

Harnessing Biodiversity Credits for People and Planet

June 2023



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This report has been developed at the request of France for the Summit for a New Global Financing Pact, in collaboration with the United Kingdom.



About the paper

'Harnessing Biodiversity Credits for People and Planet' is a contribution to the Summit for a New Global Financing Pact held in Paris in June 2023. It summarises current developments around biodiversity credits and outlines a Global Roadmapⁱ for stakeholders to significantly increase international financing and strengthen governance frameworks for the conservation and preservation of biodiversity.

The paper has been developed by NatureFinance in association with Carbone 4 and in collaboration with the Global Environment Facility (GEF). It has been produced at the request of the Government of France for the Summit for a New Global Financing Pact. The 'Global Roadmap to Harness Biodiversity Credits' and accompanying Advisory Panel is initiated in collaboration with the United Kingdom. It builds on the report 'Innovative Finance for People and Planet' prepared by the GEF and the International Institute for Environment and Development (IIED) for the One Forest Summit in Gabon in March 2023.¹ A wide range of stakeholders have provided insights and use cases for this paper.

The first part of the paper builds on the findings and recommendations of the GEF/IIED high-level report and provides an overview of recent developments in the biodiversity credits landscape. This section highlights ways in which early-stage innovations are addressing key design challenges around issues such as high-integrity supply, scaled demand, and equitable distribution of benefits to overcome risks and secure the potential benefits of biodiversity credits. Multiple use cases illustrate how activities in existing, adjacent, and relevant markets are addressing critical market design challenges. The experiences and lessons learned from selected examples can hopefully inspire new thinking and support more informed and impactful governance of evolving biodiversity credit markets.

The second part of the paper addresses the need to harness these innovations to scale finance for biodiversity in an impactful, timely, and equitable way. With this in mind, a Global Roadmap is proposed – introduced at the Summit for a New Global Financing Pact and meant to evolve through to UNFCCC COP28 and CBD COP16, with further opportunities towards UNFCCC COP30 (2025) – with the goal of crowding in new partners and innovation, and increasing commitments from key public and private actors to co-develop equitable, impactful biodiversity credit markets at scale in the coming months and years.

ⁱ The 'A Global Roadmap to Harness Biodiversity Credits' is described in Chapter 4 of this paper, as well as available as a stand-alone document.

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NatureFinance is an international not-for-profit organisation dedicated to aligning global finance with equitable, nature positive outcomes. In realising this goal, NatureFinance is active in advancing the use of appropriate biodiversity data in disclosing and managing nature related risks, developing purposeful nature markets, advancing financial innovations including in sovereign debt and nature credit markets, strengthening nature related liabilities especially in addressing nature crimes, and promoting digital approaches to advancing citizen action on nature. Find out more at www.naturefinance.net and www.naturemarkets.net



Carbone 4 is an independent climate and biodiversity consultancy based in Paris. It supports the world's transformation towards decarbonisation, adaptation to climate change, and the preservation of biodiversity. Acting as a link between scientific excellence and the economic world, Carbone 4 helps the private sector implement strategies that ensure sustainability and resilience in a changing world shaped by climate change, biodiversity erosion, and limited resources. The firm specialises in the development of science-based methodologies tailored to businesses, and has been working for two years on the issue of biodiversity credits, in partnership with the French National Museum of Natural History. Find out more at www.carbone4.com

Disclaimer: Contributors to this paper do not indicate their endorsement of its analysis, conclusions, or proposals. The use cases are intended to showcase different approaches and means to address some of the market design challenges identified around the scaling of biodiversity credit markets. The use cases are not meant to be exhaustive, they do not represent a complete overview or analysis of available efforts, mechanisms and instruments. The information presented here is primarily provided by and taken from websites or existing reviews conducted around the respective activities.

Foreword

There is an urgent need to increase financing for biodiversity, given its intrinsic value, its critical role for Indigenous Peoples and local communities, for national economies, for food security and for its contribution to addressing climate goals.

During the UNFCCC COP 27 in Sharm El-Sheikh, I eagerly accepted, on behalf of the GEF, President Macron's invitation to lead a Working Group on innovative biodiversity finance mechanisms. The lack of adequate financial resources is widely recognised as one of the reasons for the failure to achieve the previous set of global biodiversity targets. The Kunming-Montreal Global Biodiversity Framework adopted at CBD COP15 in December 2022 set a goal and targets to close the significant global biodiversity finance gap.

It was a great honour for me to present the results of the Working Group's intensive discussions, including 10 recommendations, at the One Forest Summit held in March 2023 in Libreville, Gabon.

The Global Environment Facility (GEF) report 'Innovative Finance for People and Planet' concluded that, with clear policy frameworks, good governance, 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 Kunming-Montreal Global Biodiversity Framework and the Paris Agreement.

What is clear is the great momentum for change that is now building, and the need to address a range of key design challenges in scaling equitable biodiversity markets, both nationally and internationally, in developed and developing countries alike. This will require further intensive, collaborative efforts and committed leadership. I am therefore delighted that the Government of France, as host of the Summit for a New Global Financing Pact requested NatureFinance and Carbone 4 to prepare, in collaboration with the GEF, this new report as a foundation for that further work. I also welcome the preliminary Roadmap for high-integrity biodiversity credits and supporting Advisory Panel as initiated by the Governments of France and the United Kingdom.

Policy frameworks need to be put in place so that high-integrity biodiversity credits can be scaled in a timely way and realise their full potential, that pricing is fair for sellers as well as buyers, and that these new markets support the maintenance of intact biodiversity and fully engage and remunerate Indigenous Peoples and local communities as stewards of the global environment. It is thus critical and timely to initiate a political process to catalyse the development of high-integrity, equitable, and transparent biodiversity credit markets and to ensure their adequate governance. Such a process will fill a key gap by providing a platform for existing coalitions and initiatives and by enabling the technical discourse to be aligned with, and help inform, the policy making. This new paper, and the Roadmap process being initiated to chart the way to key checkpoints at UNFCCC COP 28 and CBD COP16, are an excellent start. I look forward to the GEF continuing to play a key role in supporting this important journey.



