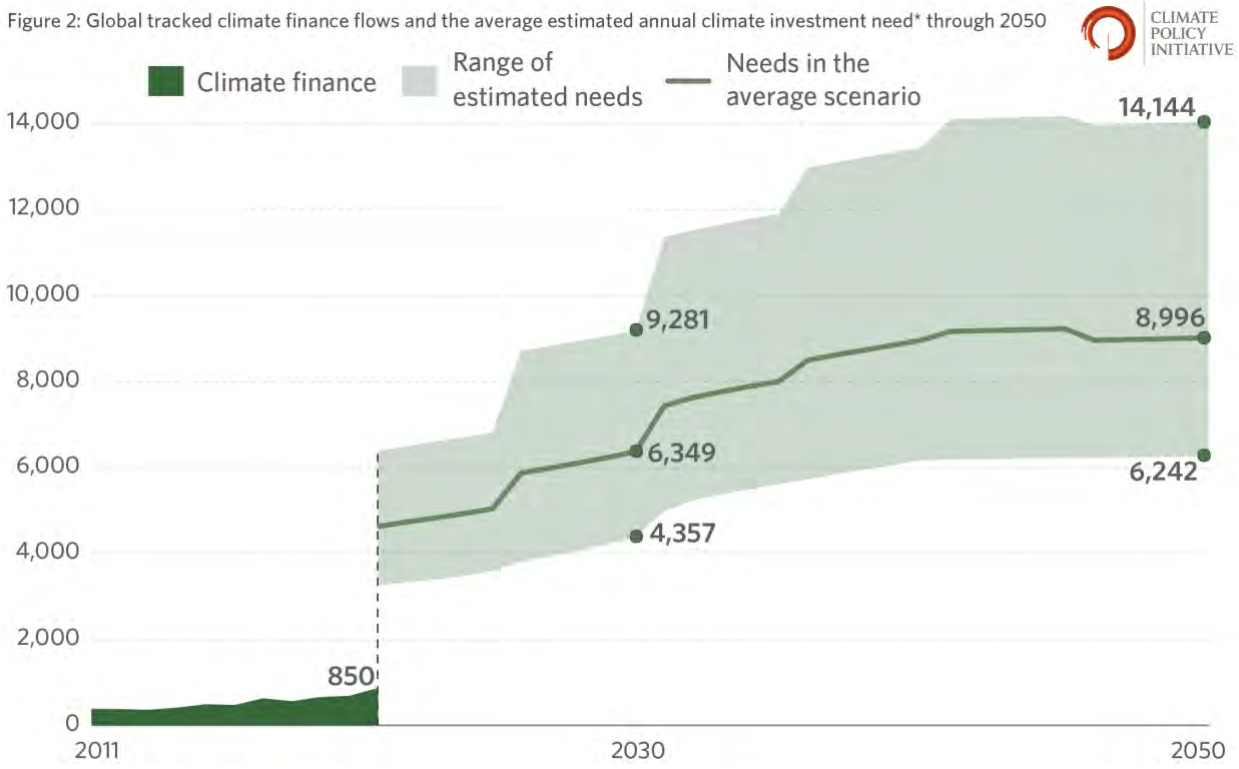


Figure 3: Global Tracked Climate Finance Flows and the Average Estimated Annual Climate Investment Needed through 2050
Source: Climate Policy Initiative, 2022

1.3 Financing Opportunities

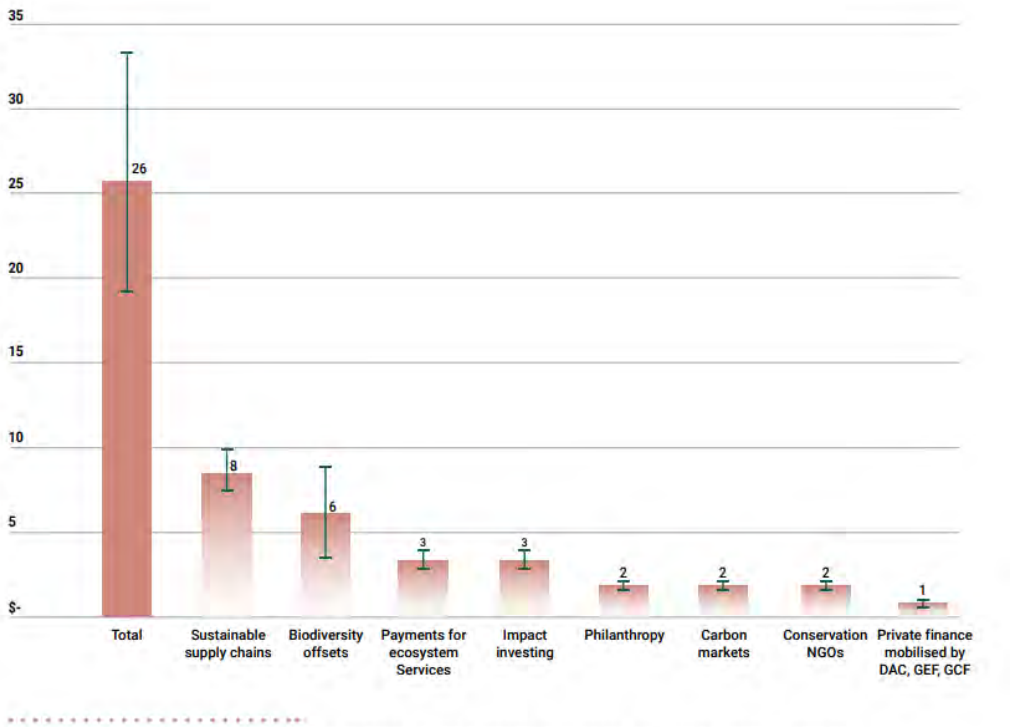
Climate and nature financing synergies

Both climate change and the destruction of nature represent negative externalities of the economic system. The Dasgupta Review (2021) argues that the world cannot tackle climate change and build long-term economic resilience without protecting and enhancing nature.

The State of Finance for Nature (UNEP, 2022) report highlights the need to significantly increase finance and investment in cross-over areas such as nature-based solutions (NbS) to address biodiversity loss, land degradation and climate change.

NbS can play a major role in addressing a broad range of societal challenges, from managing water scarcity to reducing disaster risk to poverty alleviation. The World Economic Forum (WEF) estimates that nature-positive policies could attract more than $10 trillion in new annual business value and create 395 million jobs by 2030 (WEF, 2020).

UNEP (2022) estimate that finance flows to NbS are currently $154 billion per year, less than half of the $384 billion per year investment in NbS needed by 2025 and only a third of investment needed by 2030 ($484 billion per year). For compatibility with a 1.5-degree pathway, cumulative (2022-2050) investment in NbS would need to reach at least $11 trillion. Of this, private sector investment in NbS would need to increase by several orders of magnitude from $26 billion, which represents only 17% of total NbS investment (Figure 4). The small share of private finance to NbS compared to public funding reflects the relative novelty of investing in natural capital and suggests that the investment case, i.e., the return to the investor relative to the level of risk, needs to be stronger. Figure 4 shows that sustainable supply chain investments are currently the largest private finance component, channeling about $ 8 billion per year (5% of total NbS flows) followed by biodiversity offsets at $6 billion per year and private PES services and impact investments, each contributing $3 billion per year. Finance flows to carbon markets and from non-governmental organizations (NGOs) and philanthropy are around $2 billion per year each. Private finance channeled through multilateral development banks and bilateral cooperation amounts to less than $1 billion per year.



Sources: (OECD CRS 2017-18); (OECD ODA Sustainable Ocean Economy 2019/2020); GIIN (2020); Hamrick (2017); Donofrio (2019); Deutz et al. (2020); FundingtheOcean.org (2020); OurSharedSeas (2021); Ecosystem Marketplace (2022); FAO (2018a); FAO (2018b); Rainforest Alliance (2013); Solidaridad (2020); Behan de Jong (2019); Impact Assets (2020); CI (2021); RSBP (2021); TNC (2021); WCS (2021); WWF (2021).
Note: The estimates displayed correspond to the midpoint between upper- and lower-bound estimates.

Figure 4: Annual Private Financial Flows in Nature-Based Solutions
Source: UNEP, 2022

Carbon markets

BloombergNEF (2022) finds that a growing acknowledgment of the need to put a price on pollution has led to carbon markets being established in more regions and expand in terms of both the volume of emissions covered and traded value. There are now 30 'compliance' carbon markets operating around the world, in which entities must purchase or trade allowances for the emissions they produce. Together, these markets reached a value of more than $850 billion in 2021 and cover close to a fifth of global GHG emissions (Figure 5).

In the nature, biodiversity, and NbS world, there has been more focus on voluntary markets, whereby entities purchase offsets from projects that remove or avoid emissions to help neutralize their own environmental footprint. BloombergNEF (2022) find that demand for offsets is accelerating. Over 144 million offsets were retired in 2021 – each corresponding to one ton of CO_2 equivalent – up more than 50% from a year earlier.

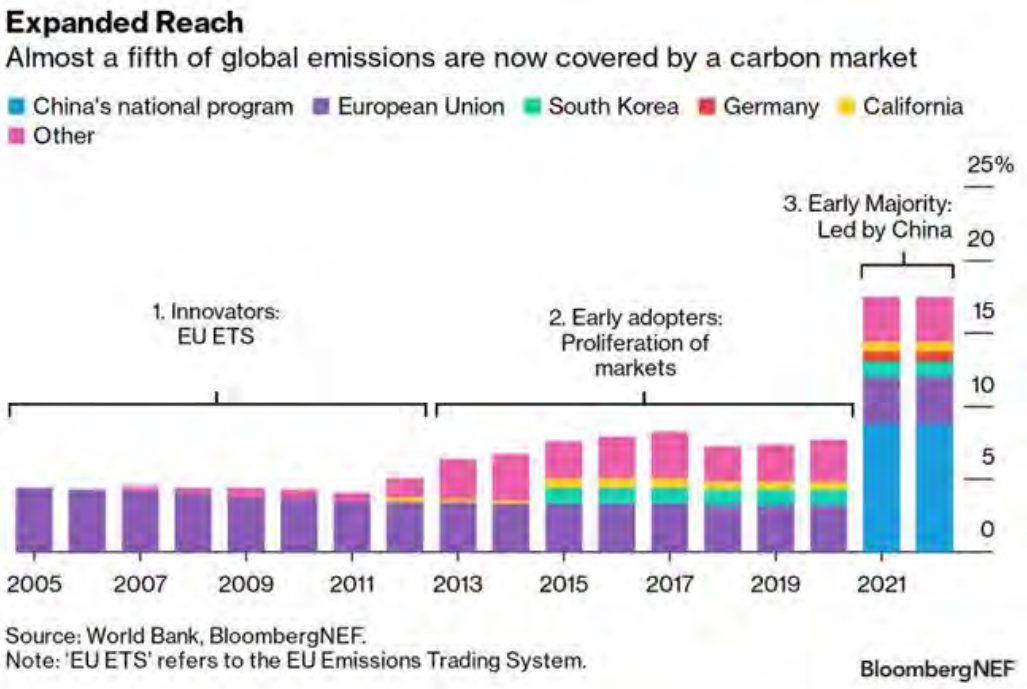


Figure 5: The Reach of Carbon Markets
Source: BloombergNEF, 2022

BloombergNEF (2022) argue that despite corporate demand for offsets mounting as new net-zero targets are set, the market remains oversupplied with renewable energy generation and avoided deforestation offsets – many of which are low quality. Both of these factors have kept prices in the market extremely low, leaving corporations with little incentive to prioritize other decarbonization strategies.

Voluntary carbon markets are very small compared to compliance markets, valued only at around $1-2 billion in 2021. But their potential is large, particularly in the context of companies offsetting residual emissions in the coming decades. In a scenario where only removal offsets are permitted (meaning no avoided deforestation, no High Forest, Low Deforestation (HFLD), etc.), BNEF (2022) estimates that demand for offsets could grow 40-fold between now and 2050, to 5.2 billion tons of CO_2 equivalent, and project that prices could reach $120 per ton in 2050. The caveat is that numerous assumptions underpin these estimates, including large upscaling/operationalizing of direct air capture (and storage) technologies that are highly uncertain and likely to entrain their own negative outcomes, so this estimate could represent the higher end of the market's potential. Nevertheless, it illustrates large potential.

Scaling-up

There is therefore an urgent need to scale up finance that can deliver for biodiversity, climate, and people. It requires both identifying and addressing at the economy level nature-, climate-, and people-negative incentives, and most notably eliminating, phasing out or reform harmful subsidies. It also requires strengthening and increasing nature-, climate-, and people-positive policies and initiatives, including through the development of new and innovative mechanisms. Official development assistance (ODA) is critical, and commitments must be fulfilled - but represents only a limited part of the financing – particularly in the context of Target 19 of the

Kunming-Montreal Global Biodiversity Framework, where the Parties to the CBD have committed to increasing biodiversity finance from all sources (domestic and international, pubic, and private) to $200 billion per year by 2030, including a doubling of biodiversity related international financial resources by 2025 and a tripling by 2030. This also includes a commitment to using public finance for leveraging private investment through blended finance and other relevant approaches. As we have seen with climate finance, where the majority of flows are domestic (76%), improving public financial management systems and countries' abilities to raise their own financing sustainably is crucial.

A key part of raising domestic financing is strong domestic financial systems that can tap into capital markets – in order to mobilize the huge potential of private finance. There is a menu of innovative finance options in both the climate (see, for example, the mechanisms discussed in IHLEG, 2022) and on the biodiversity and nature side (several mechanisms are discussed in Tobin-de la Puente, T-dJ, and Mitchell, 2021 and BIOFIN 2021 map over 150 biodiversity financing solutions across the world). Such mechanisms include own source revenues from private small-holders, PES, debt instruments and credits/certificates, blended finance and Project Finance for Permanence

This report does not aim to cover all innovative financing tools; it will focus on two instruments, biodiversity-positive carbon credits and nature certificates, which show particular potential in the current context – while acknowledging that a range of re-pricing and de-risking instruments will simultaneously be required to fill the large and crucial financing gaps.

Typology of innovative financing instruments

This section summarizes a typology of innovative financing instruments for nature and biodiversity, presenting a range of different types of emerging and established approaches and instruments. It does not attempt to provide a complete overview of the nature and biodiversity financing landscape or of the instruments being used, but to provide some framing on key instruments and approaches.

1. **Information and empowerment instruments** rely on knowledge, communication and persuasion to influence behavior and supply skilled labor, such as investment in education and research or information disclosure and green taxonomies. Smallholders can benefit from these instruments, notably by acquiring book-keeping and financial management skills which in turn enhances their ability to access non-concessional finance.

   Within this category, the Task Forces on Climate-Related and Nature-Related Financial Disclosure (TCFD and TNFD, respectively) were established based on the recognition that climate change and biodiversity loss present financial risks to the global economy. The resulting TCFD and TNFD frameworks allow the integration of climate change and nature into financial decision-making, effectively helping align financial flows with climate and biodiversity objectives. Likewise, the development of green taxonomies in many countries worldwide, with some explicitly addressing biodiversity, are powerful tools to channel investment toward sustainable economic activities and assets.

2. **Control and regulatory instruments** rely on the establishment of obligations, encouraging, prohibiting or restricting certain types of behavior (e.g., macro-prudential

regulations such as bank and insurance stress tests, as well as standards, zoning and bans).

Protected areas are among the most widely used type of control and regulatory instrument for biodiversity protection and enhancement. They received a significant boost with the inclusion of 30x30 in Target 3 of the Kunming-Montreal Global Biodiversity Framework. More generally, zoning can restrict the use of ecosystems and natural resources, effectively removing risks and threats to biodiversity regardless of whether financial flows are green (i.e., support biodiversity) or brown (i.e., contribute to biodiversity loss).

Current draft regulations among consumer markets (notably the European Union, the United States and the United Kingdom) aimed at decoupling deforestation from imported commodities represent another important regulatory instrument that could align private investments in commodity supply chains with climate and biodiversity objectives.

Biodiversity offsets are the last option in the mitigation hierarchy. They are most often the results of biodiversity protection policy mandated by governments to compensate for unavoidable damage to biodiversity by a development project when the cause of damage proves difficult or impossible to eliminate. The Paulson Institute, The Nature Conservancy and the Cornell Atkinson Centre for Sustainability (2020) identify biodiversity offsets as one of the most promising mechanisms to scale up biodiversity finance, with a potential to mobilize $162.0 to $168.0 billion per year by 2030.

3. **Economic and market instruments**, which act as financial incentives or disincentives to influence private sector behavior and investment decision-making. This includes carbon taxes, fossil fuel divestment, green procurement, tariffs, fines, tradable permits and quotas.

   PES schemes fall within this category. These services compensate individuals or communities for undertaking actions that maintain or increase the provision of ecosystem services such as water purification, flood mitigation, or carbon sequestration (Jack, et al., 2008). Salzman, et al. (2018) find that the number and investment in PES schemes have increased considerably in recent decades, resulting in over 550 active programmes around the globe and an estimated $36-42 billion in annual transactions. PES schemes can operate at local, regional and national levels, with very different programme structures and mechanisms, enabling PES to be based on the specific context of its application (IPBES).

   Carbon credits, whether within statutory/compliance markets or voluntary markets, are also considered economic and market instruments. While carbon credits are quantified by their mitigation impact, many of them fetch premium prices – notably in voluntary carbon markets – thanks to their positive impacts on other objectives, including climate change adaptation and biodiversity. Biodiversity-positive carbon credits and nature certificates are explained in section 2 and will be the focus of this report. Importantly target 19 of the Global Biodiversity Framework includes a mention of “biocredits”.