Carlos Manuel Rodriquez

CEO and Chairperson,
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1

**Executive
Summary**



The One Forest Summit held in Libreville in March 2023 gave significant attention to biodiversity credits (which, for the purpose of this paper, includes many forms of credits and associated names including certificates), including biodiversity-positive carbon credits. Discussions were informed by a high-level report entitled ‘Innovative Finance for Nature and People: Opportunities and Challenges for Biodiversity-Positive Carbon Credits and Nature Certificates’, which was developed and presented under the auspices of the Global Environment Facility (GEF).² The report’s key conclusion was that:

“...with clear policy frameworks and signals, good governance, 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”.

This paper, ‘Harnessing Biodiversity Credits for People and Planet’, builds on the GEF/IIED paper, its 10 recommendations, and the deliberations and commitments of the One Forest Summit. It highlights recent trends, identifies critical design challenges, and sets out an initial Roadmap for addressing them by crowding in the insights and experience of partners that will collectively chart an effective way forward on these rapidly evolving markets.

The current surge in activity around biodiversity credits is being driven by the increased visibility of the importance of biodiversity in national policies, markets, and international cooperation, exemplified by the Kunming-Montreal Global Biodiversity Framework (KMGBF). The surge has included action in developing definitions and taxonomies, measurement and certification schemes, trading pilots, national policy and regulatory developments, as well as early attempts to link credits to other financing instruments and initiatives.

From the perspective of international cooperation, two imperatives have emerged around the rapid scaling of these markets. First, ensuring biodiversity credits can channel scaled, international financial flows to achieve the 2030 Agenda on Sustainable Development, the Kunming-Montreal Global Biodiversity Framework, and the Paris Agreement, with associated effective oversight. And second, enabling financial flows to support the maintenance of biodiversity (e.g. primary forests), threat mitigation, restoration, and regenerative agriculture and aquaculture.

In the context of these shared global goals, there are **five core design challenges** for enabling high-integrity biodiversity credit markets:

1

Providing credible, timely, and affordable measurement and monitoring of the state, improvement and/or maintenance of biodiversity.

2

Scaling sustained and high-integrity demand for credits and associated financing.

3

Ensuring sufficient high-integrity supply of credits that offer nature positive outcomes.

4

Securing adequate price and equitable distribution of rewards to project developers, sovereigns, and Indigenous Peoples and local communities.

5

Establishing robust governance and broader, transparent institutional arrangements.

These inter-related design challenges can and must be addressed to ensure that the rise of biodiversity credits/certificates and biodiversity-positive carbon credits deliver scaled, equitable, positive outcomes for people and the planet. Across all of the core design challenges it will be important to cultivate markets for biodiversity credits which take advantage, where adequate, of architectural synergies with the carbon market infrastructure.

Our collective challenge is to ensure that technical, market, and political tracks converge towards structured biodiversity credit markets that deliver for nature, climate, and people.

France and the UK therefore propose to help to address this collective challenge by initiating an open and inclusive process ('a Global Roadmap to Harness Biodiversity Credits'), working with other countries and key partners and drawing on existing processes and initiatives, with a view to scaling up the use of biodiversity-positive carbon credits and biodiversity certificates, and structure biodiversity credit markets in ways that deliver significant, equitable, nature positive outcomes.

A high-level, multistakeholder Advisory Panel will be established to deliver the envisaged Global Roadmapⁱⁱ that will bring together and harness the most important and impactful collective thinking and practice on developing high-integrity biodiversity credits, with the active involvement of the Global Environment Facility (GEF).

The Advisory Panel will deliver its findings and recommendations to a coalition of countries committed to the use of biodiversity credits as a key way to accelerate financing for biodiversity. Its findings and recommendations will be taken up by a wide range of non-state actors including market participants.

The Advisory Panel will anchor its activities around the key milestones in the international calendar presented by the climate change and biodiversity conventions, as well as any other relevant multilateral processes such as UNEA or the G7 and G20. These all provide opportunities for high-level engagement on incremental steps towards the development of the market, and will include:

By **UNFCCC COP28**, the Advisory Panel will submit its roadmap to a larger group of key stakeholders including sovereigns, IPLCs, and market actors. The Roadmap will include actionable recommendations on scaling up biodiversity credits and support the development of the practical and political conditions under which the first representative transactions will take place and send positive signals to the marketplace.

By **UNCBD COP16**, the Advisory Panel, with the cooperation of the larger group of stakeholders, will build on the recommendations for piloting approaches for the rapid development of equitable and high-integrity biodiversity credit markets that can be scaled, and deliver significant new sources of finance for biodiversity outcomes.

The Advisory Panel will build as much as possible on the existing engagement and expertise in related processes, initiatives, and platforms, identifying commonalities and gaps and building on synergies in designing approaches that support ambitious actions to ensure that high-integrity biodiversity credit markets move from theory to delivery.

The Advisory Panel will guide an open and inclusive working process which will draw on insights from policy makers and regulators, Indigenous Peoples and local communities, market actors including the financial community, experts, and broader civil society.

In conclusion, this paper shows that with proper governance and sustained political and financial support, biodiversity credits have the potential to deliver financing, support nature's custodians, and improve biodiversity outcomes at scale. Their development, alongside other finance mechanisms for biodiversity, merits the full and urgent attention of the international community. The paper and the accompanying Global Roadmap is intended to provide the building blocks for such concerted and timely action.

ⁱⁱ The 'Global Roadmap to Harness Biodiversity Credits for the Benefit of People and Planet' is described in Chapter 4 of this paper, also available as a stand-alone document.



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2

Introduction

The period to the end of 2024 may prove to be the pivotal year for biodiversity credits to emerge more prominently and take shape in various forms and markets around the world. We are at a critical moment in the development of these nascent markets, and decisions made in the next 12-18 months will determine their direction, scale, and credibility.