   Reforming subsidies included in the European Union’s Common Agricultural Policy (CAP) also holds significant potential to align billions in agricultural investments with biodiversity, consistent with Target 18 of the Kunming-Montreal Global Biodiversity Framework.

4. **Institutional instruments** create an institutional and organizational environment that facilitates policy and technology development and deployment, such as green finance regulatory networks, asset managers' coalitions, and dedicated financial institutions including green banks and green bond platforms.

   Project Finance for Permanence (PFP) is a promising approach aimed at financing conservation at scale, including the goal of protecting at least 30% of terrestrial, inland water, and of coastal and marine areas by 2030, which Target 3 of the Kunming-Montreal Global Biodiversity Framework covers. PFPs gained traction in 2011 through a coalition of conservationists, former bankers, and management consultants who adapted practices from the mainstream financial sector to progress a model to meet the challenge of long-term sustainable financing for large-scale conservation, building on early PFP models, including the Great Bear Rainforest Agreement in British Colombia and the Amazon Region Protected Areas Program. PFP is a form of "positive conservation partnership" that brings together all stakeholders (IPLCs, governments, philanthropic investors, private sector and NGOs) to secure, in a single closing, important policy changes and long-term funding necessary to meet specific conservation goals of a program over a defined long-term timeframe, with the ultimate aim of financing conservation in perpetuity (Cabrera, 2021).

   The GEF supported a PFP in Brazil with a total investment of $76 million through three projects implemented over the period 2002-2024. The resulting Amazon Region Protected Areas Program (ARPA) now provides long-term funding to 120 protected areas over 62 million hectares, and reduced deforestation by 21% between 2008 and 2020 (Silveira Soares-Filho et al., 2023). In 2010, Costa Rica finalized their Forever Costa Rica conservation plan, where the country and its partners committed to doubling the country's marine protected areas (now 47), improving the management of its marine and terrestrial protected areas, and on securing long-term finance (Gordon and Betty Moore Foundation, 2012; Forever Costa Rica Association, 2023). With support from the Green Climate Fund (GCF), WWF is also implementing the PFP approach in the Bhutan for Life project, which has resulted in Bhutan protecting over half its surface area and achieving carbon neutrality at national level. PFPs have also been successfully adapted in a several countries, from Canada to Bhutan, Peru, Colombia, Costa Rica, and Mozambique, and several are in preparation, including in Namibia, Mongolia, and Gabon, many with GEF support.

   The establishment of targeted funds and financial institutions also fall into the category of institutional instruments. The Global Fund for Coral Reefs Investment Window (implemented with Pegasus Capital Advisors LP) created a private equity fund that encourages investments in coral reefs in 17 countries in Africa, the Asia-Pacific, Latin America and the Caribbean. GCF is acting as anchor investor with its $125 million investment, encouraging further public and private sector investment in sustainable ocean production, ecotourism, and sustainable infrastructure and waste management.

   Another example is the Green Guarantee Company, established with $ 40.5 million in equity from GCF, which is the first ever global institution dedicated to providing guarantees for climate bonds with significant climate adaptation and mitigation impacts. The company will connect local climate bond issuers with international investors and create working groups in the countries where it operates. This represents an opportunity to mobilize large

funds from global investors by using guarantees to increase developing countries' issuance of climate bonds and loans with significant climate impacts.

5. **Financial instruments** involve direct public sector investment in specific instruments to establish proof of concept or a commercial track record of new solutions. They differ from the four other categories in that they do not act directly in a systemic way. Instead, once proof of concept it obtained, they can become either replicable or scalable. Grants remain the most frequent financial instrument for biodiversity to date, but their extreme level of concessionality and limited long-term sustainability come at high cost for public institutions, which has led to a search for more innovative instruments that blend public and private finance ("blended finance"), helping leverage private financial flows at scale and increase the efficiency of scarce public resources.

   Sovereign debt is one type of such instruments. Debt conversions, often known as "debt-for-climate" and "debt-for-nature swaps" are transactions where countries restructure, reprofile, and reduce their debt obligations in exchange for committing some portion of the freed up financing toward domestic climate and nature projects (IMF, 2022; AfDB, 2022; CPI, 2021; Steele and Patel, 2020). Large-scale transactions with strong country ownership and integration into national public financial management systems have been emerging in recent years. For example, the GEF-supported Seychelles' 2016 debt conversion resulted in $ 22 million of investment in marine conservation (Convergence, 2017). Belize's 2021 debt conversion enabled the issuance of $ 364 million worth of blue bonds linked to national marine conservation activities (TNC, 2022; White, 2022; Patel, 2022). A modified financial structure using partial guarantees provided by IDB and TNC was used to refinance $150M in Barbados' debt to support implementation of their marine conservation 30x30 commitments in 2022. Most recently, Portugal agreed to provide debt relief to Cabo Verde on condition the funds are used for climate and nature (Expresso Das Ilhas, 2023).

   Bond instruments can also support nature and climate objectives. Green, Social, Sustainability and Sustainability-linked (GSSS) bonds represent a new asset class that has gained traction over the past years across developed markets and that can help fill the SDG Financing Gap. GSSS bonds, which grew by $600 billion in 2021 alone, are borrowing instruments where the financial and structured characteristics are based on meeting pre-agreed sustainability criteria measured through key performance indicators (KPIs). Country ownership is supported through general proceeds rather than use of proceeds bonds, - use of proceeds bonds require some or all of the proceeds to be allocated to a specific project with some sort of positive environmental impact, whereas general budget use bonds instead have financial terms and conditions linked to one or more KPIs with the understanding that governments have a broad array of concerns, responsibilities and projects that require funding and the need to allocate proceeds at their own discretion, just like they would be able to do with a vanilla bond. For example, nature performance bonds are tied to measurable targets for restoring wetlands, protecting forests, and reducing threats to wildlife and plant species, while still allowing for general use of proceeds (NatureFinance, 2021).

   Countries can issue these bonds when seeking to raise cheaper financing for any purpose, while simultaneously pursuing their own national sustainability goals. While this type of

bond is nascent and limited to countries with economies strong enough to raise funds in capital markets, there are increasing examples of such issuances.

Chile issued a $2 billion sustainability-linked bond in March 2022, with two KPIs geared towards reducing emissions and increasing Chile's use of renewable energy (BNP Paribas, 2022). Benin issued a EUR 500 million sustainable development goal (SDG) bond in July 2021. The bond is linked to Benin's framework and based on the prioritization of the most pressing targets and on the total cost to achieve them (Natixis, 2021a). Mexico issued a EUR 750 million SDG bond in September 2020, and a second EUR 1,250 million SDG bond in July 2021, linked to Mexico's commitments under the 2030 Agenda and SDG commitments (Natixis, 2020; Natixis, 2021b). Debt for climate and nature swaps (mentioned above) rely on blended finance, in the form of insurance policies or guarantees to provide below market borrowing rates for the borrower country.

On biodiversity specifically, one landmark example is the Wildlife Conservation Bond or "rhino bond", issued in March 2022 by the World Bank with GEF support. This five-year $150 million Sustainable Development Bond is a combination of existing financial products – a bond with an excellent credit rating paired with a performance-based grant funded by the GEF, which results in a groundbreaking financial structure that enables private sector investment in global public goods. At the end of the life of the bond, investors will receive back the principal along with a variable payout depending on the population growth rate of black rhino, a critically endangered species, in two target areas in South Africa. The coupon payments from the bond, instead of going to investors as for typical bonds, are instead used to fund the conservation activities on the ground.

However, GSSS bonds still make up just a fraction of the bond market. The size of this market remains particularly limited in developing countries: Africa, for instance, accounted for only 0.077% of the global green bond market in 2021. The market for GSSS bonds is hampered by several barriers in developing countries, especially least developed countries and small island developing States. Adequate market infrastructure is needed to provide the foundation for capital market depth and liquidity. This includes exchanges and trading platforms, clearing houses, credit risk assessment, custodians, and fiduciaries, without which bond markets will be difficult to scale. To address these barriers, GCF has invested in multiple solutions, including the above-mentioned Green Guarantee Company and support to Jamaica in setting up a Caribbean green bond listing on the Jamaica Stock Exchange, enabling it to list green bonds through a dedicated facility.

Equity is another instrument that can be found under the "blended finance" label. The above-mentioned Global Fund for Coral Reefs, for instance, uses GCF's $125 million in public first-loss equity to crowd in private equity, with the potential to create a new asset class to mobilize institutional and citizen savings for coral reef protection.

These are just a few examples of how different types of re-pricing and de-risking instruments can work in synergy, mutually reinforcing each other to help crowd in biodiversity finance at scale. While none of these instruments acts as a silver bullet, an optimal mix of instruments can be designed in each instance to respond to specific desired biodiversity outcomes.

Focus of this document

This report will focus on section 3, economic and market instruments, and specifically on biodiversity-positive carbon credits and nature certificates. These two instruments are generating considerable interest at the moment – both among policy makers and corporates. Target 19 of the Kunming-Montreal Global Biodiversity Framework notably references biodiversity credits among the innovative schemes that should be stimulated, and calls for the optimization of co-benefits and synergies of finance targeting the biodiversity and climate crises. Both instruments have the potential to mobilize new private finance. They also hold promise to address the insufficient pricing signal from current carbon credits, and to unlock greater private sector financing for High-Forest Low-Deforestation areas and highly intact forest landscapes, which have been largely excluded from traditional carbon finance to date. While prospects are uncertain, it is anticipated that they will significantly grow in volume in the coming years due to long-term climate and biodiversity commitments from corporates and policy developments as part of the implementation of the Kunming-Montreal Global Biodiversity Framework.

2. Biodiversity-Positive Carbon Credits and Nature Credits: Overview

2.1 Carbon Market Overview

Carbon markets have been maturing for the last three decades – both the regulated and the voluntary markets. In the regulated or compliance market, carbon credits are exchanged in accordance with government and international regulatory bodies' established limits or "caps" on emissions. In the voluntary market, carbon credits are traded on a free market decentralized basis where there is no limit on exchanges or trades. Carbon credits can serve as both avoided emissions from sources such as renewable power and energy as well as investments in carbon "sinks" which remove carbon from the atmosphere. All carbon credits (the unit is generally equal to one ton of CO_2) must pass the test of additionality, meaning that the intervention that produced the credits resulted in either increased CO_2 removals or reduced emissions commensurate with the number of credits issued. More precisely, without the intervention (typically a project or program), the quantitative change in removals or emissions against which credits are issued would not have occurred in the year for which the credits are issued. Most substantive criticisms of carbon offset markets question whether this criterion of additionality has been met and assert that credits have been and continue to be issued without adequate demonstration that they represent actual increased removals of CO_2 from, or decreased emissions of CO_2 to, the atmosphere.

The first regulatory compliance carbon trading schemes were adopted with the signing of the Kyoto Protocol in 1997. The protocol which mandated industrialized countries signatories' international commitment to limiting and reducing their respective GHG emissions established emissions trading ET (ET) together with the UNFCCC linked Clean Development Mechanism (CDM) and Joint implementation (JI) mechanisms. These flexible mechanisms allowed for the creation of certified emissions reduction credits (CERs), emission reduction units (ERUs), and removal units (RMUs) tied to the implementation and performance of domestic and international GHG mitigation activities and projects. Under this scheme credits and units represent one ton of carbon dioxide equivalent of avoided GHG emissions or removals of GHG from the atmosphere. Since then, roughly 30 compliance trading schemes operating under various modalities have emerged at regional, national and subnational levels such as the California Compliance Offset program, European Union's Emissions Trading System, Chinese National Emission Trading System among others (BloombergNEF,2022). In most compliance trading schemes, utilizing the "cap and trade" model, relevant sectors and entities are given emissions allowances and must purchase or trade allowance surpluses to meet and stay within regulated limits on released emissions. As of 2022, compliance emissions trading schemes cover 8.99 giga ton of CO_2e, representing 17.55% of global GHG emissions (World Bank, 2023) and trading in over $260 billion annually.

The voluntary carbon markets (VCM) began to meaningfully emerge in the 2000s as a means for nonregulated entities and corporations to get ahead of anticipated regulation and engage in social responsibility. In the absence of large scale regulation, the VCM continued to expand in response to growing public and private mitigation commitments. Such recent initiatives involve aims to reach net-zero or carbon neutral targets and commitments. Through the vehicle of a carbon certification standard, buyers are typically able to claim one ton of removed CO_2 or avoided emissions with each credit unit purchased. In most cases, buyers will apply each unit purchased towards voluntarily "offsetting" their carbon footprint. In the absence of coordinated government oversight, independent standard developers such as Verra, Gold Standard, Plan Vivo, American Carbon Registry (ACR), Architecture for REDD+ Transactions (ART), Climate Action Reserve (CAR), Global Carbon Council (GCC) have emerged to enhance overall quality assurances regarding credibility, transparency, and reliability in the market. These bodies provide a range of functions from simply establishing standards and criteria that credit suppliers must meet to receive each organizations respective "brand" of verified emissions reduction credit to managing registries to track and monitor the sale of credits and providing offset platforms to for the transaction of issued credits. Though not all standard bodies provide all the previously mentioned functions, the VCM contains an ecosystem of participants that includes projects developers and implementors, IPLCs, governments, brokers, traders, retailers, and buyers that interact at various stages of the market.

Despite having emerged roughly 30 years ago, the VCM is very much still in its nascence only reaching a market valuation approaching $2 billion and representing 0.2% of global GHG as of 2021 (Trove Research, 2021). However, the $2 billion valuation reflects a quadrupling of market growth from 2020, by and large driven by a growing awareness on the world's natural resources depletion and degradation and renewed interest in NbS and global efforts taken to enhance quality and integrity according to Ecosystem Marketplace. Forestry and Land use credits made up 46% of traded value in 2021, representing an increase of almost a third from the year prior. In terms of credit issuers, Verra held 76% of all traded credits in the market with 74% of their traded volume coming from forestry and land use projects (Forest Trends' Ecosystem Marketplace, 2022). Due to economic outlooks, carbon credit issuances dropped by 21% and retirements slowing only slightly. However, with the signing of the Paris Agreement and the evolving but certain integration of VCM via Article 6 (see below), the VCM is projected to continue to grow in years to come. Verra has instituted an updated and revision of its Avoiding Unplanned Deforestation and Degradation (AUDD) project methodologies so both existing and new VCS projects can transition to this consolidated methodology that better integrates projects with jurisdictional baselines where appropriate.

Over the years, despite some successes, carbon markets have largely failed to stem the tide of biodiversity loss and deforestation of primary forests. They are not, in fact, designed for that purpose (one exception may be the REDD+ framework, which is detailed below and aims to provide results-based payments for forest protection). The primary overlap between carbon offset markets and natural forest conservation is at the frontier between an expanding agricultural frontier and the forests that are "next in line" to be felled for that expansion, in the absence of an intervention. Typically, such forests have suffered degradation already, but the

key characteristic is that they must be imminently in harm's way to an extent necessary to construct an emissions reference or "business-as-usual" level against which credits can be issued if the intervention keeps actual emissions below that level. Primary forests that are farther afield from immediate loss are more difficult to show at danger of imminent loss.

Though an overlap between carbon sinks and biodiversity benefits can exist — especially where mature natural forests face high rates of deforestation and degradation (the reduction of which can generate carbon credits) — positive outcomes for biodiversity are not always guaranteed. For example, while fast growing monoculture plantations may be good for carbon sequestration, they are typically bad for biodiversity. With measurable carbon removals and sequestration often prioritized by carbon markets, perverse incentives emerged overtime to inadvertently put carbon and biodiversity goals at odds, despite efforts to address social and ecological safeguards as part of the emission reduction programs (i.e. REDD+). The demand for additional removals creates tensions with projects focused on mature forest stands where there is relatively limited additional increase in carbon storage to be gained via management despite the presence of high levels of biodiversity richness beyond carbon stocks.

2.2 Biodiversity-Positive Carbon Credits

Definition of biodiversity-positive carbon credits

Biodiversity-positive carbon credits are carbon credits that include additional and specific management actions linked to the enhancement, conservation, and or restoration of biodiversity. These credit types combine, "link", or "bundle" verified biodiversity benefits typically in conjunction with a one-to-one carbon credit. In the VCM, biodiversity is often referred to as one in a series of co-benefits that can be bundled or labeled alongside carbon credits - another co-benefit that is often seen as critical for the integrity of such bundled credits is community-benefits, meaning the amount of money or material impact that the implementing community receives due to the project (Broekhoffet al.,2019). As a result of these additional nature benefits, these credits can be highly desired and sold at a premium (examples mapped in the annex).

As presented in this paper, the biodiversity component of both biodiversity-positive carbon credits and nature certificate schemes should not be thought of as offsets, as biodiversity is not fungible the way that carbon emissions are. Understanding this, promoting the concept of a biodiversity "offset" is not a purpose of this paper (in fact, much the same way that the climate community is now shifting their views on carbon "offsets" and replacing them with carbon contributions, Beyond Value Chain Mitigation schemes, or co-investment models). Rather, both the biodiversity and nature positive aspects of biodiversity linked carbon credits and nature certificates are presented not as offsets for harm to nature but as contributions to biodiversity improvements (The Biodiversity Consultancy, 2022).