The international community is increasingly aware of the links between nature loss and climate change, with greater attention being given to solutions that address these crises in tandem. This is reflected in the Kunming-Montreal Global Biodiversity Framework (KMGBF), adopted under the Convention on Biological Diversity (CBD) which includes Target 8 on minimising negative and fostering positive impacts of climate action on biodiversity, and Target 15 on engaging business and financial institutions. Climate and nature links are equally reflected in the Sharm El Sheikh Implementation Plan adopted by the United Nations Framework Convention on Climate Change (UNFCCC) at COP27.

Biodiversity credits are linked to both climate and nature outcomes. But they are not a panacea to overcome the financing needs to address both crises. They are foremost viewed by their proponents as an important, additional instrument at the disposal of the global community to channel international finance to nature-rich countries and their nature custodians, and thus achieve impacts on the ground.

Nature is integral to the global economy but remains, for the most part, not explicitly valued in monetary terms.³ Recent analysis by Trucost estimates that today's global economy incurs annual unpriced natural capital costs of US\$7.3 trillion.⁴ The failure to accurately value nature can result in unsustainable resource use, economic losses, social and health impacts, climate change vulnerabilities, inequities, and environmental injustices.

In line with other emerging market instruments which attempt to correct valuation errors, biodiversity credits present a potential opportunity to price the cost of managing nature and shape the next generation of high-integrity business activities, markets, and economies. They could lead to investments being channelled towards better protection and regeneration of biodiversity – including, but also going beyond, the focus on carbon. Advances in ecosystem recovery science and practice also demonstrate how investments in the recovery of ecosystem infrastructure can restore a collective sense of hope and confidence in the future. Biodiversity credit markets are also subject to significant concern, scepticism, and criticism.

For many actors on the finance side, carbon and water⁵ remain the primary 'nature currencies' in the absence of a 'biodiversity currency'. One clear risk identified is the absence of standardised frameworks, metrics, and reporting requirements for assessing biodiversity impacts, which can create ambiguity and allow for manipulation or inconsistent practices leading to greenwashing.⁶ Another risk is that markets, at best, disproportionately value those aspects of nature that offer short-term economic rewards, which may overshadow or undervalue the long-term economic value associated with sustainable practices. Within the family of biodiversity credits (see proposed Taxonomy – Table 1), biodiversity offsets concentrate the largest range of contested elements, with severe risks associated with their unguided expansion.⁷

Current debate about the merits of biodiversity credits must be placed in the context of the fact that market development remains in early stages. The regulated, national biodiversity offset schemesⁱⁱⁱ are currently mobilising jointly about US\$ 6-9 billion annually.⁸ On the voluntary side (credits aimed at achieving impacts beyond value chain and targeting higher-order contributions) there is currently very little trading and associated investment in biodiversity outcomes. One estimate suggests as little as US\$8 million in funding pledged,⁹ although broader assessment parameters suggest somewhat larger numbers.¹⁰

The latest interest in biodiversity credits has been accelerated by the KMGBF and its outlook that biodiversity credits can contribute to achieving international ambitions (e.g. '30 by 30'), and in particular the inclusion of biodiversity credits as part of Target 19 on resource mobilisation.¹¹ The role of the Global Biodiversity Framework Fund (GBFF), to be established in 2023 by the Global Environment Facility (GEF), with regards to biodiversity credits needs further exploration.

The One Forest Summit held in Libreville, Gabon, in March 2023 gave significant attention to biodiversity certificates and biodiversity-positive carbon credits.^{iv} Discussions were informed by a high-level report entitled 'Innovative Finance for Nature and People: Opportunities and Challenges for Biodiversity-Positive Carbon Credits and Nature Certificates', developed and presented under the auspices of the GEF.¹² The report's key conclusion was that:

"...with clear policy frameworks and signals, good governance, 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".

Its recommendations, summarised below (Box 1), informed The Libreville Plan,¹³ an output of the One Forest Summit which placed biodiversity credits in the implementation frame for the Positive Conservation Partnerships (PCPs) (now referred to as Forest Country Packages) aiming to connect 'forest countries', international funders, and nature experts to create sustainable forest management and payment mechanisms.

This paper builds on the recommendations in the GEF/IIED high-level report as well as the continued, manifold technical deliberations and growing, early on-the-ground experiences. Particular focus has been given to two types of credits, biodiversity credits/certificates and biodiversity-positive carbon credits.

ⁱⁱⁱ Following a mitigation hierarchy, which refers to the four steps that have to be followed in order: Avoid, then Minimise, then Restore impacted areas and finally Offset any impacts that remain.

^{iv} There are different use terms for biodiversity-positive carbon credits. WBCSD, for example, refers to them as Natural Climate Solutions carbon credits.

BOX 1 **Innovative Finance for Nature and People:** Key Recommendations as outlined in the GEF/IIED Report

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 mobilisation.

RECOMMENDATION 2: Provide and maintain clear policies, incentives, and institutional frameworks to foster demand and enhance certainty and accountability in approach.

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.

RECOMMENDATION 4: Pilot and test biodiversity-positive carbon credits and nature certificates as part of national biodiversity and climate strategy and plans.

RECOMMENDATION 5: Promote effective market governance for nature certificates and enhance the existing carbon governance to include biodiversity elements.

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.

RECOMMENDATION 7: Engage in collaboration on methodologies, certification standards, and metrics for simple, cost-effective and scientifically robust measures for carbon and biodiversity.

RECOMMENDATIONS FOR ALL PARTNERS

RECOMMENDATION 8: Ensure engagements of, and benefits for, indigenous peoples and local communities as custodians of ecosystems.

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.

RECOMMENDATION 10: Establish and support a global partnership and platform with relevant actors.

The background of the entire image consists of a dense pattern of wavy, parallel lines in various shades of orange and red, creating a textured, almost fabric-like appearance. A white-bordered rectangular box is positioned in the upper-left quadrant of the image. Inside this box, the number '3' is located in the top right corner, and the text 'Market Development Needs' is positioned in the bottom left corner.

3

**Market
Development
Needs**

3.1 The starting point

The GEF/IIED report highlights the potential for biodiversity credits to play a role in shaping a nature positive economy and addressing the global biodiversity finance gap.

Rightly, however, it cautions that this is only possible if the enabling environment is in place –including adequate legal, policy, and institutional frameworks in countries of both the providers and the buyers – and if key challenges are effectively addressed in both design and implementation.

Building on the GEF/IIED paper, discussions during the events held as part of the One Forest Summit in Gabon¹⁴ highlighted three fundamental criteria which credible, high-integrity biodiversity credit markets need to meet:

Timely Scale: provide for the rapid scale-up of the volume and value of transactions, allowing for integrated finance and planning solutions to be developed.

Equitable Outcomes: provide for fair price and equitable distribution of rewards, notably for project developers, sovereigns, and Indigenous Peoples and local communities.

Credible Impact: provide for measurable positive change on the ground, for nature and people.

3.2 The core market design challenges

Markets start in a nascent state and develop over time.¹⁵ Translating the core design specification into practice cannot be specified like a blueprint or a static framework. In considering the myriad of current practice and debate, five critical design challenges need to be addressed in meeting the core design specification:

- 1 Providing credible, timely, and affordable measurement and monitoring of the state, improvement and/or maintenance of biodiversity.
- 2 Scaling sustained, and high-integrity demand for credits and associated financing.
- 3 Ensuring sufficient, high-integrity supply of credits offering nature positive outcomes.
- 4 Securing adequate price and equitable distribution of rewards to project developers, sovereigns, and Indigenous Peoples and local communities.
- 5 Establishing robust governance and broader, transparent institutional arrangements.

These inter-related design challenges can and must be addressed to ensure that the rise of biodiversity credits and biodiversity-positive carbon credits delivers scaled, high-integrity, equitable, positive outcomes for people and the planet.

Across all the core design challenges it will be important to cultivate markets for biodiversity credits which take advantage of synergies with the carbon market infrastructure.

3.3 Biodiversity credit taxonomy

In addressing the above outlined design challenges, we start with an overview of the varied landscape of current types of credits. Only by looking at the full spectrum of credit types in existence can appropriate governance mechanisms for associated markets be formulated.


TABLE 1 6 Broad Categories of Biodiversity Credits and Market Approaches¹⁶


A. PHILANTHROPIC CLAIMS

Philanthropic claims, in terms of philanthropic funding support (grants) to protect or regenerate a defined biodiversity land- or seascape, has been an established mechanism for many decades.

B. MANDATORY BIODIVERSITY OFFSETS


Mandatory biodiversity offsets and related national schemes are meant to produce measurable conservation outcomes that result from actions designed to compensate for significant, residual biodiversity loss from development projects.¹⁷ Such schemes exist in many countries (including Australia, Brazil, Canada, Colombia, France,¹⁸ Germany, Luxembourg, Mexico, South Africa, and several others)^{19, 20, 21}, and are emerging in others, such as the UK. National legislation requires companies, after having applied the mitigation hierarchy, to compensate for any un-avoided land- or seascape damage associated with their operations.

 | The mitigation hierarchy refers to the four steps that have to be followed in order: Avoid, then Minimise, then Restore impacted areas and finally Offset any impacts that remain.

 | Most schemes are targeting large-scale infrastructure efforts. 'Smaller scale' infrastructure (e.g. paved roads vs highways and national roads)²² could, if aggregated, well outperform the negative impacts of 'national significant' infrastructure.

C. BIODIVERSITY LINKED CARBON CREDITS

Biodiversity linked carbon credits are closely tied to the voluntary carbon market, also bought by some for offsetting purposes. Carbon is the underlying market currency, with biodiversity (and other social components) serving as additional core benefits, often achieving a price premium (for example, linked to the Climate, Community and Biodiversity Standards (CCB Standards).²³ They are sold over the counter under primary markets, and traded amongst investors on the secondary market, eventually to be retired and claimed against a corporate's emission reduction targets, and more frequently, as additional, beyond value chain actions.²⁴

 | TNC produced an **Article 6 Explainer**: Questions and Answers about the COP27 Decisions on carbon markets and what they mean for NDCs, Nature and the Voluntary Carbon Markets.²⁵

D. BEYOND VALUE CHAIN BIODIVERSITY CREDITS (certificates or claims)

Such biodiversity credits go beyond a company's value chain and corporate targets, and are currently evolving in the voluntary market space. These credits are at present receiving the majority of market actors' attention, primarily from project developers and standard setters. Similar to the net zero climate movement, there are corporates (and investors) willing to go beyond biodiversity offsetting or value chain investments and to contribute to positive biodiversity gains (or uplifts) to achieve global biodiversity (and climate) goals. Several countries (see use cases below) have or are in the process of setting up voluntary market frameworks or conditions, including Australia, UK, and New Zealand.

E. INSETTING CREDITS

Insetting credits (or claims) refers to an approach where companies or organisations undertake biodiversity conservation or restoration activities within their own operations or supply chains. Unlike offsetting, which involves compensating for negative impacts by supporting conservation projects outside of the company's direct operations, insetting focuses on integrating conservation efforts directly within the company's activities. Insetting can, therefore, be viewed as part of a company's strategy to achieve biodiversity integrative, climate resilient business model(s). Such efforts focus primarily on investments in enhancing sustainable nature resource productivity, often along regenerative food value chains by a financial institution or the commodity or brand buyer. They may or may not be traded in future markets.

F. BIODIVERSITY AS A NEW FINANCIAL ASSET CLASS

Biodiversity as a new financial asset class means the treatment of biodiversity as more than a conservation or environmental concern and recognise biodiversity and the ecosystem services it provides as a source of financial value. Achieving this recognition would facilitate integration of biodiversity into asset management. Advantageously there is growing demand by the global asset management sector for financial assets to adequately value nature within portfolios and help diversify and mitigate climate and nature risks as portfolio management tools. This reflects in part increasing efforts by investors to comply with evolving sustainable regulations and ESG disclosure requirements.

An inclusive framing taxonomy is essential in building a common understanding and converging on a common core approach to high-integrity biodiversity credits, and related markets. There is no internationally accepted definition of a biodiversity credit, and different descriptions are being proposed (see more details in 3.4). There is, however, a global understanding that those aiming towards achieving impacts beyond a company's value chain improvements and are thus of a higher-order contribution, are distinct from offsets, and are not designed to compensate for actions with negative impacts on biodiversity elsewhere.