Assurance of enhanced biodiversity or nature outcomes are typically guaranteed by third-party verifiers using additional standards and methodologies specific to measuring, reporting, and verifying biodiversity outcomes. Commonly referred to as NbS or natural climate solutions (NCS), the carbon project types most relied on to provide enhanced nature and biodiversity outcomes are 'Avoided Conversion' projects that contribute to the protection of intact primary ecosystems, and 'Afforestation, Reforestation and Revegetation' which promotes the establishment of new forests, improved management, or restoration of previously existing

ecosystems. These can also be referred to as “nature-based avoidance” or “nature-based removals.” It should be noted that biodiversity enhancement can be implicitly or explicitly linked depending on choices related to carbon project type and project developer design and desired final credit product offering. Not all carbon projects that fall under the category of Land Use and Land Use-Change Sectors (LULUC) monitor, report, and verify biodiversity enhancement as an explicit benefit linked to projects, though biodiversity benefits can occur. For example, an avoided nature-based project in a project area may not focus on quantifying biodiversity benefits, and yet by nature of the project overlap with goals of biodiversity protection. Though forests are most frequently referenced regarding biological sequestration, many land, agricultural, urban, and marine ecosystems have the capacity to generate concurrent climate and biodiversity benefits (Box 2).

Box 2: Non-Forest Carbon Schemes with Implicit and Explicit Biodiversity and Nature Benefits

Scope		Scheme/ Project Example
Blue Carbon (Wetland, Coastal + Marine)	Restoration or conservation of • Peatland • Mangroves • Salt marsh • Seagrass • Kelp • Coral reef	• Gold Standard Water Benefit Certificate • Nature Conservancy’s Blue Carbon Resilience Credits (BCRC) [concept] • NOW Trust’s Niue Ocean Conservation Credit (OCC)
Agriculture	• Improved soil management (no-till, nutrient mgmt., cover cropping, mulch) • Aquaculture • Grazing and livestock mgmt. + intensification • Water mgmt. • Composting	• Indigo Ag
Grassland	• Restoration and conservation of grassland and riparian zones	• Ducks Unlimited Avoided Grassland Conversion Carbon Projects
Urban	• green roofs • urban and community gardens and green space • green infrastructure • enhanced urban forests and city canopy cover	• City Forest Carbon Credits

* This chart is general and not exhaustive

In addition to the renewed attention to biodiversity in its own right, as epitomized by the adoption of the Kunming-Montreal Global Biodiversity Framework, the motivation to better include and

value biodiversity rather than continued singular attention on carbon sequestration stems from the ballooning scientific evidence of biodiversity and climate feedback loops (Pörtner et al., 2021; Berzaghi et. al, 2019)It is estimated that ecosystem services worldwide are worth $125 trillion annually (Barber, C.V., et al., 2020), with many ecosystem services being tied to climate mitigation. Efforts are mounting to estimate the economic value of the specific role played by biodiversity in climate regulation services (Chami et.al, 2019; Chami et al., 2020; Bello et al., 2021).

Typically, carbon credits that are bundled with certified nature, biodiversity and/or community benefits can be traded at a premium relative to stand alone carbon credits. According to Ecosystem Marketplace's market insights report, credits combined with additional benefits beyond carbon saw a clear price premium over the global 2021 Ecosystem Marketplace's Global Carbon Price benchmark of $4.00/$tCO_2e$; similarly, according to Trove Research, over the past year Verra's Climate, Community, & Biodiversity (CCB) standard credits (see Section 2.3 for description) added on average about $2.55 (max $5.34 / min $0.54) to the REDD+ and Nature Restoration credit types. In 2020, Verra's CCB standard credits demonstrated a 277% increase in volume sold between 2020 and 2021 representing 17.4 $MtCO_2e$ to 65.9 $MtCO_2e$ in credits (Forest Trends' Ecosystem Marketplace. 2022). Despite the growth in biodiversity-linked carbon credits, the supply of such credits remains stunted in part due to the complexity of the issuance landscape; indeed, the lack of standardization and existence of broadly accepted methodologies for measuring biodiversity outcomes as well as the additional costs and resources necessary to pursue additional certification can deter carbon project developers from seeking biodiversity-positive carbon credit labels.

Another pathway that biodiversity and nature enhancement has been linked to carbon credits recent years is through the expansion of standards grounded in the Sustainable Development Goals (SDGs) framework, such as Gold Standard's for the Global Goals Standard and Verra's Sustainable Development Verified Impact Standard (SD VISta). Adopted by the United Nations in 2015, the SDGs serve as an integrated agenda to end poverty, protect the planet, and ensure all people enjoy peace and prosperity by 2030. The framework provides specific inclusion of nature and biodiversity enhancement. SDGs Life on Land (15), Life Below Water (14), and Climate Action (13) provide explicit support for biodiversity and nature. All the SDGs touch on planetary and human benefits overlapping with nature in a variety of implicit ways.

Within all above-mentioned standards and the related methodologies, approaches to choosing biodiversity indicators, measurement, and monitoring vary. Biodiversity-linked carbon standards typically rely on project developers to customize biodiversity indicators based according to the project area (e.g., total area/number of trees planted, forest extent, area connectivity, canopy structure, flora surveys, wildlife observations, systematic fauna surveys, population measures of threatened species, fire frequency, poaching of plants or animals, incidents, frequency or intensity of agricultural conversion, and invasive species). What methodologies are reflected in projects depend on the aims of project developers regarding desired biodiversity claims and goals and whether the aims are to conserve, protect, or restore biological diversity in a given area.

Building on lessons from REDD+ implementation at multiple scales

Reducing **E**missions from **D**eforestation and forest **D**egradation and enhancement of forest carbon stocks (REDD+) is one of the earliest frameworks to bundle carbon reductions, human

wellbeing, and nature enhancement most concretely. REDD+ activities can encompass any activity that supports the conservation, restoration, protection, and sustainable management of forest ecosystems. Established under the Warsaw Framework in 2013 and enshrined in Article 5 of the Paris Agreement, UNFCCC's multilateral REDD+ framework provides the guidance and rules governing results-based payments at national and subnational levels with the aim to end deforestation. While establishment of national and subnational REDD+ programs has taken time given the lack of initial financial resources and extensive capacity building needed for "REDD+ readiness", key progress has been made in terms of better understanding of deforestation drivers, improved forest monitoring capacities, increased stakeholder engagement and renewed attention to the rights and knowledge of Indigenous Peoples and local communities (Angelsen et al., 2018; Duchelle et al., 2019; Parrotta et al., 2021). Yet, financial and governance challenges remain. Lessons learned from REDD+ implementation to date are essential for building innovative mechanisms for biodiversity finance.

REDD+ was created with the goal to incentivize and compensate developing countries for tropical forest conservation, though in recent times in acknowledgement of the wide ranging links between various ecosystems and climate benefits, the REDD+ framework has extended into many non-forest systems (Seymour et al. 2022a). The framework relies on measuring and monitoring against an established
"baseline," taking the difference between the carbon stock of forests under historical deforestation and the respective area's forest degradation rates and turning the quantified carbon sequestration equivalents into sellable credits. Around 50 countries have REDD+ programs at various development phases, and over 350 REDD+ projects have been initiated to date (Guizar-Coutiño et al. 2022; Angelsen et al. 2018)

Project-based REDD+ credits are supplied both to the VCM and to compliance markets. They have relied on several international certification standards established by carbon crediting programs such as Verra and Plan Vivo. Utilizing a results-based payments approach, most financial flows into REDD+ activities require a verified tradable carbon reduction unit in exchange for payments received, and financial flows are channeled to REDD+ via the VCM, regulatory compliance carbon markets, bilateral and multilateral agreements, as well as philanthropic and "readiness" funds. A UNFCCC call for 'demonstration activities' in 2007 led to an early accumulation of hundreds of local REDD+ projects. REDD+ credits have proliferated the VCM and represent the largest volume of nature-based credits, making up 24.5% of credits issued.[1] Generally, REDD+ comprises three phases: **readiness** (establishing the institutional and technical capacity of a given jurisdiction to achieve REDD+), i**mplementation** (effectively reducing emissions), and **results-based payments** (unlocking the financial compensation for reducing emissions).

Since REDD+'s inception, the framework has been plagued by critiques and hard to resolve weaknesses. Among them, lack of initial financial resources for supplier countries, capacity building for REDD+ implementation (Köhl et al. 2020), issues around additionality, leakage and permanence, inappropriate outreach strategies and engagement of IPLCs, climate credibility, governance, lack of cross-sectoral planning and implementation, unclear or missing benefit-sharing mechanisms, weak safeguards around information systems and human well-being (Streck, 2021). One of the more persistent issues is around the actual and perceived integrity of the credits. It is indeed very difficult to set a defensible baseline of deforestation rates, and therefore emissions, to effectively measure and guarantee the causality and quantity of CO_2 reduction (Duchelle et al. 2018). For many of these reasons, standard bodies

[1] Voluntary Registry Offsets Database, Berkeley Carbon Trading Project

like Gold Standard refuse to issue REDD+ projects under their banner (Gold Standard). Additionally, project implementers cited insecure land tenure and uncertain REDD+ financial flows as key impediments to the success of the framework (Wunder et al. 2020). Despite mixed reviews around the perceived effectiveness of the framework, there is evidence REDD+ can create positive outcomes. According to a global study evaluating the effectiveness of 40+ voluntary REDD+ projects, in the first 5 years of implementation, deforestation within project areas was reduced by 47% and degradation rates were 58% lower (Guizar-Coutiño et al, 2022). Projects located in high deforestation experienced had lower rates of deforestation than other areas. Moreover, in addressing concerns around leakage, the study did not find that leakage undermined deforestation reductions in forested areas within 10 km of project boundaries (Guizar-Coutiño et al, 2022). However, local participation in REDD+ needs to be reinforced in order to achieve longer term carbon and non-carbon benefits (Angelsen et al. 2018).

To address concerns regarding the efficacy of REDD+ and integrate lessons learned from project-based REDD+, new approaches for the implementation of REDD+ have emerged, referred to as jurisdictional and nested approaches. Jurisdictional REDD+ approaches are a departure from project-based REDD+ initiatives in that they operate at the national or subnational levels and are rooted in more expansive and inclusive governance systems than what can be achieved through the scope of an individual project. Similarly, nested approaches seek to integrate standalone projects at multiple scales into a single accounting framework. Figure 6 below provides an illustration of the various scales for REDD+ program implementation and how the schemes are structured. Research suggests that national REDD+ programs and agreements can achieve significant reductions in deforestation as evidenced by the Norway-Guyana REDD+ partnership that reduced tree cover loss by 35% during the implementation period (2010 to 2015), equivalent to 12.8 million tons of avoided CO_2e emissions (Roopsind et al. 2019). However, the failure to ensure continuity of payments resulted in tree cover loss after the partnership ended. Any multi-national agreements or policy approaches must work to ensure forest protection guarantee beyond implementation periods.

The lessons from REDD+ will play an important role in defining both how carbon credit markets operate in the future, as well as how nature certificate schemes expand and grow. One question that will likely continue to play a role in future conversations is whether biodiversity can effectively be bundled with carbon credits (such as the case in REDD+), or whether there is a need for a standalone certificate scheme.

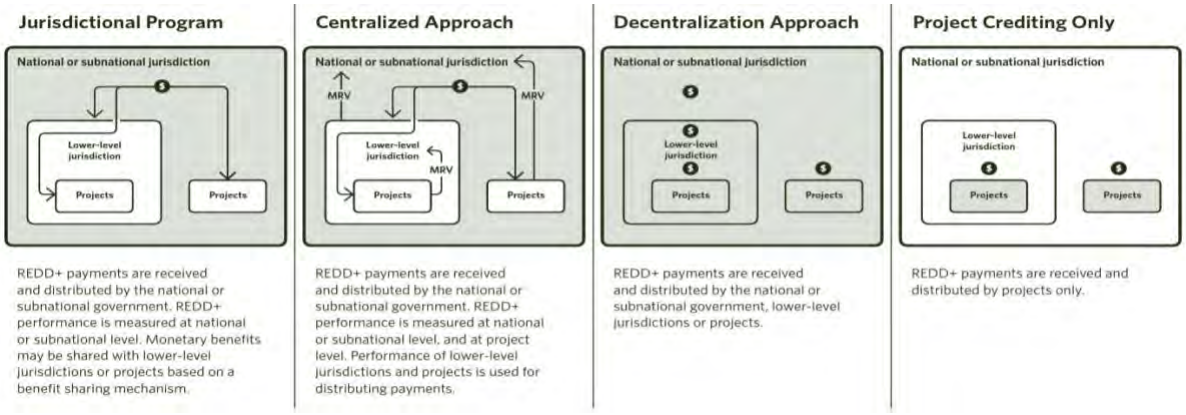


Figure 6: Overview of REDD+ Schemes at Multiple Scales
Source: The Nature Conservancy and Conservation International, 2022

International Climate Change Agreements

The adoption of the legally binding Paris Agreement at COP21 in 2015 mobilized UNFCCC Parties to formalize a framework for the global reduction of GHG emissions to limit global warming to 1.5-2°C above pre-industrial levels as well as to enhanced action on adaptation to climate change. Since the adoption of the Paris Agreement, the UNFCCC has sought to lay the groundwork for achieving climate ambitions via coordinated member cooperation on setting long term emissions reduction targets known as Nationally Determined Contributions (NDCs) established in Article 4.2 of the Paris Agreement as well as by encouraging countries to develop Long-Term Low-Emission Development Strategies (LTLCDS).

Article 6 of the Paris Agreement seeks to provide an international compliance framework for voluntary cooperation between countries to govern the market and utilization of GHG emissions reductions to achieve Parties' NDCs mitigation/adaptation goals and "promote sustainable development and environmental integrity."

Article 6 provides guidelines to achieving emissions reductions targets via voluntary bilateral and multilateral agreements, the creation of an international carbon market and recognition of non-market approaches (NMAs) that provide additional forms of assistance that target "mitigation, adaptation, finance, technology development and transfer, and capacity-building." Article 6.2 governs how Parties can transfer and trade carbon credits known as Internationally Transferred Mitigation Outcomes (ITMOS) earned from mitigation and abatement activities to assist other countries in meeting their NDCs, including guidance to avoid double counting and overestimation of emissions reductions. Article 6.4 of the Article 6 rulebook establishes a supervisory body to register, approve, manage, and track authorized GHG emission reduction trading. While the Article 6 rulebook was established at COP26 in Glasgow, United Kingdom, progress, and agreement on finalizing it full operationalization was limited at COP27 in Sham El-Sheikh, Egypt with critical details unresolved (see Table 1 below for further details).

COP 27 Developments	Detailed text
Inclusion and formalized acknowledgement of Nature-Based Solutions (NbS) in final decision[9]	Formally adopted as 'actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits.' This definition was specified under the first-time inclusion of a Forest section in the final COP27 Sharm el-Sheikh Implementation Plan text.
Article 6.4[1]: Timeline set for development and implementation Renaming of "unauthorized credits" to "mitigation contributions"	Article 6.4 is intended to create the UN supervisory body and replace the Clean Development Mechanism to provide a more centralized approach to the global carbon market. Due to a lack of consensus among parties, critical directives intended to establish rules, methodologies around the governance of international emissions reductions trading and how to treat authorization of removals and avoidance were not decided on for Article 6.4 at COP 27. Specifically, around the use of emissions reductions referred to as "non-authorized A6.4 Emissions reductions (ERs)" now officially referred to as "mitigation contribution A6.4ERs" and whether they can be authorized towards the use of NDCs and if such ERs can include emissions avoidance and conservation enhancement activities. A deadline for the establishment of the governing mechanisms is at the end of 2023
Article 6.2[2] Reporting and Rules Developments on Cooperative Approach	COP 27 clarified rules around Article 6.2, which sets guidelines, accounting, and reporting templates enabling country-to-country trading of emissions reductions via bilateral and multilateral agreements. Referred to as Internationally Transferred Mitigation Outcomes (ITMOS) Parties agreed to guidelines for more decentralized trading of emissions reductions.
Article 6.2[2] Confidentiality	Updated agreements allows for nations to designate reporting around ITMOs as confidential. The final text stating "participating Party should provide the basis for protecting the confidentiality of such information, and the Article 6 technical expert review team and the secretariat shall not make the information publicly available on the centralized accounting and reporting platform"

Article 6.8[3] Guidance for Non-market approaches (NMAs)	Adopts the schedule for implementing the activities of the work programme under the framework for non-market approaches as well as requests for the development of a web-based platform for non-market approaches

Table 1: Nature-Positive Carbon Market Developments from UNFCCC COP 27
Source: authors based on Sharm-El Sheikh decisions under CMA.4

Determination of these details of the final Article 6 rules is essential to understanding the future eligibility of unretired nature-based carbon credits in the voluntary carbon market pool, particularly for the use of carbon credits generated under the rules and guidelines for UNFCCC's REDD+ projects.

At COP27, Parties were unable to reach a final agreement on whether emissions avoidance and conservation enhancement activities could be counted as ITMOS and used to meet NDC goals due to lack of a common understanding on the scope and definition of these concepts. However, the elevation of NbS and NCS as essential to meeting Paris Agreement targets suggests rules and guidelines will eventually be clarified to determine eligibility and authorization requirements for the inclusion of VCM NbS credits to count towards NDCs. Lack of determination is by and large due to confusion and debate in the market landscape on whether emissions avoidance and conservation enhancing activities can be seen as appropriately measurable, additional, or permanent in meeting emissions reduction targets as opposed to carbon removal activities or the extent these concepts are already contained in the scope of REDD+ and the need to avoid duplications. As national and subnational REDD+ programs begin to be further developed and operationalized, concerns around leakage, permanence, scalability, and integrity should lessen. Nesting of REDD+ projects within jurisdictional programs will need to be prioritized.

[9] UNEA (2022b)
[2] Draft decision entitled "Guidance on the mechanism established by Article 6, paragraph 4, of the Paris Agreement" proposed under agenda item 14 of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its fourth session.
[3] Draft decision entitled "Matters relating to cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement" proposed under agenda item 13 of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its fourth session.
[2] Draft decision entitled "Matters relating to cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement" proposed under agenda item 13 of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its fourth session.
[3] Draft decision entitled "Work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement" proposed under agenda item 15 of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its fourth session.

2.3 Overview of Initiatives Related to Biodiversity- Positive Carbon Credits

Verra's Climate, Community & Biodiversity Standards

The Climate, Community and & Biodiversity (CCB) Standards are an additional certification created by the CCB Alliance and managed by Verra that can be linked to carbon credits. Certification to the CCB Standard demonstrates that a project simultaneously addresses climate change, supports local communities and smallholders, and conserves biodiversity. To receive the CCB label, projects must meet seventeen required criteria. The standard include three optional Gold Level criteria, which allow for CCB labeled credits to be additionally labeled with either or all 'Community Gold', 'Climate Gold,' 'Biodiversity Gold' labels. The 'Biodiversity Gold' label distinguishes projects that conserve biodiversity at sites of global significance for biodiversity conservation selected on the basis of the Key Biodiversity Area (KBA) framework of vulnerability and irreplaceability (IUCN, 2016). The CCB standards were released in 2005 and have since been revised to a third edition released in 2017.The standards require net positive biodiversity outcomes measured against an established baseline within the project boundaries and project lifetime. The standards require the use of appropriate methodologies for measuring and monitoring but do not prescribe specific methodologies.

Figure 7: Breakdown of Verra's Biodiversity Linked Credits

The methodology recommended in the CCB Standards to project developers is the Social and Biodiversity impact assessment. Project developers must identify all IUCN Red List threatened species, describe, and mitigate any potential harm to native biodiversity caused by project activities on and offsite. Biodiversity impact monitoring is required and must include a plan for how project developers will select biodiversity variables to be monitored, and the frequency of monitoring. Potential variables include species abundance and diversity, landscape connectivity, forest fragmentation, habitat area and diversity. The CCB Standards require project developers to design and implement a benefit sharing mechanism and provide evidence of community member participation in the creation of the mechanism for benefit sharing and decision-making processes as well as include project funding and costs. Trove Research shows that over the past year CCB certification added on average about $2.55 (max $5.34 / min $0.54) to the 'REDD+' and 'Nature Restoration' credit types. This represents approximately a 19% average price premium for CCB credits in 2022.

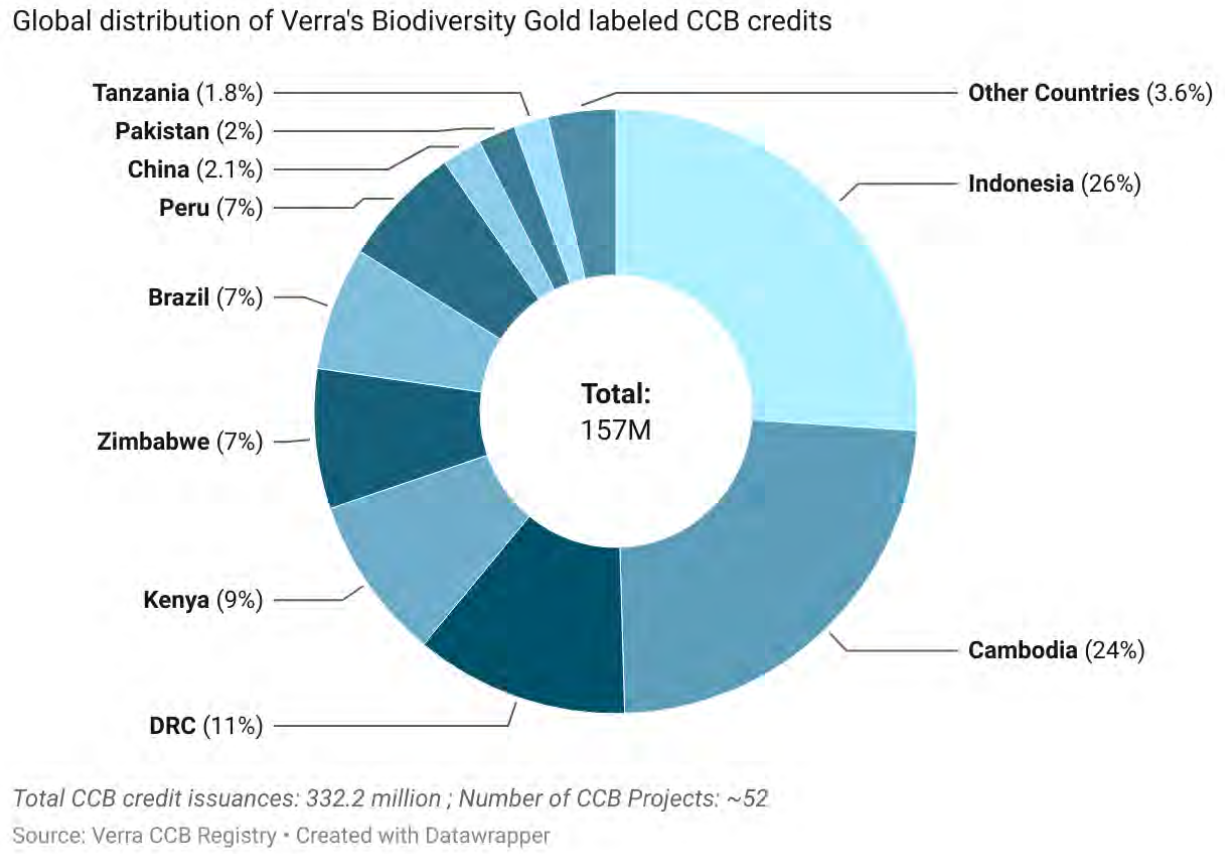


Figure 8: Verra Biodiversity Gold CCB Labeled Credits

Plan Vivo Standard and Developing PV Nature Standard

The Plan Vivo (PV) Foundation is a voluntary certification organization that has existed for over 25 years. Their standard focuses on small-holder and community-based land use programs to tackle climate change. The standard is known for its holistic approach to people, climate, and nature. The PV project requirements possess many safeguards for IPLCs to ensure accessible and equitable benefits to smallholders and communities. Such as requiring at least 60% of income generated from the sale of their certificates, after payment of any charges, taxes or similar fees levied by the host country to be directed to the benefit the project participants and other Local Stakeholders. PV released its fifth standard edition (V5) in 2020 with endorsement and accreditation from International Carbon Reduction and Offset Alliance (ICROA) (Plan Vivo, 2020). A Plan Vivo Certificate (PVC) represents 1 tonne of CO_2e sequestered or mitigated by a Plan Vivo-certified project which also provides other environmental and social co-benefits. PVCs can be purchased either directly from the project or through a reseller. According to PV's 2021-2022 annual report, over $41 million was directly sent to projects in income, with $25 million being generated and sent to communities via the sale of PVCs. As 2020, PV sold over 3million PVCs and 24 projects listed on IHS Markit registry. The PV standard allows for projects considered as microscale (≤ 10,000 tCO_2 annually) and macroscale (≥ 10,000 tCO_2 annually) to be certified. Under the new V5 standard, projects may only use methodologies that meet the stated criteria and have been pre-approved by the PV Foundation. PV standard requires a FPIC

process that enables IPLCs with statutory or customary rights to land or resources in the project area(s) to negotiate the conditions under which the project is designed, implemented, monitored, and evaluated. Projects must also consider direct, indirect and cumulative environmental risk factors regarding any potential negative impacts on ecosystems within and outside the project area(s), such as invasive species or habitat loss, degradation and fragmentation. PV also requires that 20% of all verified PVCs issued to a project must be transferred to the risk buffer. Indicators tied to livelihoods and ecosystems must be measured and "should be simple and cost-effective" to assess at least every five years.

The PV V5 standard does not mention biodiversity, and largely omits any nature enhancement other than implicit benefits via progress indicators tied to "ecosystem' benefits," such as improvements related to tracking the number of trees planted and surviving or the number of patrols employed for forest protection. As of 2022, PV has been working alongside Wallacea Trust to develop a new specialized standard for Biodiversity and Nature, called the PV Nature Standard. Currently in the public consultation phase as of early 2023, PV has launched seven pilot projects to test the methodology.

ART/TREES jurisdictional approach, and its approach to high forest, low deforestation

Launched in 2018, the Architecture for REDD+ Transactions (ART) is a jurisdictional REDD+ crediting program that developed and administers a standard known as The REDD+ Environmental Excellence Standard (TREES) to certify credible emissions reductions and removals geared towards national and subnational jurisdictional approaches to REDD+ activities. In December 2022 ART issued the first TREES Credits to Guyana, a High Forest, Low Deforestation (HFLD) country, and Guyana subsequently announced a $750 million transaction of TREES Credits. As of early 2023, 16 additional jurisdictions are in the pipeline for crediting having submitted TREES Concept documents to ART, for a total of 17 jurisdictions listed in the public ART Registry.

ART-issued TREES Credits, including HFLD Credits, are approved by the U.N. International Civil Aviation Organization (ICAO) for use by airlines towards emission reduction obligations in the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). The LEAF Coalition has also committed $1.5 billion for the protection of tropical forests through the purchase of ART issued TREES Credits. The public-private LEAF Coalition includes participation from the governments of Norway, the United Kingdom, the United States, and the Republic of Korea alongside over twenty global corporations.

Published in February 2020, ART's Standard TREES 1.0 focused on emission reductions from reducing deforestation and forest degradation. TREES incorporates environmental, social, and governance safeguards directly into the Standard rather than including them as an optional additional certification. The TREES safeguards unpack the Cancun Safeguards into 16 themes and 44 individual indicators on which ART Participants must report and be audited as part of the independent third-party validation and verification standard. The Cancun safeguards represent internationally negotiated and agreed upon best practice for REDD+.

Cancun Safeguard E addresses biodiversity and has been unpacked into three unique themes (Non-conversion of natural forests and other natural ecosystems; Protect natural forests and

other natural ecosystems, biological diversity, and ecosystem services; and Enhancement of social and environmental benefits) with 9 indicators.

In addition to themes requiring that Participants respect, protect, and fulfill land tenure rights, access to justice and access to information as well as requiring measures to prevent corruption, several themes explicitly address the important of ensuring rights of Indigenous Peoples and Local Communities (IPLC) are respected and protected. These include:

THEME 3.1 Identify indigenous peoples and local communities, or equivalent.

THEME 3.2 Respect and protect traditional knowledge.

THEME 3.3 Respect, protect, and fulfill rights of indigenous peoples and/or local communities, or equivalent.

THEME 4.1. Respect, protect, and fulfill the right of all relevant stakeholders to participate fully and effectively in the design and implementation of REDD+ actions.

THEME 4.2. Promote adequate participatory procedures for the meaningful participation of indigenous peoples and local communities, or equivalent.

Given the diversity of IPLC communities and organizations, TREES does not prescribe a single approach for their inclusion in the REDD+ programs to respect their right to choose how and when to participate.

TREES 2.0, published in August 2021 added approaches for crediting removals as well as for crediting jurisdictions that qualify as HFLD to encourage financial flows to jurisdictions with large intact forests. TREES 2.0 also specified that subnational accounting areas comprised of jurisdictions and IPLC territories can qualify to use the HFLD crediting approach. Accounting areas with greater than 50% forest cover and annual deforestation rates below 0.5% during each of the five years in the reference period are eligible to calculate an HFLD score. Only those that receive a score greater than 0.5 in every year are eligible to use the optional HFLD crediting approach. For those that choose to use the HFLD crediting approach, they calculate their crediting baseline based on a five-year average of emissions prior to the crediting period combined with a factor based on a combination of the HFLD score and 0.05% of their carbon stock. This factor serves as a conservative representation of the forest that would be lost if the Participants failed to continue implementing new and revised activities to mitigate the constantly shifting drivers of deforestation and degradation. Because the HFLD Score is always less than 1, this factor will always indicate that only a very small percent of the carbon stock is under threat. During each year of the 5-year crediting period, Participants report emissions from deforestation and forest degradation. The difference between the HFLD crediting level and reported emissions less deductions for leakage, uncertainty and contributions to the buffer pool to compensate for potential reversals is the emission reductions (ERs) issued as TREEs Credits and labeled as HFLD in the ART Registry.

The HFLD crediting within the jurisdictional ART-TREES methodology is a notable exception among carbon credit standards that, by construct, generally focus on areas with high historic deforestation rates, and thus fail to acknowledge that successfully reducing deforestation and

degradation never fully eliminates the threats. While there has been criticism of ART's HFLD approach from a limited set of market participants because of perceived lack of one-to-one fungibility with fossil fuel emission reductions, the ART HFLD crediting approach has also been strongly supported by credit buyers such as Climate Impact X and the World Economic Forum's NCS Alliance, as well as by the NGO and IPLC community including members of the Forests for Life Partnership, Wildlife Conservation Society (WCS), and members of the Tropical Forest Credit Integrity Initiative (TFCI).

In January 2023 ART announced the launch of an initiative to develop an optional certification for the co-benefits of jurisdictional REDD+ beyond carbon. When complete, the new certification is intended to bring additional value to carbon credits that are certified and issued by ART in conformance with The REDD+ Environmental Excellence Standard (TREES). The certification will enable ART Participants to objectively demonstrate the positive impacts of their REDD+ programs that go beyond greenhouse gas emission reductions and removals. The certification's three distinct modules will be for biodiversity benefits, non-CO_2 climate benefits, and socio-cultural benefits of forests to Indigenous Peoples and Local Communities. Impact claims will be independently verified, providing the market with added confidence in the results. In February, the indigenous and local communities' organizations ANECAP, COICA, Red MOCAF, and REPALEAC announced that they have agreed to partner with ART to develop the module on socio-cultural benefits. The committee had its first meeting in Mérida, Yucatan, Mexico. ART will announce committees for the other modules in the coming months.

Wildlife Conservation Society (WCS) High Integrity Forest Removals (HIFOR)

High-integrity forests are mostly excluded from policies, financial valuations, and schemes that could incentivize their maintenance and ongoing conservation; this is particularly true at the global level, with some examples of national policies using payment for ecosystem service schemes to protect intact forests.[10] To remedy this situation WCS created the High Integrity Forest (HIFOR) investment initiative, which posits valuing the ecosystem service of carbon absorption or HIFOR units to incentivize the protection of high integrity forests by their stewards, such as governments or indigenous organizations. Through investments into HIFORs, WCS seeks to create a continuous stream of finance that incentivizes developing country governments and IPLCs to protect their forest estates while developing prosperous landscapes and rural livelihoods.

The underlying environmental quality of a HIFOR unit is a measured and verified net tonne of CO_2 removed from the atmosphere and the provision of other ecological services. While the net carbon removal forms the basis of each HIFOR unit, their ability to store carbon, regulate temperature, provide additional ecosystem services, and conserve biodiversity will also be featured and incorporated into a HIFOR unit. Carbon removals are chosen as base unit of HIFOR units as they are comparatively easy to quantify. To ensure that other environmental

[10] ART/Trees allows the generation of bonus carbon credits by high-forest, low-deforestation, which in theory can be used as carbon offsets. However, the generation of carbon offset credits that do not represent real and additional emission reductions is highly controversial.

attributes of high-integrity forests are considered, the Forest Landscape Integrity Index (FLII; Grantham et al., 2020) will be used to label areas as “low”, “medium”, and “high” in their ecosystem contributions beyond carbon.[11]

A distinctive feature of HIFOR is that a HIFOR unit is not an offset credit. Instead, HIFOR units represent one of the only schemes reflecting the ongoing climate service of a forest: the removal of carbon that leads to gains in carbon stock over time. Each HIFOR unit will be expressed as an electronic unit, serialized with a unique identification, indicating the interventions, the locations, and the year of the net removal and other ecological services. When retired, user of a HIFOR unit can claim a measurable and verified contribution by a non-state or state actor to achieve global climate change mitigation and global nature positive goals.

HIFOR pilot development is currently underway in Amazonas Brazil, under a Memorandum of Understanding between WCS and the State Environment Secretariat.

The Green Climate Fund’s REDD+ Results-Based Payments Pilot Programme

In 2017, GCF became the world’s first source of results-based payments with a $500 million pilot programme, providing payments based on a fixed price of $5/t$CO_2$e. The response from developing countries was swift. Within just three of the programme’s five-year lifespan, the entire envelope was exhausted, with eight countries securing all the funding for some 2.5 billion tCO_2e in emissions reductions achieved between 2014 and 2018.

Consistent with its mandate as part of the financing mechanism of the UNFCCC, GCF used a jurisdictional approach and applied standards close to those of UNFCCC. However, the Fund’s additional request for a description of the use of its proceeds created a double impact.

First, the programme itself gave developing countries hope that rewards could one day be reaped, thereby encouraging them to pursue REDD+ readiness. Secondly, the programme helped countries and jurisdictions pave the way to achieving more stringent standards required to access carbon finance from other sources such as LEAF (see below). Costa Rica, for instance, reinvested some of GCF’s proceeds into setting up a system to document the transfer of rights to the revenue from carbon transactions from forest landowners to the state – an important step in accessing private finance for emissions reductions while recognizing the right of individual and indigenous landowners. This system will maintain the databases of beneficiaries under the different standards, including ART-TREES, to ensure that carbon transactions conducted by the Government with LEAF, for instance, fully benefit the landowners, of which close to a fifth are indigenous communities.