While there are no globally accepted definitions or distinctions between the different categories, Table 1 intends to reflect the broad tendencies of current thinking and applications. These categories are meant to reflect what is already out there in nascent, or in some cases, in quite mature forms. These categories are likely to evolve and mature over time. Moreover, the categories are not exclusive, and may overlap. There are emerging, national examples, like in Australia, UK, and Colombia, where different types of credits co-exist in different combinations of mandatory and voluntary schemes.

3.4 Design Challenge 1: Providing credible, timely, and affordable measurement and monitoring of the state, improvement, and/or maintenance of biodiversity

At this early stage, biodiversity credits, and biodiversity itself, mean different things to different people. This is the result of designers wanting to offer different types of 'claims', as well as the lack of a generally accepted, operational definition of biodiversity itself. Multiple credit and outcome/impact definitions have been offered by diverse organisations and processes.

Some are more conceptual and generally normative (i.e. something that has biodiversity regenerative outcomes), whilst others have been quite specific, technical, and quantifiable. The core goal of biodiversity credits could be summarised as an aim to equate changes in biodiversity conditions across time and space, so that the changes are packed into tradable units.

Moreover, some consider the relevant measure to be absolute whilst others consider most relevant to be a relative measure compared, say, to a notion of 'pristine state'. Yet others are focused on measuring the change in the state of biodiversity over time, or in the most contentious case of offsets, a measure of equivalence between locations.

Underlying such differences is a more fundamental challenge as to how to measure the state of biodiversity, given its complexity and data gaps and weaknesses. Clearly there is a rapid growth in the availability of biodata from multiple sources, from eDNA through to bioacoustics, camera traps, and remote satellite imagery, along with many public and private sources of such data. Moreover, there are growing numbers of efforts to offer consolidated, useable analysis of this data.

This includes commercial and public-private collaborations to aggregate biodata into standardised forms, including the exploration of the merits and design of a Public Data Utility Platform bringing together measures of the state of nature.²⁶ Then there are more technical efforts advanced by ecological and data scientists using artificial intelligence to enable data extrapolations worldwide, such as UNEP-WCMC's Forest Biodiversity Intactness Index²⁷ and the Biocomplexity Index (SEED) developed by ETH Zurich.²⁸

Other global databases include:

- | Integrated Biodiversity Assessment Tool - IBAT²⁹
- | IUCN Green List of Protected and Conserved Areas³⁰
- | Exploring Natural Capital Opportunities, Risks and Exposure – ENCORE³¹
- | Vegetation Productivity Index³²
- | Protected areas and other effective area-based conservation measures (OECMs)³³
- | Forest Structural Integrity Index- FLII³⁴

However, there is also the potential for a data technical divide wherein only that what can be measured by technology is considered. This would leave traditional, local, or analogue knowledge and methodologies to the side, including the development of interfaces for these.

BOX 2

Use cases of efforts to collaborate on methodologies, certification standards, and metrics

- | Use Cases meant to inform the realisation of GEF/IIED High-level Report Recommendation 7:
○ | Engage in collaboration on methodologies, certification standards, and metrics.

1. THE BIODIVERSITY CREDIT ALLIANCE – ALIGNING PROJECT LEVEL METHODOLOGIES

Primarily an alliance of experienced field-based conservation practitioners and academics whose value is the direct connection to communities, project supply, and science.³⁵

2. THE ORGANIZATION OF BIODIVERSITY CERTIFICATES (OBC)

An international organisation gathering stakeholders (field actors, companies, NGO, scientific institutions, impact funds) to support the creation of a global biodiversity certificates mechanism, including technical and methodological contributions.³⁶

3. VERRA ´S NEW BIODIVERSITY METHODOLOGY³⁷

Verra is developing a nature crediting framework to drive finance to conservation and restoration activities. The SD VISta Nature Framework is being built on the principles of quality, equity, scalability, rigor, and practicality, and will include a biodiversity methodology to enable projects to issue standalone, transactable, and standardised nature.³⁸

4. PLAN VIVO ´S NATURE CERTIFICATE

Plan Vivo is developing a Nature Certificate based on the Wallacea Trust methodology.³⁹ This uses a basket of at least 5 taxa that encompass the conservation objectives for the habitats being improved or protected from loss. Each metric includes data on species richness, conservation importance, and relative abundance and is measured at a maximum of 5-yearly intervals.⁴⁰

5. GOLD STANDARD CERTIFIED SDG IMPACTS FOR RESULTS-BASED FINANCE

Gold Standard for the Global Goals allows for the issuance of certified SDG impacts, from water benefits to renewable energy certificates to health or gender equality benefits. This enables project developers to monetise project impacts and reassures project funders that outcomes have been achieved.⁴¹

6. GLOBAL BIODIVERSITY STANDARD⁴²

The only international certification that recognises and promotes the protection, restoration, and enhancement of biodiversity specifically in the context of tree-planting, reforestation, and forest restoration.⁴³

7. NATURE INVESTMENT STANDARDS PROGRAMME⁴⁴

Defra and BSI, with the Devolved Administrations, and a wide range of stakeholders are developing an UK-wide standards' framework for participation in nature-based markets. It establishes clear principles and robust requirements for investing in nature, addressing the current lack of a consistent and transparent approach.

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8. BIODIVERSITY METRIC 4.0 BIODIVERSITY⁴⁵

A biodiversity accounting tool that can be used for the purposes of calculating biodiversity net gain by any development project, consenting body, or landowner that needs to calculate biodiversity losses and gains for terrestrial and/or intertidal habitats. Work is underway to develop an approach to marine net gain for English water.

9. SCIENCE BASED TARGETS NETWORK (SBTN) – SETTING VOLUNTARY PRIVATE SECTOR OBJECTIVES

Science-based targets (SBTs) are measurable, actionable, and time-bound objectives that enable companies and cities to align with sustainability goals. For companies, the SBTN Initial Guidance defines five distinct steps to set nature SBTs: Assess, Prioritise, Measure, Act, and Track. In May 2023 the first corporate science-based targets for nature were published.⁴⁶

10. TASKFORCE ON NATURE-RELATED FINANCIAL DISCLOSURE (TNFD)⁴⁷ – VOLUNTARY PRIVATE SECTOR DISCLOSURE

The TNFD's mission is to develop and deliver a risk management and disclosure framework for organisations to report and act on evolving nature-related risks. The aim is to support a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes. The release of version v1.0 of the full framework for market adoption will be in September 2023.