Ecuador reinvested RBP proceeds into decoupling supply chains (notably cocoa and coffee) from deforestation, creating a virtuous cycle by enabling them to generate carbon credits which can then finance further reductions in deforestation and forest degradation.

[11] The FLII integrates data on observed and inferred forest pressures and lost forest connectivity to generate the first globally consistent, continuous index of forest integrity as determined by degree of anthropogenic modification. FLII scores range from 0 (lowest integrity) to 10 (highest). Anthropogenic modification of forests means only 40% of remaining forests have high ecosystem integrity.

Discussions are currently underway for a possible second phase of GCF's results-based payment programme.

The FSC Ecosystem Services Procedure

As the pioneer of forest certification, the Forest Stewardship Council (FSC) sets the standard for responsible forest stewardship. In 2018, FSC International published a new procedure on ecosystem services "Ecosystem Services Procedure: Impact Demonstration and Market Tools" (FSC-PRO-30-006 V1-0 EN; FSC 2018) which aims to introduce PES into forest management (FM) certification schemes. The procedure focuses on five ecosystem services: biodiversity conservation, carbon sequestration, water preservation, soil conservation and recreational services, and includes a methodology for impacts verification on those services. Ecosystem services claims from the FSC enables corporates to sponsor responsible forestry projects that make a difference in the fight against climate change, biodiversity loss, and other global challenges. In return, participating corporates get third-party data verifying the ecosystem service impact of their investments and supporting their contribution to the SDGs.

To obtain the "ecosystem service" label, FSC-certified forest managers must verify at least one of the twenty benefits proposed (Table 2).

Services	Category of benefit
Biodiversity	1.1. Restoration of natural forest cover
	1.2. Conservation of intact forest landscapes
	1.3. Maintenance of an ecologically sufficient conservation area network
	1.4. Conservation of natural characteristics of the forest
	1.5. Restoration of natural forest characteristics
	1.6. Conservation of species diversity
	1.7. Restoration of species diversity
Carbon	2.1. Conservation of forest carbon stocks
	2.2. Restoration of forest carbon stocks
Water	3.1. Maintenance of water quality
	3.2. Enhancement of water quality
	3.3. Maintenance of the capacity of watersheds to purify and regulate water flow
	3.4. Restoration of the capacity of watersheds to purify and regulate water flow
Soils	4.1. Maintenance of soil condition
	4.2. Restoration/enhancement of soil condition
	4.3. Reduction of soil erosion through reforestation/restoration
Recreation	5.1. Maintenance/conservation of areas of importance for recreation and/or tourism
	5.2. Restoration or enhancement of areas of importance for recreation and/or tourism
	5.3 : Maintenance/conservation of populations of species of interest for nature-based tourism
	5.4. Restoration or enhancement of populations of species of interest for nature-based tourism

Table 2: Categories of Potential Benefits Required to Obtain the "Ecosystem Service" Label under a FSC-Certified Forest Management Scheme

An example of the implementation of the ES procedure for Carbon and biodiversity benefits can be found In Peru's Madre de Dios region, the Maderacre company manages a forest concession of about 220,000 hectares of FSC certified natural tropical forests. It exploits tropical timber and sells carbon credits. It received the FSC Ecosystem Services verification for the benefits "Conservation of the diversity of species" and "conservation of forest carbon stocks."

The FSC Ecosystem Services procedure pioneered the introduction of PES into forest management (FM) certification schemes. It provided preliminary ideas and market tools to develop PES projects with the ultimate aim to connect them to new funding sources (carbon markets, social and environmental responsibility policies of companies, investments on

conservation and restoration). It provides an useful example of how multiple ecosystem services can be bundled and marketed in a practical way.

Relevant sectoral partnership initiatives

The dynamics of upscaling credit quality and improve their sustainable development value is also led by more sectoral partnership initiatives, such as the High-quality Blue Carbon principles and guidance (with CI, TNC and Meridian) or the Tropical Forest Credit Integrity (TFCI).

The second version of the TFCI guide issued in February 2023 presents six key consensus recommendations to corporate purchasers of tropical forest carbon credits (TFCI, 2023):

1. Publicly commit to a science-based emissions reduction target validated by the Science Based Targets Initiative (SBTI) or equivalent to provide transparency and ensure that carbon credits transacted are a complement to and not a substitute for a company's decarbonization. Companies should then consider using tropical forest carbon credits as part of their beyond value chain mitigation (BVCM) strategies.

2. Conduct comprehensive due diligence to ensure that any credits purchased are of high quality and integrity and align with TFCI guidance.

3. Rapidly shift demand toward credits originating from jurisdictional-scale programs verified and validated to the most rigorous standards as detailed in this guidance, including through advance purchase and forward finance agreements for jurisdictional scale credits.

4. Prioritize purchase of high-quality emissions reductions credits over removals credits.

5. Purchase appropriately conservative jurisdictional HFLD credits that meet TFCI's criteria for high quality.

6. Support complementary actions that promote high-quality jurisdictional program development and performance.

2.4 Nature Certificates

Definitions and typology

Nature certificates are a unit of biodiversity that finance nature conservation and restoration and provide funds for local communities living in and amongst nature (Ducros and Steele 2022). Nature certificates can be bought, and have the potential to provide political, social and economic benefits to IPLCs when designed in a collaborative and meaningful way.

Box 3: Terminology in an Emerging Market

Quantifying nature to stimulate private and public investments in this way is an emerging concept, and therefore the terminology associated with the unit as well as the supporting market architecture has not been full agreed upon. Similar and parallel concepts use the term biodiversity credits, biodiversity tokens, biocredits and nature credits. The novelty of this field will require practitioners to clarify the intended meaning of the terms used and remain dynamic while further consensus on terms is reached.

Among initiatives working on bringing clarity and guidance for the formulation of a credible and scalable biodiversity credit market, the Biodiversity Credit Alliance is an emerging partnership that is currently working with the following definition of "Voluntary Biodiversity Credit (VBC)": *"a tool to enable investment in biodiversity conservation and/or enhancement, and can be broadly defined as a quantifiable unit representing a biodiversity conservation and/or enhancement claim using a scientific methodology."* VBCs are not an attempt to capture nature, nor commodify or put a price on nature. Instead, VBCs are a means to enable the financing of biodiversity conservation and/or enhancement interventions based on the transparently determined cost to deliver those interventions and associated outcomes. Accordingly, VBCs do not put a price on nature, but instead put a price on the human labour and technology cost to cause biodiversity conservation and/or enhancement. VBCs are generated to fulfill nature-positive aspirations and assertions without being used for compliance purposes nor offsetting biodiversity loss elsewhere.

However, the word *credit* has been mostly used in the context of offset schemes, and there is common understanding that a credit implies there is an existing and equal debt. *Certificate* reflects the use of the unit as proof or guarantee that attests to the fact that nature has been restored or conserved (along with any other benefits the unit is proving) and therefore will be used throughout this report.

For conservationists, IPLCs, and the general public, the term *nature* is a more holistic approach compared to biodiversity. Where biodiversity focuses specifically on the part of nature that is alive, *nature* refers also to all existing systems, such as the water and airways, that cannot be disconnected from the living beings of an ecosystem (Convention on Biological diversity (n.d.)).

For the private sector specifically, *nature* is preferable to *biodiversity.* It is perceived by some as less complex (somewhat paradoxically, since nature encompasses biodiversity as well as other non-living dimensions of the environment). Providing clear communication and ensuring that schemes are straightforward is key to engaging private sector buyers and investors that are unlikely to have a wealth of background in conservation and biodiversity diversity management.

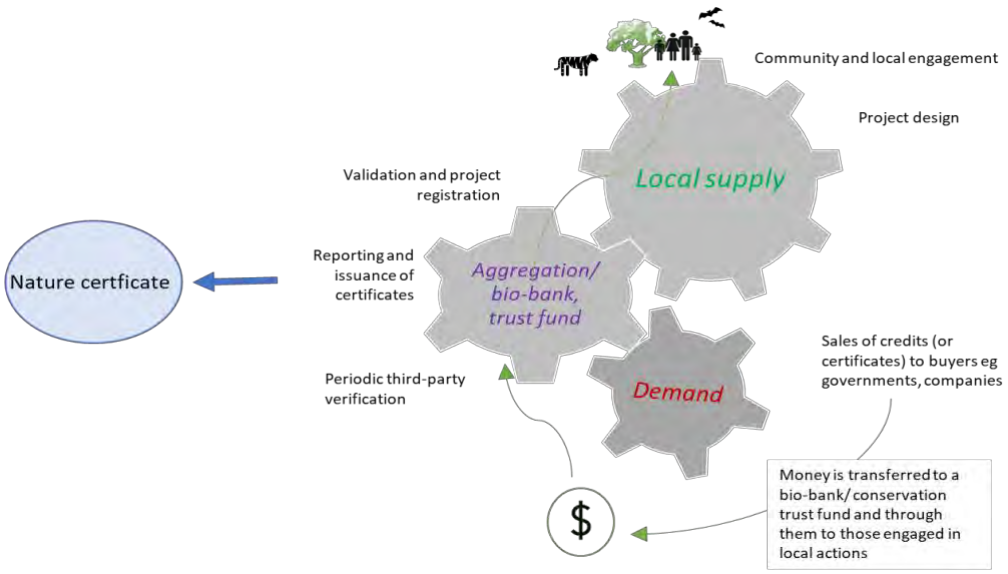


Figure 9: Structure of Nature Certificate Market
adapted from **Porras and Steele, 2020**

Developers of nature certificate schemes are applying their methodology broadly in three ways: Preserving or avoiding loss, restoring damaged areas and supporting/amplifying existing efforts. Among terrestrial ecosystems, areas such as high forested, low deforestation areas are most suitable for nature certification schemes that avoid loss and/or support existing conservation efforts (including continuous efforts to minimize threats to nature). However, in those cases of avoiding loss or supporting existing efforts, it has been argued that measuring additionality can be a challenge. To overcome this, some developers suggest measuring the chosen biodiversity indicators against a reference site. Using nature certificates to support existing conservation efforts supports the notion that is under the notion that biodiversity requires investment, even if there is not a threat of degradation or biodiversity loss. Therefore, all seascapes and landscapes should be afforded the opportunity for investment. This is especially significant given the nature finance gap and the increasing threat of climate change on biodiversity. An overview of the main initiatives related to nature certificates is provided in Annex 1.

	CONSERVATION	APPLICATION	VALUE
Avoided loss	Preservation	Ecosystem, landscape or seascape has high levels of biodiversity, is at risk of degradation and requires investment to fund protection	Maintaining biodiversity indicators equal to an identified reference site
Restoration	Restoration	Ecosystem, landscape or seascape is degraded and requires investment to fund restoration	Increasing biodiversity indicator relative to a previous measured level
Supporting existing efforts	Continued preservation	Ecosystem or landscape has high levels of biodiversity, is not at immediate risk of degradation and management of biodiversity is already taking place. Investment is required to support continued protection	Rewarding those who manage or own the land (governments, landowners, IPs & LCs) that have maintained biodiversity

Table 3: Comparison of Applications and Classification of Nature Certificates
Source: Ducros and Steele, 2022

Nature certificates: Uses and claims

Throughout this report, nature certificates are defined and analyzed to be distinct from biodiversity offsets in that they do not offset, or justify, nature or biodiversity loss done elsewhere. Nature certificates represent an entirely positive contribution to biodiversity. As they are not offsets, nature certificates are not constrained by ecological equivalency in that they do not have to compensate the loss of "equivalent" components of biodiversity or loss of local ecosystem services in specific areas. Hence, they have the potential to scale more easily than biodiversity offsets and, in particular, international trades can be envisaged.

However, the drivers of demand for nature certificates and associated claims remain unclear. As a result of government regulation or international funding standards, offsetting is a clear driver of demand for biodiversity credits. For nature certificates, one potential driver of demand are the voluntary nature-related commitments made by forward-thinking businesses. This notably includes companies participating in the SBTI to set their targets for climate and nature. It could also include all companies wishing to be first movers and anticipate new regulatory development as a result of the adoption of the Kunming-Montreal Global Biodiversity Framework, and notably its Target 15. At a minimum, a nature certificate may indeed enable its final buyer to claim a contribution to nature-positive goals, when the buyer has properly implemented the mitigation hierarchy and compensated its residual impact, if any, under appropriate offset schemes (Pivin et al., 2022). As there is no globally accepted definition for nature positive, the exact way in which nature certificates can be claimed against a company's, organization's or government's contribution to global biodiversity goals and targets remains to be articulated.

Another potential driver of demand for nature certificates is the need for corporates to reduce the nature-related risks along their value chains, including their sourcing areas. AA distinct category of nature certificates, referred to as “insetting credits”, could be used by financial institutions or a commodity brand buyer to enhance sustainable nature resource productivity, e.g., along food value chains Such type of nature certificates would be a profit seeking investment, which could in theory be placed on a balance sheet as financial asset. It could potentially be traded if there are direct financial returns and/or the value chain linked financial returns are transferable value to a third party (Nature Finance, 2023).

Lessons learnt from biodiversity offset schemes

Though different, nature certificates can learn from offset schemes in areas such as market governance, measurement, reporting and verification, pricing and stakeholder engagement, including IPLCs. Many offset mechanisms are indeed already in place, with the majority in number operating under national regulation (99.7% as of 2018) and the majority in surface area resulting from the application of international financing standards (Bull and Strange, 2018). The scientific literature shows that offset schemes face ethical, social, technical and governance challenges (Maron et al. 2016):

- **Challenges in measurement -** There are ethical problems associated with creating and trading a “unit” of biodiversity, given that there exists a plurality of cultural, social and economic ways to value biodiversity. The ways in which values are held by various individuals in groups needs to be considered, captured and reflected in the accounting and trading of a biodiversity or nature unit and required to be balanced across all parties in the trade. Even thinking of a purely technocratic measurement of a nature unit is hard to do practically. Though great progress has been made to increase the ability to measure biodiversity (i.e., satellite imagery, bioacoustics), issues relating to temporal changes in biodiversity and variety in measurement quality remain a barrier to effective biodiversity offset schemes, including but not limited to time-lags, risks and uncertainties in biodiversity measurements.

  A similar challenge exists for nature certificates, however, there is no damage being done simultaneously in the case of positive investment, partially reducing risks of errors in measurements.

- **Lack of equivalency -** Biodiversity is by definition, diverse across space and time. Biodiversity offsets experience significant constraints due to the assumption of ecological equivalency (e.g., the assumption that harm in one location is comparable to reparations done elsewhere (Childs and de Zylva, 2021). For example, damage done to a coral reef in the South Pacific Ocean cannot be justified or “offset” by enhancing biodiversity in the temperate rainforest of North America. The challenge of equivalency has in some instances been overcome by creating proximity indexes, and therefore offsets may be useful for compliance markets (Ducros and Steele, 2022). However, this does not relieve the need to prioritize reducing impacts on biodiversity and remains a constraint to meaningful up-scaling of the offset market.

Offsets schemes imply that there is an accurate way to measure a biodiversity "footprint", in the same way that an organization's carbon footprint can be measured. Given there is no wide scale methodology to do so, there is no measure of what needs to be offset, making nature and biodiversity offset mechanisms inherently flawed. Even if a sophisticated methodology for offsets are employed, a biodiversity offset market requires transparent governance arrangements to monitor policy compliance and effectiveness and minimize incentives to circumvent intended outcomes. Bad governance has often resulted in ineffective or harmful biodiversity offset schemes (Quétier and Lavorel, 2011), however, successful instances of biodiversity compliance markets are becoming more common (e.g., Columbia, Australia, UK Biodiversity Gain Scheme).

Because they are not linked to offsets, nature certificates are not constrained by ecological equivalency and do not strive to be fungible (at this point in the market development).

- **Lack of ambition -** As currently implemented, offsetting typically requires an outcome of "no net loss" of biodiversity (except for some framework such as that of the World Bank Group safeguards and other development finance institutions, which requires project developers to demonstrate "net gain" for certain particularly sensitive or "critical" habitats) but only relative to a baseline trajectory of biodiversity decline (Simmonds et al., 2020). As agreed upon in the Global Biodiversity Framework and due to the ongoing biodiversity loss, there is an urgent need to support activities that generate biodiversity-positive impacts. In this context, biodiversity offsets are seen as insufficient when what is needed is finance for designated "no-go areas" to reward their conservation for its inherent value, not as an offset.

Nature Certificate Landscape

Annex 1 and Figure 10 present a large but non-exhaustive list of emerging nature certificate schemes and methodologies. The majority of nature certificate schemes are in the pilot or developmental stage in which they are working to refine their biodiversity measuring and verification methodology, determining price, assessing demand and finding buyers. Terrasos, SouthPole, and Green Collar Nature Plus are operational and have already sold units. Notably, Terrasos also works in the biodiversity compliance market, showing how organizations can learn from biodiversity offset and apply their resources and knowledge to novel instruments. This is relevant to the carbon market that has increasingly been incorporating biodiversity premiums into carbon credits.

Nature certificate schemes also vary in the way in which they define and quantify a unit of nature or biodiversity. The majority of nature certificate methodologies take an area-based approach to define their unit of nature or biodiversity. Additionally, most schemes are based on a basket-of-metrics approach in which a number of biodiversity variables are aggregated into

one biodiversity rating. Many of the schemes in development or piloting stages plan on using distributed ledger technology (DLT) to process biodiversity data, and some plan to use DLT as a payment system.

The majority of the methodologies and schemes are tailored towards terrestrial landscapes, specifically forests. Though many seem in theory to be adaptable for the aquatic context, it raises a number of challenges in terms of measurement and verification (including determining a baseline) and land tenure and rights. Due to the natural fluidity and connectivity of aquatic ecosystems, it is difficult to control and measure external actions that may have an effect on the biodiversity levels of the unit in question (i.e., ocean dumping, oil spills, etc).

Nature certificates also vary in what they are trying to achieve. Currently, most schemes focus on conservation rather than restoration. This is likely due to the fact that conserving biodiversity is generally less expensive than restoring, and therefore conservation projects can maintain the cost-effectiveness of the mechanism.

Figure 10: Map of Existing and Emerging Nature Certificate Schemes, at Different Operational States (Non-Exhaustive)
Source: Authors

3. Challenges to Biodiversity-Positive Carbon Credits and Nature Certificates

3.1 Challenges Specific to Biodiversity-Positive Carbon Credits

Challenges to the carbon market at large

Biodiversity-positive carbon markets inherit the challenges faced by traditional carbon market. Since its inception the voluntary carbon market (VCM) has been challenged by issues of integrity, greenwashing, lack of transparency, performance, and overall effectiveness in addressing large scale and urgent emissions reductions targets.

Moreover, high transaction costs and the lack of financial flows reaching IPLCs as well as a lack of social safeguards and benefit sharing for stakeholders further erode trust in the VCM. Typically, IPLCs on the ground receive limited funds or face long lag times between the initial investment and the eventual sale of credits. Carbon credits in this context are issued ex post for emission reductions already achieved.

When verifying the quality of new credits—an important step in maintaining the market's integrity— credit suppliers endure long lead times. When selling those credits, suppliers face unpredictable demand and can seldom fetch sufficiently high prices.

The VCM suffers from a lack of standardization and clarity as it pertains to the adoption and selection of credible standards and methodologies. Paired with a confusing and uncertain market and regulatory landscape, lack of incentivized demand for credits is failing to sufficiently outpace the available pool of credits and bridge climate financing gaps.

Challenges for biodiversity-positive carbon markets

On top of the embedded challenges of the VCM at large, the addition of biodiversity benefits to carbon credits presents a number of specific challenges. This includes:

1. **Aligning the timeline of biodiversity and carbon outcomes.** Carbon outcomes are typically measured on a per annum basis. However, whether it's a measure of increased biodiversity or maintained biodiversity, methodologies often require more time to correct for natural yearly variation (Sarmiento, et al, 2023).

2. **Additionality.** The presence, abundance, or lack of presence of biodiversity often has an effect on the carbon capture and storage capabilities of an ecosystem, that is to say that biodiversity and the carbon do not act in isolation of one another. This presents a challenge for the methodologies used for measurement, and contributes to difficulty in pricing the cost of biodiversity premium as well as pricing the premium at the point of sale. For carbon credits with a biodiversity or nature component, the specific additionality of the biodiversity and the carbon components can be difficult to measure in isolation.

3. **Enhance complexity and need for higher capacity** across all market actors. All of the above challenges contribute to an increased complexity of the carbon credit unit and market. Bottlenecks are already faced in the carbon markets because of the lack of sufficient qualified auditors, which is likely to become more acute for biodiversity-positive carbon credits. Thought must be invested in how the design of the project can reduce this complexity. Increased complexity risks the cost effectiveness and the simplicity for buyers. Increased cost is likely to be upfront costs, which increased the risk of putting a financial burden on IPLCs.

4. **Matching demand and supply:** This includes promoting a price for the biodiversity premium that is sufficient to cover additional costs and that aligns with the markets willingness to buy.

3.2 Challenges Specific to Nature Certificates

Efforts to create the market for nature certificates are expanding, and have been further amplified by the inclusion of nature certificates in the Kunming-Montreal Global Biodiversity Framework (therein referred to as biodiversity credits).

However, the market for nature certificates remains in early stages and faces a number of challenges due to the nascency of the market. To further establish a successful nature certificate market, it will require overcoming the following challenges:

1. **Lack of a commonly agreed, internationally-recognized certification process(es).** Further development of certification processes and guidelines are required. Some argue that because of the inherent diversity in nature, and variety in uses for and valuating systems of nature, reaching one certification scheme should not be the goal. However, there is a need to have processes that guarantee the integrity of nature certificates and the associated claims.

   Emerging certification processes are embedded with ongoing efforts to create standards that ensure IPLCs voices and perspectives are included in the design of standards and more broadly in the market development. Nonetheless, continuing market development without certification puts historically marginalized groups at risk of being further exploited and not benefiting from nature certificates, exposing the mechanism to resistance as well as decreasing its effectiveness in conserving and restoring biodiversity. Here, the nascent market can learn from existing standards in similar markets (such as Fair Trade Certification) and rely on legal frameworks that safeguard marginalized groups (such as UNDRIP, specifically FPIC).

2. **Lack of market architecture** Currently, there is no market architecture and related infrastructure for nature certificates, though efforts to establish such mechanisms are increasingly emerging. This is partially the combination of the challenges noted above, but further includes the lack of governance structures and market facilitators (for example, engaging the stock market could help establish nature certificates as a new asset class).

3. **Lack of market demand for certificates.** Insofar as nature certificates cannot be used as offsets within regulated offset markets, the potential for market uptake and the scaling up of a sustainable and meaningful demand for offsets remains uncertain. Experience with carbon markets is that demand is capped without obligatory offsetting requirements or cap-and-trade systems. Creating and scaling-up demand would certainly require bold policy intervention to incentivize the uptake of certificates and their trading. The existence of a secondary market is also a factor that could contribute to generating scale and demand.

3.3 Common Challenges to Biodiversity-Positive Carbon Credits and Nature Certificates

Although carbon credits and nature certificates have unique challenges, there are also a number of mutual challenges that exist for both the mechanisms.

- **Ensuring a fair share of the revenue reaches IPLCs** remains a challenge for both mechanisms. Additionally, low levels of finance reaching IPLCs undermines the ability of these mechanisms to successfully increase biodiversity levels. This challenge is associated with a number of historical and socio-economic challenges such as colonialism and resulting power dynamics, weak land rights and tenure of indigenous peoples, lack of meaningful collaboration between developers and local communities and the desire to create a “one size fits all approach”.
- **Additionality** refers to ensuring that the activities funded are “additional” to a baseline of what would have happened without the funding. Whilst this seems straightforward, it has a number of specific challenges, and is more clearly achievable and applicable to the carbon offset market than to nature certificates:
    - Additionality can be technically complex and expensive to measure, therefore reducing the funds available for the actual investment (supporting or enhancing biodiversity and providing revenue for IPLCs).
    - Additionality is often hard to prove and rests on a series of assumptions.
    - Additionality incentivizes funding towards forests and ecosystems that are under immediate threat and as a result does not reward more sustainable forest management in places where deforestation has been relatively low.

- **Biodiversity outcomes measurement, reporting and verification -** Measuring biodiversity in a holistic, accurate, and resource effective way remains a challenge for both nature certificates and nature positive carbon credits. Some technologies being employed to overcome challenges in measurement and verification are outlined in Box 5. This challenge is both technical and political in nature; even if one or more methodologies emerge as reliable forms of measuring biodiversity, an agreement may need to be reached on minimum best practice.
- **Packaging of biodiversity, carbon and other benefits:** Carbon credits and nature certificates may be designed to promote impact - and enable corresponding claims - on multiple dimensions, including biodiversity, carbon but also other ecosystems services and social dimensions. Different actions at a site can create different and non-

interdependent benefits that can potentially be validly stacked and traded separately and allow one site to tap multiple markets and multiple buyers. However, this requires extremely careful accounting and complexity, and presents major additionality, integrity and double-counting risks (Von Hase, 2018). On the other hand, bundling involves the co-benefits from actions in one place staying stapled, and sold combined to a single buyer. As bundling offers the greatest integrity guarantees, it is the approach proposed in this report for biodiversity and carbon benefits through the concept biodiversity-positive carbon credits and would be the primary way forward to articulate nature certificates with existing Payment for Ecosystem Services schemes.

- **Outlook uncertainty.** Estimates vary wildly as to the outlook of carbon markets, let alone biodiversity-positive carbon markets or nature certificate markets. Standards used widely in existing markets continue to be questioned. This in turn may hamper efforts to further design and strengthen these markets as investments in market readiness could be seen as high risk. It is therefore important to consider such markets in combination with other de-risking instruments, notably insurance. GCF is notably supporting Fondo Mexicano para la Conservación de la Naturaleza (FMCN) in the design of a project in Mexico's Yucatán Peninsula that would use parametric insurance to de-risk blue carbon. Placing credits and certificates into the broader context of the set of instruments for financing biodiversity, it is important to consider whether such instruments are the most efficient and effective at achieving the desired outcome. Under certain conditions, other instruments may result in greater efficiency.

4. Way Forward and Recommendations for Biodiversity-Positive Carbon Credits and Nature Certificates

4.1 Lessons Learnt from Existing Mechanisms

The Working Group highlights the following lessons learnt from carbon markets, biodiversity offsetting mechanisms and national PES schemes to be considered in the further development of biodiversity-positive carbon credits and nature certificates:

- Integrity and quality concerns are relevant to both the supply side and the demand side. In particular, credit or certificate mechanisms should not undermine the robust implementation of the mitigation hierarchy regarding GHG emissions and impacts on biodiversity.
- The enabling environment is essential for consistent and durable impact, including adequate policy and institutional frameworks in countries of both the custodians of biodiversity, climate and community benefits and the credit/certificate buyers.
- The full participation and engagement of, and equitable sharing of benefits with, IPLCs is necessary to continue ongoing stewardship of vital reserves of carbon and biodiversity.
- Biodiversity is multi-faceted and measuring it in practice remains complex. Agreeing on practical metrics, building benchmarks and undertaking of robust measurement, reporting and verification processes to access finance takes time.
- A key lesson learned from voluntary carbon markets is that biodiversity-positive carbon credit and nature certificate markets are fundamentally public purpose markets that should deliver equitable, nature positive outcomes as a goal. Corresponding normative market design principles should be developed
- Scaling up demand is a challenge, and rests upon shared and robust principles for defining and verifying credits/certificates, consensus on the proper use of credits/certificates, mechanisms to safeguard the market's integrity, engagement of new partners, clear long-term demand and price signals, and policy and regulatory mechanisms, including fiscal incentives. While some voluntary schemes, including nature-based carbon credits, have markedly grown in volume and have the potential to further grow, large scale has mainly been achieved as a result of regulations or government financing, underscoring their importance in achieving scale.

Box 4: Limited IPLC Land Rights

The fundamental rights of Indigenous Peoples were formally recognized at the UN General Assembly nearly 40 years ago. And yet, IPLCs around the world continue to struggle to preserve their unique cultures, customs, identity and wellbeing. Ensuring IPLC rights and welfare is imperative for both upholding human rights and for effective climate and biodiversity action.

There are approximately 476 million Indigenous Peoples worldwide, approximately 6% of the global population, based in over 90 countries (Campaign for Nature, n.d.). Traditional Indigenous territories constitute nearly a quarter of the earth's land surface and contain around 80% of global biodiversity (SIPRI, 2022). IPLCs remain the true custodians of biodiverse ecosystems. Indigenous Peoples' livelihoods, wellbeing, and sense of identity are often closely tied to the landscape and its flora and fauna.

Research shows that forest ecosystems inhabited by IPLCs have consistently better-preserved biodiversity, water, and other natural resources. Despite IPLCs' heritage of living in and protecting forest ecosystems, they continue to face challenges to their participation in decision-making processes over issues that affect their lives and livelihoods, as well as in the distribution of benefits from initiatives implemented in their territories (De Nys and Undeland, 2022).

Only about 10% of IPLCs have legal titles to the land they depend on and maintain. Many IPLCs question the formal practice of private ownership. When forests and other wild areas are converted to farmland, or are converted for mining, dams, or other infrastructure, it often means IPLCs are evicted with little say and little or no compensation. These injustices may lead to a legacy of violence, poverty, vulnerability and grievance (SIPRI, 2022). Action must ensure that IPLCs are engaged, consulted with and have free prior and informed consent over decisions that affect the lands and ecosystems they inhabit. At UNFCCC COP 26, countries and key donors pledged $1.7 billion by the end of 2025, specifically to recognize indigenous and local community land rights as one of the key areas of systemic change needed for a just transition to a green economy (De Nys and Undeland, 2022). The IPCC special report on climate change and land (2019) states that strengthening IPLC rights could transform how we manage tropical forests.

4.2 Recommendations

The Working Group members recognize the local, national, and global environmental, economic, cultural, and social importance of vital reserves of carbon and components of biodiversity, especially in critical forests. The Working Group makes ten recommendations to the One Forest Summit on innovative financial mechanisms, focusing on biodiversity-positive carbon credits and nature certificates.

The recommendations are clustered as those for governments and policy makers, for market-related Institutions, including standard bodies, private sector partnerships, project developers, investors, and others, and those for all partners.

Recommendations for Governments and Policymakers

Recommendation 1: Support the development and scaling up of innovative nature finance, including biodiversity-positive carbon credits and nature certificates, within a comprehensive approach to resource mobilization. Given the size of the biodiversity finance gap, biodiversity-positive carbon credits and nature certificates are promising innovative mechanisms that should be leveraged along with other instruments to mobilize domestic and international private sector resources. To ensure durability and scaling up, governments are encouraged to promote the convergence of international approaches to carbon credits and nature certificates with national payment for ecosystem services schemes. These actions can contribute towards the mobilization of $200 billion of financial flows for biodiversity by 2030, agreed as part of the Kunming-Montreal Global Biodiversity Framework.

Recommendation 2: Provide and maintain clear policies, incentives and institutional frameworks to foster demand and enhance certainty and accountability in approach. Target 19 of the Kunming-Montreal Global Biodiversity Framework calls for stimulating innovative schemes, including biodiversity credits. Governments are encouraged to support policy and legal reform, institutional strengthening, and relevant public infrastructure (hard and digital) investments needed to protect and manage the forest and other ecosystem assets. It most notably includes eliminating, phasing out, or reforming negative incentives, including subsidies that are harmful for biodiversity and increasing those that are positive for biodiversity. Support for capacity building and technical assistance for governments to develop and maintain these policies, incentives, and institutions are needed.

Recommendation 3: Clarify the contributions of biodiversity-positive carbon credits and nature certificates to the implementation of the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework at the national level, and contribute to major global meetings on finance and sustainable development. Such work can be spearheaded at the national level as countries develop their own climate and biodiversity ambition and means to support them, articulating how credits and certificates may be part of the suite of solutions and contribute to the implementation of Target 8 of the Global Biodiversity Framework by fostering positive impacts of climate action on biodiversity.

This may be done as governments update their National Biodiversity Strategic Action Plans (NBSAPs) and develop their National Biodiversity Finance Plans in light of the commitments made at COP15 and in the Kunming-Montreal Global Biodiversity Framework.

Globally, the contributions of the Working Group may be further enhanced for international discourse and initiatives as appropriate, such as the Summit for a New Global Financial Pact,

and G7 Summit. In addition, the role of innovative financing instruments can be further explored through high level exchanges and technical dialogues at both UNFCCC and CBD sessions, with engagement of Parties and relevant institutions. The Governments of France and Gabon may wish to continue their engagement by hosting such exchanges, where the GEF and the Working Group members may be invited to contribute.

Recommendation 4: Pilot and test biodiversity-positive carbon credits and nature certificates as part of national biodiversity and climate strategy and plans. Countries are encouraged to utilize bilateral and multilateral support opportunities, including those from multilateral development banks, the GEF, GCF, and others, as well as philanthropic support, and continue to build on these experiences to move from the pre-market phase and pilots towards a critical mass of trades. Recognizing the need for urgency of action, piloting investments at different scales and modalities, informed by success stories, may serve as a trigger for meaningful and comprehensive scaling. Pilot demonstrations should be leveraged to carry out transparent assessment of the contributions to biodiversity-positive carbon credits and nature certificates to the implementation of the Kunming-Montreal Global biodiversity Framework and the Paris Agreement, and of their revenue flows to IPLCs, and other relevant rural populations and stakeholders.

The Kunming-Montreal Global Biodiversity Framework states that biodiversity related international financial resources, including official development assistance (ODA), are to increase to $20 billion per year by 2025 and $30 billion by 2030. These resources may be used to support the piloting, capacity building, and regulatory and commercial landscape development.

Recommendation 5: Promote effective market governance for nature certificates and enhance the existing carbon governance to include biodiversity elements. High integrity markets are those that are well governed. Success in nature certificate markets delivering on their public purpose will come down to how they are governed. Good governance should be the precursor for discussing more technical items such as methods and measurements. Full engagement of actors including governments, IPLCs, private sector, philanthropies, and multilateral and bilateral financing partners should be encouraged.

An effective governance ecosystem for nature certificate markets will include the following building blocks (NatureFinance, forthcoming):

1. **Integrity principles***: normative principles that encapsulate the values and vision, the public purpose, and the normative design features of the markets.*

   High level integrity principles build on and reflect key design criteria and inform subsequent design outcomes. Given their importance and the need to involve all stakeholder in their definition, they are the subject of a dedicated recommendation (Recommendation 9).