11. NATURAL CAPITAL ACCOUNTING ON THE NATIONAL LEVEL

Many countries have started meaningful efforts to measure and organise social, economic, and environmental information concerning environmental assets to enable coherent measurement of progress against the UN SDGs or other national and international commitments. Natural capital accounts are becoming the underlying premises for better integrating nature into global economies.

The System of Environmental Economic Accounting (SEEA) is the accepted international standard for environmental-economic accounting, providing a framework for organising and presenting statistics on the environment and its relationship with the economy.⁴⁸

12. IUCN'S BIODIVERSITY-POSITIVE APPROACH

The proposed IUCN Biodiversity-Positive approach aims to enable effective delivery of verified, robust outcomes for biodiversity, through the collective efforts of governments, civil society, and the private sector. It is intended to support the many actions by the wider nature positive community around business and finance target setting and reporting on nature.⁴⁹

Much effort is already happening to advance the agenda towards credible, timely, affordable measurement of the state, improvement and/or maintenance of biodiversity.


As part of this report, an online survey was sent to 23 organisations and initiatives, identified as the main stakeholders in the voluntary biodiversity credit ecosystem, to understand the nature of their work, their approach to quantifying biodiversity gains, their progress to date and their main needs.

18 responded, including 9 that are developing methods for measuring the state of biodiversity. What emerges is that there is considerable heterogeneity among the methods developed, not only in the approach, but also in the assumptions and even in the nature of what is measured.

See Annex 1 for detailed results of the survey.


This heterogeneity is not necessarily considered as bad news. The question of quantifying biodiversity gains continues to be explored, as nature changes are complex and difficult to be captured in a metric. It seems appropriate to test several approaches to have better chances of obtaining trustworthy methods. Given the great diversity of ecosystems and species, there is no guarantee that it will be possible to create a method that performs well in all contexts, so several approaches may be needed. In this way, these metrics could prove to be complementary rather than competing.


However, the current heterogeneity can benefit from common vocabulary and definitions. This will allow to compare metrics and methodologies, understand what kind of situation each method is best suited for, what it proposes to measure, and how. This will bring metrics and methodologies closer to buyers and accelerate early transactions.

 The application of concepts such as additionality and biodiversity net gain (BNG) need to be further explored as part of the methodological developments of biodiversity credits as well as market design overall.

How to link the appropriate metric(s) as a contribution to the KMGBF is another level of discussion, as the KMGBF itself speaks to different outcomes. For example, the STAR metric⁵⁰ speaks to the KMGBF target on species extinction reduction yet may not be appropriate (by itself) to report on outcomes related to the 30x30 targets.

The lack of one common, agreed unit (comparable to the 1 tonne of CO₂ equivalent) is seen by others as one of the biggest, if not the biggest, barrier to scale. International trading of biodiversity credits will be severely hampered without an agreed unit of biodiversity change.

 Metrics and units remain a contested subject, representative of the point of collision between the complexity of the science and the market need for simplicity to reach scale. Notwithstanding the need for experimentation and the rapidly evolving biodata landscape, there is clearly a need to stabilise and converge on a more commonly accepted measure of the state of biodiversity that could, under the best scenario, be used widely across multiple forms of biodiversity credits and associated markets.

 Current methodologies focus primarily on restoration opportunities and avoided threats, to a lesser extent, on the maintenance of high-value ecosystems. High-value, or standing, ecosystems must be one of the primary sources of supply to the biodiversity credit market. Revenue from biodiversity credits needs to support management actions that will continue to minimise threats from external influences. Sustainable livelihood opportunities must be provided in recognition of the area's values and adaptive management actions must be enabled, for example during unforeseen climatic extremes. Methodological and governance related solutions need to be a priority for market design, addressing the need to include knowledge from Indigenous Peoples and local communities.

3.5 Design Challenge 2: Scaling sustained and high-integrity demand for credits and associated financing

Building a new generation of high-integrity biodiversity financing instruments and associated markets will require significant investments of effort and financial resources, including the inevitable costs of trial and error. For such investments to be worthwhile there needs to be strong prospects of timely scale in demand. Establishing a robust, scaled, adequately priced, and sustained basis of demand for biodiversity credits is one of the biggest, if not the biggest, challenges.



The **State and Trends of Carbon Pricing 2023**⁵¹ report provides an up-to-date overview of existing and emerging carbon pricing instruments around the world, including international, national, and subnational initiatives. It also investigates trends surrounding the development and implementation of carbon pricing instruments and some of the drivers seen over the past year. Specifically, this includes the use of carbon taxes, emissions trading systems, and crediting mechanisms.

Corporates are viewed as the ultimate clients retiring biodiversity credits. While there is certainly a growing interest in piloting, pioneering, and pledging funding for biodiversity credits⁵² as part of the Beyond Value Chain Mitigation movement, there are few larger-scale commitments.⁵³ Efforts are ongoing to provide further clarity and details on this particular voluntary demand question (see Box 3).



What remains unclear is how corporates, as well as sovereigns, can or should claim biodiversity credits, as part of national or corporate level strategies national or international reporting commitments (e.g. KMGBF target on 30x30), and/or balance sheets. Recommendation 3 for the GEF/IIED high-level report to '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', remains an area for further work. (See below under Forthcoming Work for ongoing activities on this subject).





The starting point for many corporates will be the setting, implementing, and tracking progress on science-based targets for nature (across freshwater, land, biodiversity, ocean, and climate). Efforts such as the Science Based Targets Network (SBTN)⁵⁴ are providing guidance to corporates in a 5-step process.⁵⁵

Individual consumer demand is tending to be very limited beyond individual biodiversity supporters. However, cases exist where biodiversity positive carbon credits are purchased directly by individuals, primarily from small-scale, charismatic project locations with high community benefits. While corporate demand will drive scale, demand by individuals could add a small contribution as the general public becomes increasingly aware of the negative impacts of business operations on biodiversity, the scale of our current biodiversity crisis as a whole, and its links to the climate crisis.