2. **Certificate specification:** *certificate need to be specified to include measures of biodiversity health, and also reflect cultural and other factors that impact the certificate's value and trading***.**

   The greatest attention has to date been on defining what nature certificates are. Multiple definitions have been offered by varied organizations and processes, some more conceptual and generally normative (i.e., something that has biodiversity regenerative outcomes) and others quite specific, technical, and quantifiable. Unsurprisingly, definitions have varied between different types of credit markets, with the easiest related to philanthropic credits and compliance offsets, and the greater difficulty encountered by those wishing to enable credits to be traded in secondary markets, especially when they serve as offsets.

   Less extensive, visible, and currently less impactful is the role of indigenous peoples and local communities in defining what is and what is not a nature certificate, notwithstanding how critical this is in aligning governance arrangements with the characterization of high integrity nature certificate markets above.

3. **Equity***: embedding social and economic equity in the fundamentals of how biodiversity credit markets work is critical to secure the effective stewardship of biodiversity*.

   Equity should be a core, high-level integrity principle and may be part of what some traders choose to act on voluntarily in the manner in which they strike deals and write and agree on contracts. Both of these approaches can be of value, but alone or even together are inadequate.

   Equity, first and foremost, is where nature's stewards are able to define what is and what is not an acceptable nature certificate, and moreover what biodiversity can and cannot be included in such trades. They need to be able to design credit features that allow for cultural and other factors to be considered, including possibly to whom they can be sold, and on-sold as the opportunities arise. Prices paid for the credit are clearly an equity issue. As with other markets, there should be consideration of market-wide price floors, cost plus development dividend pricing mechanisms and profit-sharing agreements.

4. ***Transparency:*** *needs to be the backbone of high integrity certificates and high integrity trading actors and practices.*

   All agree on the need to be able to continually associate the certificate and so inform its valuation with the state of biodiversity to which it refers. Certification is generally assumed to be the visible governing architecture to secure this validation. Yet some of the more interesting developments in this field concern the use of digital platforms to automate, and so increase accuracy and reduce costs, of traceability, notably the use of blockchain which then also allows for the use of smart contracts.

   Transparency is broader than traceability and should include a more fundamental approach to openness as to the terms and conditions of deals that are being made, and by whom. Furthermore, the focus to date has been on the certificates, rather than market actors with the main objective being to enhance price discovery and increase liquidity. Yet the anonymity in today's voluntary carbon markets are at least one possible cause of troubling information and power asymmetries, as well as providing an open door for anyone to trade, an approach that would be forbidden in many regulated markets.

5. **Voice:** *voices of impacted stakeholders need to drive governance set-ups and be visible to all market actors, policy makers and interested stakeholders***.**

   Markets are all about the provision of information relevant to a potential transaction. In that context, there is great relevance to that of the voice of effected stakeholders as well as the technical features of the credit itself. Even some of the most sophisticated grievance mechanisms have often proved to be of limited value, including those associated for example with publicly supported infrastructure investments and mining operations, as well as classic whistle-blower and staff grievance systems. That said, certificate characteristics could easily include the views of interested parties, especially indigenous peoples, and local communities. Such an approach would impact the value of the certificate directly, made all the easier when embedded through and on blockchains.

6. **Regulatory Oversight:** *national and international regulatory arrangements need to be bio-centric and reflect the interests of nature's stewards.*

   The regulatory context of nature certificate markets is likely to happen at a jurisdictional level, notwithstanding moves needed to establish agreed international market rules and oversight. Today, the only example of a proposed national regulatory framework is in Australia where proposals are currently out for consultation. The Australian proposals draw extensively from the experience of carbon compliance markets, where the country has a well-developed and widely appreciated approach. How such approaches would work in voluntary nature certificate markets, if at all, is an open question.

The exposition above of the 'governance stack' may not be exhaustive but illustrates many of the key components needed for an effective governance ecosystem. It also highlights that each and every component includes tried and tested features, even although there is much to be done in advancing a coherent framework that works for the specifics of nature certificate markets.

Furthermore, weak governance of terrestrial and marine natural capital will undermine credit and certificate schemes by reducing benefits for IPLCs and limiting positive biodiversity outcomes on the supply side and creating unacceptable risks for investors on the demand side. These governance challenges include various types of forest crime such as illegal logging and clearing, land-grabbing, and illegal mining and wildlife poaching; and corruption in primary forests that governments have the mandate to control and reduce. For example:

- Environmental crime is characterized as low-risk and high profit. Environmental crime is the third largest criminal sector worldwide, after drugs, counterfeit goods and trafficking. Illegal logging, fishing and wildlife trade alone have an estimated value of $1 trillion or more per year (INTERPOL, 2022).
- Illegal logging accounts for 50 to 90% of all forestry activities in key producer tropical forests, such as those of the Amazon Basin, Central Africa and Southeast Asia, and 15 to 30% of all wood traded globally. Trade in illegally harvested timber is highly lucrative and estimated to be worth between $30 and $100 billion annually (WWF, n.d.).
- Since 2009, the Land Matrix, a joint independent land-monitoring initiative of civil society, intergovernmental organizations and research institutes, has collected key information regarding land grabbing. It has found that almost nine percent of Africa's total area of arable land has changed owners since 2000. The largest land acquisitions are concentrated in countries with weak governance structures (Global Agriculture, n.d.; Land Matrix, 2018).

Addressing these issues will require awareness-raising, capacity building and technical assistance for host governments to develop, modernize and maintain these legal frameworks, policies, incentives and institutions.

Recommendations for Market-related Institutions (standard bodies, private sector partnerships, project developers, investors, and others)

Recommendation 6: Generate and sustain demand incentives for individual buyers and private investors. More work is needed on how to create markets for nature certificates, to understand drivers of demand. In addition to the role of governments to incentivize corporate demand, non-state actors and partnership can be instrumental in articulating demand generation. For instance, blended finance may be an effective incentive for the private sector. Future developments linked to Target 15 of the Global Biodiversity Framework to, among others, increase positive impacts of business and financial institutions on biodiversity and reduce their biodiversity-related risks should be harnessed. Progress made in global initiatives such as the Task force on Nature-related Financial Disclosures (TNFD) and the Science Based Targets Initiative (SBTI) already provide relevant insights.

The subject of the merits of secondary markets continues to be debated, and their disadvantages compared to their capacity to foster demand at scale require further assessment.

The novelty of nature certificate markets in particular may present challenges to generate sales and set viable prices. Of importance is that developers of nature certificates are adaptive to the interests of the demand for their product. For example, all of 459 Fortune 500 companies surveyed in a recent study said that they are interested in integrating social inclusion as a co-benefit to nature credits (Blue Nature Alliance analysis with support from McKinsey, forthcoming).

The survey also found that most companies are in early stages of considering nature but should have a nature strategy within the next two to three years. It also found that if nature targets increase at the same rates as net-zero pledges for carbon (4 times), the nature certificate market could grow to $2-8 billion, showing that demand does exist.

The Blue Nature Alliance also estimates that corporations are already spending over $3 billion annually on nature conservation specific philanthropy and the total currently being spent on nature financing is approximately $20-60 billion (*ibid*). Nature-related targets will require an investment of $100 billion annually. There is acknowledgment of biodiversity loss by half of large Fortune 500 companies, although only a small number (5%) have set biodiversity targets (Figure 11). Companies with the highest impact on nature are more likely to be committed to nature targets, though the integrity of their commitments is unclear and worth further analysis.

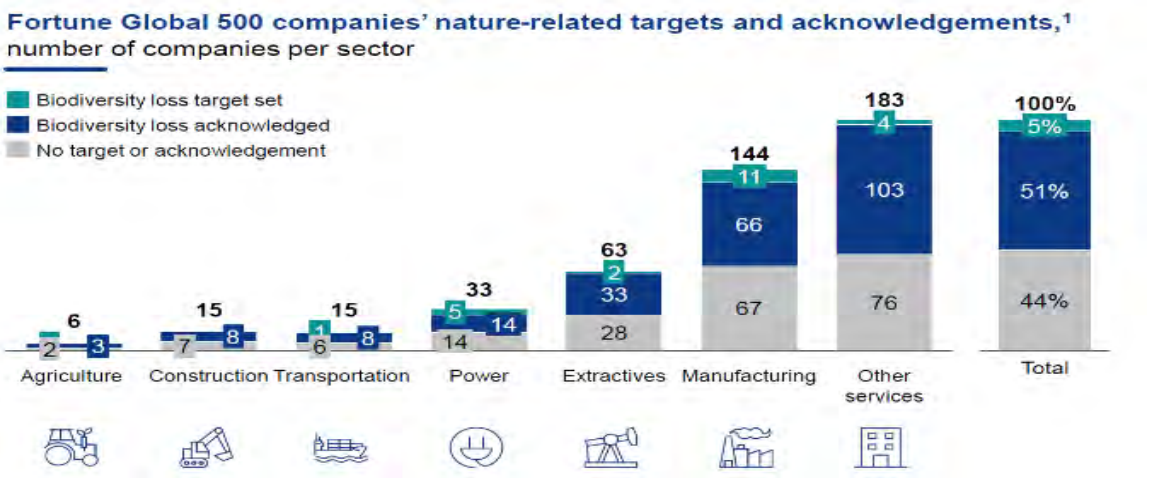


Figure 11: Survey of Fortune 500 Companies and their Current Commitments to Nature Related Targets

Specific actions are needed on both the supply side and demand side to accelerate market development, including:

- Facilitating and promoting corporate commitments to nature targets
- Developing nature certificate able to demonstrably address natural capital supply chain risks and dependencies.
- Market architecture and governance in the form of up-front agreement with project developers to buy nature credits from future projects. This may include the creation of a registry of medium-term demand, better standards and infrastructure for the development and sale of consumer-oriented nature certificates, including national and international auctions of nature certificates to maximize prices and the use of commodity exchanges and registers for trades.

Recommendation 7: Engage in collaboration on methodologies, certification standards and metrics for simple, cost-effective and scientifically robust measures for carbon and biodiversity. These are needed to ensure rules and requirements for quantifying and reporting biodiversity and carbon benefits are understood and followed, with credibility. Care should be taken that such collaboration will be inclusive to reflect IPLC values, with a view to ensure integrity and quality through a demonstrated participatory approach, maximize demand,

promote equity and additionality, especially to benefit High Forest Low Deforestation areas. As appropriate, innovation and application of technology may be encouraged, including mobile phones, drones, bioacoustics, camera traps, environmental DNA, and distributed ledgers, such as blockchain. Scientific and technological cooperation should be encouraged, with participatory and fully transparent approaches with and among countries.

New developments like the WCS High Integrity Forest Initiative (HIFOR) offer a novel pathway to link the climate and biodiversity values of primary/intact forest landscapes by focusing on the simple unit of CO_2 absorption as a contribution to climate change mitigation that helps keep the planet cooler, beyond the carbon offset market's requirement for strict additionality/fungibility with fossil fuel emission reductions. Because HIFOR only applies to high integrity tropical forests, it also entrains biodiversity value, as well as additional biophysical cooling. HIFOR offtake purchasers get both climate regulation and biodiversity conservation value. The integrity of carbon offset markets is not implicate because the transactions do not pretend to constitute offsets. And the steward of these forests gain access to sustainable finance based on maintaining the provision of their ecosystem services. Implementation of HIFOR pilots will therefore be instructive to broader policy and practitioner communities.

Box 5 presents a summary of technologies and innovations.

Box 5: The Role of Different Technologies in Credits and Certificates

Technological advancements in recent years have many applications for both the monitoring and verification of biodiversity indicators, as well as providing efficient and cost-effective payment services.

Examples of key technologies that enhance monitoring and verification of biodiversity indicators include following:

- Satellite based remote sensing;
- Cameras (including drones) and camera traps;
- Bioacoustics;
- Environmental DNA.

Though extremely useful in increasing accuracy of real time measurements, advanced technology and the associated hardware need to be introduced with sufficient training and capacity building to reduce any barriers to those with less experience with them. Their application need to ensure indigenous and traditional knowledge is fairly valued. Distributed ledger technology (DLT) including blockchain is now being employed in numerous nature certificate schemes, such as ValueNature, with the ability to decrease transaction costs and maintain simplicity at the point of sale. Additionally, DLT is practical for ensuring revenue flows to the local level as it provides high levels of transparency and trust. Nonetheless such developments are nascent and their overall role in these markets is not yet clear.

It is also important that IPLCs and other relevant stakeholders are involved in the techniques and their capacity is built to play a role in participatory monitoring, verification, and reporting (MRV). There is a need for experimentation and piloting which is already underway (see Annex 1 for list of emerging schemes).

Recommendations for All Partners

Recommendation 8: Ensure engagements of, and benefits for, indigenous peoples and local communities as custodians of ecosystems. This includes requiring that an agreed share of any revenues from schemes in both primary and where instituted, secondary markets reach IPLCs. IPLCs should have meaningful representation in decision-making including free prior and informed consent (FPIC). IPLCs are to be recognized and partnered as project developers and market designers. Capacity building and technical support for IPLCs are needed both to enable their engagement and to learn and share their experiences and knowledge. A participatory approach may also be needed to agree on the value criteria of nature certificates generated in a given location or biome. As mentioned in recommendations for governments and policy makers, policymakers should strive towards political recognition of the IPLC rights and tenure.

Globally, forests are home to 1.3 billion IPLCs, including farmers and even forest-product processing clusters on the outskirts of urban areas (Young and Macqueen, 2020). These groups and communities need to be included, engaged and given leadership for achieving sustainable forest management. Figure 12 provides a visualization of the abundance of carbon pools under the stewardship of IPLCs.

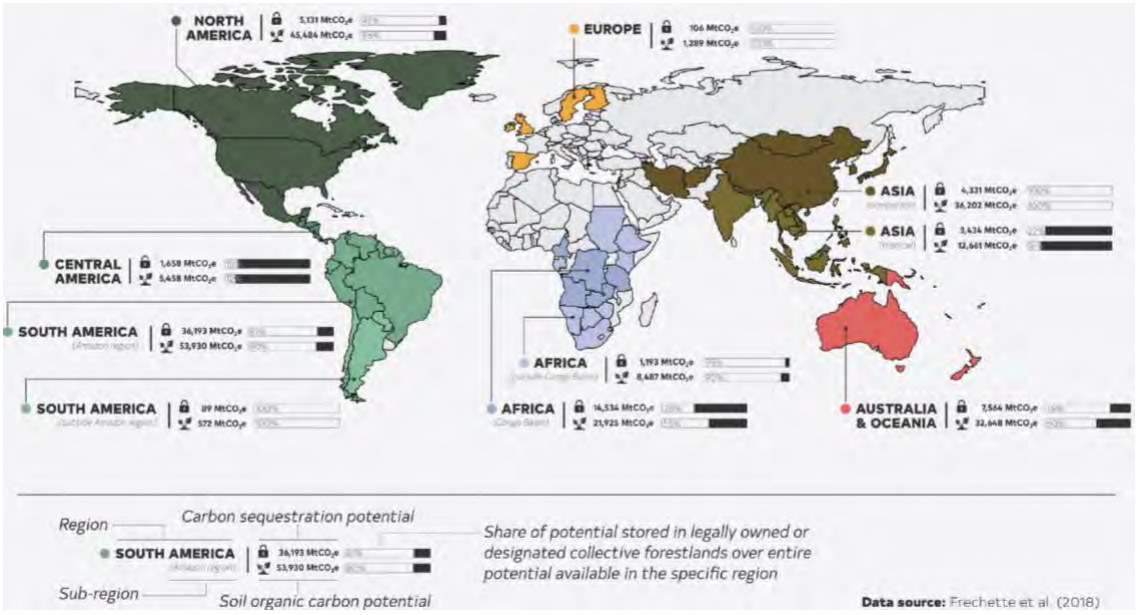


Figure 12: Carbon Storage on Indigenous Peoples and Local Communities (IPLCs) Lands
Source: Streck, Dyck, Trouwloon, 2021

In the first instance it will be important to increase the capacity of and dialogue with IPLCs so they are able to both feed into the development of the certification process as well as obtain certification for their own schemes.

It will also be important that IPLCs and other rural communities/groups can see immediate benefits from credits and certificates to cover their upfront costs of the activities they undertake to restore, conserve, and sustainably use biodiversity. This may require some form of up-front payment before the bulk of the revenues come through as IPLCs and other relevant stakeholders cannot be expected to bear these costs on their own.

Beyond IPLC projects sharing the majority of sales revenues and leading on project design and implementation, a more transformative approach may be for IPLCs to actually participate in credit and certificate market governance institutions. For example, an IPLC-led registry or certification scheme could be envisaged so that IPLCs move from being more passive beneficiaries to actual market "makers" in an equal partnership with other market players.

Recommendation 9: Elaborate and apply integrity principles for both the supply and demand sides of voluntary markets, including for transparency and sound governance, equity, measurement, reporting and verification, and claim credibility. Both standard development and room for innovation are necessary in the early stages of the nature certificate market development. They both need be taken into consideration for integrity principles.

Examples from carbon markets include the Integrity Council for Voluntary Carbon Markets (ICVM) and the Voluntary Carbon Markets Integrity Initiative (VCMI), and for nature certificates the World Economic Forum (WEF) and other processes (see Boxes 6 and 7). Core principles for the voluntary nature certificate market include that (1) it should be distinct from biodiversity offset mechanisms, which should remain within the remit of regulators, and (2) it should be linked to adequate legal, policy, and institutional frameworks at jurisdictional level.