Frequently highlighted is the potential of linking biodiversity to carbon credit markets by introducing biodiversity-positive carbon credits. Credits sold from projects with non-carbon benefits have already seen clear price premiums.⁵⁶ Credits sold from a carbon credit projects as part of the Delta Blue Carbon mangrove restoration project in Pakistan sold at US\$ 29 per credit, almost three times the price of other nature-based credits at the time.⁵⁷


The recent course of voluntary carbon markets has demonstrated the challenges and risks of relying on this market. In 2022 the total global voluntary carbon market was valued at only US\$2 billion⁵⁸ and numbers have since fallen as a result of the revelations of weaknesses in market integrity. Issuance of carbon credits from nature-based solutions activities decreased from 160 Mt CO₂e in 2021 to 93 Mt in 2022.⁵⁹ The market is, however, expected to reach between US\$10 billion and US\$50 billion by 2030.⁶⁰ In comparison, aggregated compliance carbon markets were valued at US\$850 billion in 2021.⁶¹


 One option is to explore the potential to scale demand for biodiversity credits through policy incentives and/or regulation⁶² (see Box 3 for existing examples in the climate and/or nature space). This may include approaches such as tax relief, mandatory disclosure frameworks (following on from the work of the Taskforce on Nature-related Financial Disclosures (TNFD)),⁶³ broader application of natural capital accounting approaches and/or the potential for national offset schemes and/or voluntary markets to be connected and channelling funds to other national schemes.

 An additional route to leverage significant finance for biodiversity from the private sector remains the inseting option. It is becoming evident that current investment propositions (e.g. in agriculture) will no longer hold-up in the future unless underlying nature assets are included in financial equations. Investing in a commercially viable business case with the potential to sell additional credits is plausible as legislation might require certain companies to address biodiversity loss and restoration more clearly under a possible cap and trade mechanism (not offsets).

Options and the potential of policy-induced demand need to be further explored.

Along the same lines, other infrastructure investments may no longer be financially interesting to pursue. Hydropower plants reliant on rain produced by cloud forest, for example, will no longer be an attractive investment proposition if the amount of precipitation is drastically reduced (see use case 4 in Box 3 below). Credits whose payments will go to maintaining critical forest covers may see increased interest from those relying on their services for maintaining viable investment cases.

 Policy-induced demand must be particularly attentive and mindful of avoiding discrimination against small landholders and projects. This is an element to be addressed through ongoing deliberations.

 The OECD database '**Policy Instruments for the Environment**' (PINE) contains information on over 3,900 economic and market instruments implemented in more than 130 countries globally.⁶⁴ Notably, it lists 234 biodiversity-relevant taxes spanning 62 countries. Across all countries reporting the total revenue generated by biodiversity-relevant taxes is US\$8.9 billion a year.⁶⁵

BOX 3**Use cases of policies, incentives, and institutional frameworks to foster demand**

- | Use cases meant to inform the realisation of GEF/IIED High-level Report Recommendation 2:
- | Provide and maintain clear policies, incentives, and institutional frameworks to foster demand.

1. DRIVING DEMAND THROUGH MANDATORY DISCLOSURE? LEARNING FROM THE TCFD

The Task Force on Climate-related Financial Disclosures (TCFD) was established by the Financial Stability Board to provide recommendations (issued in 2017) to improve and increase disclosure of climate-related financial information by companies of all sizes and in all industries and jurisdictions, to support investors, lenders, and insurance underwriters in appropriately assessing and pricing a specific set of climate risks.⁶⁶

Several governments have since issued either additional guidance, and/or (draft) legislation (Australia, Brazil, Canada, Egypt, EU, Hong Kong, India, Japan, Malaysia, New Zealand, Switzerland, Thailand, UK, and US).⁶⁷

2. FRANCE REQUIRES FINANCIAL INSTITUTIONS TO DISCLOSE BIODIVERSITY-RELATED RISKS

Since May 2021, a decree implementing Article 29⁶⁸ of France's Energy and Climate law requires all financial institutions to disclose biodiversity-related risks and climate-related risks (using the concept of double materiality), and their strategy for reducing biodiversity impacts with specific targets and alignment to international biodiversity goals.⁶⁹ BNP Paribas Asset Management, published its first biodiversity footprint of investments following this new law, for example.⁷⁰

3. REGULATED OFFSETTING THROUGH WETLAND MITIGATION BANKS IN THE US⁷¹

A mitigation bank is a wetland, stream, or other aquatic resource area that has been restored, established, enhanced, or (in certain circumstances) preserved for the purpose of providing compensation for unavoidable impacts to aquatic resources.

The first mitigation banks in the US were created for federal purposes (e.g. to compensate for transportation projects) in 1983, and expanded to private development and made more rigorous starting in 1993. While focused first on wetlands it now includes streams and species-specific conservation banks, all focused on demonstrating and measuring the ecological uplift of offsite mitigation banks. The approach requires avoidance and minimisation of impacts first, then provides for purchase of credits from mitigation banks in the same eco-region as compensation for unavoidable impacts.

Currently, there are over 1,200 approved, operating mitigation banks in the U.S. About 750,000 credits have been approved for these banks, and their total credit value is estimated to be \$100 billion nationwide.⁷² About 11,000 credits trade hands each year, representing about \$1 billion in sales.

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4. CALIFORNIA CAP AND TRADE SYSTEM

California established a Cap and Trade program for carbon in 2013. This program was a global innovation at the time and presents many lessons. One such report, 'Key governance issues in California's Carbon Cap and Trade System' (May 2022) by UCLA summarises some of the key governance lessons:⁷³

Ambition: Being clear on the ambition of the market and what it is seeking to incentivise is critical

Integrity: Review of scheme operation on a periodic basis ideally by independent institutions is fundamental, as well as requiring mechanisms and monitoring to minimise ineffective compliance pathways and unintended impacts

Opportunity: Proceeds from allowances sales would be able to be invested to support additional actions which the market itself didn't address e.g. funding reduction activities in marginalised areas.