An agreed framework of integrity principles should include consistent, widely accepted guidelines for companies on accepted uses of credits and certificates. This involves integrity at different scales:

- Local-scale integrity: ensuring that carbon and biodiversity gains are actually and demonstrably delivered and maintained, in a socially equitable, rights-based way.
- Global scale integrity: ensuring carbon and nature certificates deliver outcomes that contribute to achieving societal goals as laid out in the climate Paris agreement and the Kunming-Montreal Global Biodiversity Framework. Schemes should not be used to divert companies' attention and resources from avoiding and reducing negative impacts in the first place, such as through emissions reduction and implementing deforestation and conversion free supply chains.

Box 6: The Integrity Council for the Voluntary Carbon Market (ICVCM) and the Voluntary Carbon Markets Integrity Initiative (VCMI)

The ICVCM is an independent governance body for the voluntary carbon market. The ICVCM plans to set and enforce definitive global threshold standards, drawing on the best science and expertise available, so high-quality carbon credits efficiently mobilize finance towards urgent mitigation and climate resilient development. Their Core Carbon Principles (CCPs) and Assessment Framework (AF) will set new threshold standards for high-quality carbon credits, provide guidance on how to apply the CCPs, and define which carbon-crediting programs and methodology types are CCP-eligible.

The standards are being developed by the ICVCM's Expert Panel which is composed of twelve carbon market experts with long-standing experience in the environmental and social integrity of carbon markets, supported by eleven subject matter experts in topics ranging from carbon sequestration science to the rights of IPLCs. The Core Carbon Principles and Assessment Framework will be issued in the first quarter of 2023, following the public consultation that launched in July 2022.

The VCMI is a multistakeholder platform that is seeking to drive credible, net-zero aligned participation in voluntary carbon markets. VCMI have developed 10 principles for high integrity and high ambition voluntary corporate climate action: science-based action; comprehensive action; equity-oriented action; nature positive action; rapid action; scaled-up action; transparent action; NDC-enabling action; consistent action; collective and predictable action. These principles relate to both the supply-side access and demand-side of the voluntary carbon market and are intended to guide country access strategies and corporate climate action and to support the vision for the VCM. VCMI plans to monitor, collaborate with, and engage in efforts to ensure supply side integrity and assist low and moderate income countries develop and implement VCM access strategies. VCMI is also developing a Claims Code of Practice (CoP) to guide credible, voluntary use of carbon credits and associated claims. The CoP will guide companies to make transparent and credible claims about their progress towards a longer-term net-zero commitment.

Both ICVCM and VCMI roles are nascent and evolving. Their likely impact on carbon markets in general, and particularly with respect to "biodiversity-positive" credits is unknown and may potentially land anywhere between exclusionary and highly supportive.

Box 7: World Economic Forum (WEF) High-Level Governance and Integrity Principles for Emerging Voluntary Biodiversity Credit Markets

The World Economic Forum (WEF), in partnership with others, has developed a draft set of high-level governance and integrity principles for the market. Where sustained effort is required to maintain biodiversity outcomes, WEF states that credit trading schemes can offer ongoing, regular biodiversity credit payments to stewards of biodiversity which continue to deliver and maintain demonstrated biodiversity outcomes (WEF, 2022a).

The WEF has proposed19 guiding principles for biodiversity credit markets across transparent and sound governance, equity and inclusion, and rigorous MRV. The proposed principles are in ongoing consultation among stakeholders and market participants as of early 2023. The WEF plans for an updated version of the principles to be released in the second half of 2023, while stating that the draft principles can already provide guidance to the market.

Though it is not recommended to focus efforts on agreeing to a prescriptive consensus on how to measure a "unit" of nature, wider consensus on the methodology will also allow for scale up nature certificates and aggregating the units and to ensure there is agreement on a minimum standard for best practice. and the required flexibility for countries to adapt to their national circumstances A number of organizations previously involved in carbon credits are in the process of developing nature certificate certification schemes (e.g., Verra and Plan Vivo).

Again, there is space for multiple certification processes to exist simultaneously, and collaborative learning between certifiers will allow for more effective and adaptive responses to the challenges associated with certification. This will ultimately require a way to validate the work of the multiple certifiers that are emerging and will continue to emerge.

Recommendation 10: Establish and support a global partnership and platform with relevant actors to: (1) accelerate and scale-up biodiversity-positive carbon credit programs and nature certificate programs that deliver equitable, nature positive outcomes; (2) support identification and inventory of suitable priority areas; (3) facilitate collaboration on methodologies, (4) facilitate cooperation, good practice sharing, and cross-learning among existing and emerging initiatives and institutions; (5) collaborate on good governance and enhanced data quality, and exchange on opportunities and risks of national and international markets; and (6) promote financial tracking and accountability.

Such partnership should build on existing and emerging initiatives, connect them, and to encourage wider participation of stakeholders in an inclusive manner. An example of an emerging alliance, Biodiversity Credit Alliance, is presented in Box 8.

Collaboration with Positive Conservation Partnerships may be sought to explore cross-linkages on nature certificates and enabling policy.

One Forest Summit has served as an effective catalyst to convene various institutions and thought leaders on this important subject. A global partnership and platform can help sustain

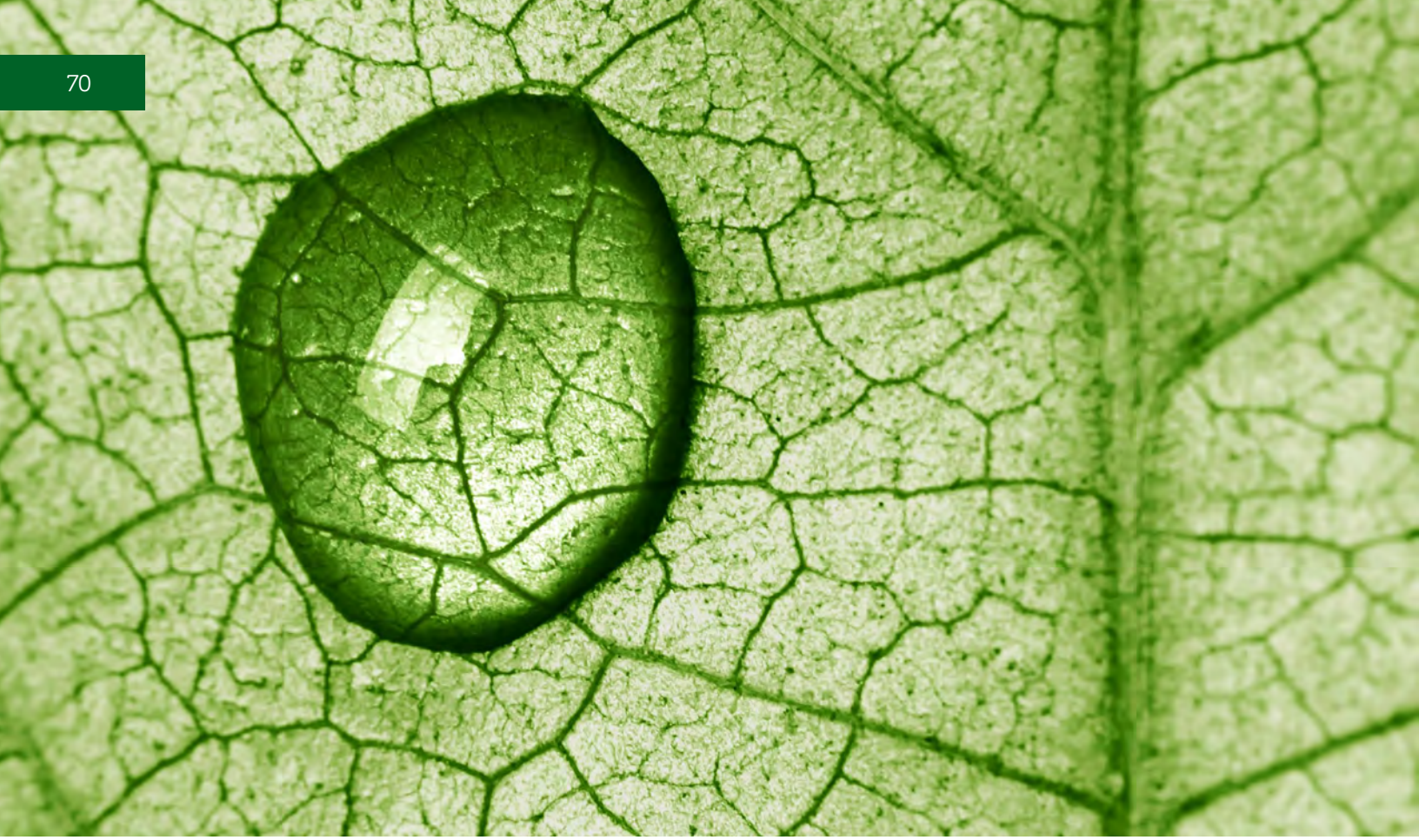
this momentum, and help accelerate the engagement of additional public and private partners and IPLCs. The Global Environment Facility, which has led the High Level Working Group, may be encouraged to support such global platform, and facilitate its member countries to support programs at the national level.

Box 8: The Biodiversity Credit Alliance (BCA)

The Biodiversity Credit Alliance (BCA), launched at the UN biodiversity summit in December 2022, features 17 taskforce members and 43 members that include established carbon investors Climate Impact partners and Pollination (Manuell, 2022). The BCA Secretariat is supported by UNEP, UNEP FI and SIDA. The BCA aims to mobilize financial flows towards biodiversity outcomes while recognizing local knowledge and contexts, and outlines its vision for how voluntary biodiversity credits (VBCs) should operate in a global market space, separating their treatment from compliance usage (BCA, 2023).

The BCA defines its objectives as:

- To define and categorize biodiversity credits
- To identify global biodiversity credit principles (global principles) that all biodiversity credit methodologies should achieve
- To develop and/or identify a model set of Digital Standards that can be adopted into Distributed Ledger Technologies (DLT) to create a transparent, easily auditable and scalable ecosystem for biodiversity credits.
- To establish a peer review mechanism for methodologies against the global principles
- Index of all credits issued under the Global Principals
- To establish a community of practice for those organizations in the quantification of biodiversity credits.



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Annex: Mapping of credits and certificates schemes*

Name	Operation Location	Instrument	Stage of Development	Facilitators	Link to IPLCs
ReBalance Earth Biodiversity Token		Biodiversity token linked to biodiversity interactions with links to direct carbon sequestration. Tokens are sold as emissions reductions certificates. Relies on a network of "Internet of things" sensors, AI, blockchain smart contracts, and remote sensing to track maintenance.	Pilot stage: Operating in Gabon's Loango National Park relies on tying elephants' ecosystem disturbance to carbon sequestration benefits.	ReBalance Earth with emissions reductions guarantees by Verra	Collaborates with local communities to determine local goals, as well as structure and approaches to benefit sharing. Utilizing the financial revenue from the Biodiversity tokens underpinned by a proof of biodiversity maintenance, IPLCs are incentivized to protect biological sequestration.
Terrasos Voluntary Biodiversity Credits (VBC)	Colombia	A transactional unit representing positive contributions to biodiversity in an area of at least 10 m2, within a preserved and or restored ecosystem, that is managed technically, financially and legally, for at least 20 years. This credit does not directly link carbon sequestration benefits.	Operational		Measures additionality of the scheme beyond environmental additionality. For example, proof of additionality of the scheme can include reduction of barrier to investment, increasing institutional capacity, strengthening land tenure rights and increasing technological access (i.e. access to information, training and knowledge) Provides financial capital and capacity building resources to facilitate community and landowner project readiness and benefit uptake.

ValueNature ValueNature Biodiversity Credit (VNBC)	Africa based out of South Africa	VNBC represents 1 hectare of land protected for 10 years, with a minimum permanence period for a specific project site. Each credit has an additional Value Nature Score(VNS) representing the protected biodiversity value during a specific year. Credits will be offered as digital credits verifiable and traceable utilizing blockchain technology.	Raising funds, Secured funding to develop 3 biodiversity credit projects to bring to market in 2023.	Value Nature Conserve Global (land manager)	Aims to deliver 80% of biocredit price to "biodiversity custodians" which includes governments, IPLCs and landowners. Plans to use blockchain technology which will increase the speed of accreditation and transactions, allowing money to flow quickly to biodiversity custodians.
Wallacea Trust	Worldwide (all global south expect Romania)			¨ Operation Wallacea; RePlanet; The Hoffman Family; Global Footprint Network	60% of credit revenue allocated to local stakeholders, 60% of sales of secondary market also has to go to local stakeholders, if price decreases, the local stakeholders still get agreed upon baseline.
Organisation for Biodiversity Certificates	France / aspiring to become applicable globally	A consortium to develop an approach for tradable biodiversity certificates to encourage positive action on biodiversity.	¨ High-level methodology released for public consultation	¨ Carbon 4 ¨ Adryada ¨ Museum National d'Histoire Naturelle ¨ Le Printemps des Terres	Reference is made to valuing traditional knowledge and the actions of local communities that benefit biodiversity.
Wilderlands Biological Biodiversity Units (BDUs) Wallacea Trust	Australia			Operation Wallacea; RePlanet; The Hoffman Family; Global Footprint Network	Partners with local Ngarrindjeri people. Specifics of benefit sharing and IPLCs not publicly available.

Ocean Wide Trust's Niue Ocean Conservation Credit (OCC)	Niue	1 km² of Niue's ocean waters for 20 years, as well as the development of Niue's broader natural environment and blue economy.	Final stages of development Expected launch early 2023. The size of Niue's Moana Mahu LSMPA is 127,000 km², creating 127,000 OCCs available for sponsorship.	Niue Ocean Wide is Niue's first Public Private Partnership between the Government of Niue and Tofia Niue, a local nonprofit organization	Details not publicly available
South Pole's EcoAustralia™ credit		Each EcoAustralia credit is a combination of: ¨ One State administered Australian Biodiversity Unit (ABU): One ABU represents 1.5 m2 of government-accredited habitat protection. A covenant placed on the land title ensures that vegetation is managed for conservation in perpetuity. ¨ One Gold Standard or Verra carbon credit: 1 tonne of CO_2 equivalent (tCO_2e) avoided or removed from the atmosphere.	Operational	Developed by South Pole(private) Australian Gov.'t (Independent body: Native Vegetation Council) Cassinia Env. (Private) Trust For Nature	Unknown

SD VISta nature framework	Global	Under development	Under development, first version expected at end of 2023	Verra with support from the Nature Framework Development Group (Blue Nature Alliance & McKinsey & Company, Conservation Finance Alliance, Conservation International, Great Barrier Reef Foundation, International Union for Conservation of Nature, The Biodiversity Consultancy) and the Nature Framework Advisory Group comprised of 25 stakeholders	
* This list reflects the best available information and is not exhaustive.					

Biodiversity-Linked Carbon Bundling Schemes*					
Name	**Operation Location**	**Instrument**	**Stage of Development**	**Facilitators**	**Link to IPLCs**
Climate Community and Biodiversity Standards (CCB Standards)	Washington, DC		Developed (Standard) 52 Projects 298 million credits issued	Verra Managed Alliance of 5 NGOs: Conservation International The Nature Conservancy Rainforest Alliance Wildlife Conservation Society	Requires respect for Rights to Lands, Territories and Resources and Free, Prior and Informed Consent.

Gold Standard For The Global Goals	Vernier, Switzerland	Supplemental carbon credit label added to carbon projects, Does not offer a specific biodiversity label, allows for the recognition of particular SDGs which overlap with biodiversity enhancement such as SDG 15 Life on Land.	Operational	Gold Standard	Requires stakeholder consultation prior to project implementation. Ensures that projects that may impact Indigenous Peoples and local farmers are designed in a spirit of partnership with them, with their full and effective participation, with the objective of securing their free, prior, and informed consent (FPIC)7 where their rights, lands, resources, territories, traditional livelihoods may be affected.
Plan Vivo Nature Standard	Edinburgh		In the process of developing Plan Vivo Nature standard (requirement for more advanced / intensive biodiversity monitoring, the costs of which would be covered by a combination of Plan Vivo and partners providing projects with tools and approaches to use and with the Biodiversity+ credits being able to attract high prices in the VCM).	Plan Vivo, Botanic Gardens Conservation International (BGCI), Darwin Extra Initiative. For PV Nature working with Wallacea Trust	Yes, likely to be adopted from Plan Vivo V5 standard.

Natural Forest Standard Natural Capital Credits (NCCs)	Zurich	NCCs issued by the NFS represent 1 tCO_2 avoided or removed through the protection and/or restoration of natural forest ecosystems via REDD+ jurisdictional programs	Operational	Technical panel administered by Resilience Constellation a technology developer	Works with project developers to build capacity communities for projects. Model ensures that at least 60% of the carbon revenue goes back to communities on the ground – budgetary provisions are verified, and communities decide how to allocate the reinvested funds.
Accounting for Nature	London, UK		Operational: The Accounting for Nature® Framework has been developed so that it complements other standard and certification systems, such as those for developing carbon offset projects.		Requires free prior and informed consent when working with IPLCs within project boundaries. Requires project development and benefit sharing to be designed, negotiated, and agreed upon in consultation with IPLCs.
* This list reflects the best available information and is not exhaustive.					

The Global Environment Facility (GEF) is a multilateral fund dedicated to confronting biodiversity loss, climate change, pollution, and strains on land and ocean health. Its grants, blended financing, and policy support help developing countries address their biggest environmental priorities and adhere to international environmental conventions. The GEF connects 185 member governments with sustainability leaders across civil society, Indigenous Peoples, and the private sector, and works closely with other environmental financiers for efficiency and impact. Over the past three decades, the GEF has provided more than $22 billion in grants and blended finance and mobilized $120 billion in co-financing for more than 5,000 national and regional projects.

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