5. ECOPOINTS, COMPENSATION POOLS AND PUBLIC OVERSIGHT – ECOLOGICAL COMPENSATION MADE IN LUXEMBOURG⁷⁴

Luxembourg introduced in 2018 an obligation to offset, triggered according to different scenarios defined by law:

A numerical system for evaluating the value of biotopes and compensation surfaces in eco-points

The creation of compensatory pools, managed by public authorities, aimed at carrying out prior and independent compensatory measures for the destruction of biotopes or habitats

The use by public or private license applicants of the compensatory measures of the pools on payment of a reimbursement tax

The creation of a register of compensatory measures allowing the recording and accounting of eco-points.

6. GREEN INFRASTRUCTURE INVESTMENTS VIA THE STORMWATER RETENTION CREDIT TRADING PROGRAM – WASHINGTON DC, USA⁷⁵

The District's Department of Energy and Environment (DDOE)^{76, 77} Stormwater Retention Credit (SRC) trading program came into effect in 2014. Each SRC has a variable, market-driven price and corresponds to one gallon of stormwater retention for one year. Developers that want to purchase these to meet their stormwater reduction obligations buy them directly from sellers, including non-profits, which generate them by installing green infrastructure on a voluntary basis around the city. As an alternative to buying SRCs, developers can pay a fee to the DDOE, but the current fee is more than twice the price of buying the equivalent amount of credits. For more information, visit the case study provided by the Green Finance Institute.

7. CARBON ABATEMENT CONTRACTS IN AUSTRALIA GUARANTEEING CARBON CREDIT OFFTAKE⁷⁸

Under the Emissions Reduction Fund (ERF), project developers can enter into a contractual arrangement to sell Australian carbon credit units (ACCU) to the Commonwealth if successful at an ERF auction. An Optional Delivery contract provides the right, but not the obligation, to sell carbon abatement to the Commonwealth at an agreed price, within a set time. It allows contract holders to better manage their price and supply risks with a view to encouraging more carbon abatement projects as a result. The other option is a Fixed Delivery contract, where developers agree to provide a set number of ACCUs at a set price for the duration of the contract. The number of ACCUs agreed to provide is called the 'agreed quantity', and these are scheduled to be delivered across the duration of the contract.

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8. THE ROLE OF PUBLIC ECONOMIC INCENTIVES IN SCALING UP RESTORATION EFFORTS IN SIX LATIN AMERICAN COUNTRIES⁷⁹

Five incentive programmes available in Chile, Colombia, Costa Rica, Guatemala, and Mexico currently provide direct payments to landowners, and some provide payments to landholders (with no legal land title and no conflict or dispute on the land with other people), to restore their lands by planting trees.

WRI found that programmes provide payments between US\$0.48 and \$2.45 per tree (present value of a series of payments) for reforestation and between \$0.70 and \$1.92 per tree for agroforestry.

The present value for conservation ranges between \$44.00 and \$906.00 per hectare.

The payment schemes have a duration of 5-10 years to avoid the program participants' long-term dependence and maximise the use of limited government resources. Most of the incentive programs supporting reforestation and agroforestry estimate payments based on the costs of establishing and maintaining the trees for the first five years.

9. PAYMENTS FOR CLOUD FOREST AS NATURAL ASSETS FOR HYDROPOWER PLANTS⁸⁰

A report by Earth Security and HSBC puts the total value of hydroelectricity currently dependent on cloud forests across the 25 countries estimated at close to USD118 billion over 10 years, rising to an estimated USD246 billion when additional dams currently at planning stage are rolled out. To drive the necessary system change, downstream user fee schemes need to be developed as national payment schemes that are applied as a fee to all current and planned hydropower plants that depend on these ecosystems, providing governments struggling with their debt levels an opportunity to rethink fiscal incomes from nature.

10. PILOT AUCTION FACILITY BY THE WORLD BANK – PRICE FINDING FOR CARBON CREDITS⁸¹

The Pilot Auction Facility for Methane and Climate Change Mitigation (PAF) is a climate finance model developed by the World Bank Group to stimulate investment in projects that reduce greenhouse gas emissions while maximising the impact of public funds and leveraging private sector financing.

Its results-based payment mechanism will set a floor price for future carbon credits in the form of a traceable put option, which will be competitively allocated via auctions.

FORTHCOMING WORK

1. WEF FORTHCOMING ANALYSIS: VOLUNTARY CORPORATE DEMAND, CLAIMS AND COALITION

The World Economic Forum (WEF)⁸², in partnership with McKinsey, is working with corporates and businesses to identify the key drivers of demand for biodiversity credits, including regulatory, reputational and financial drivers. In addition, and strictly connected to the drivers, the Forum and McKinsey are also working to release corporate guidance on how to use and claim biodiversity credits within their reporting structures. These two workstreams will contribute in the next months to the convening of a coalition of frontrunners on biodiversity credits to signal market interest around this product and test early-stage dynamics and transactions.


2. WBCSD FORTHCOMING ANALYSIS: DEMAND FOR ACTIONS BEYOND THE VALUE CHAIN AND USE OF VOLUNTARY BIODIVERSITY CREDITS

WBCSD⁸³ has convened a group of its corporate members to explore why businesses should invest in beyond value chain mitigation actions and what form these actions can take. As part of this group, and in collaboration with Bain & Company, WBCSD will deliver the 'BVCM foundation', which will provide a simple, clear, and actionable guidance to catalyse corporate investment in BVCM, and the 'Guidance on use of biodiversity credit', which will provide directional guidance on how to consider and use biodiversity credits in corporate nature positive strategies.


3. VCMI FORTHCOMING CLAIMS CODE OF PRACTICE


The Voluntary Carbon Markets Integrity Initiative (VCMI) is developing a Claims Code of Practice to guide credible use of carbon credits and associated claims.⁸⁴ The Claims Code will help to underpin integrity in voluntary carbon markets (VCMs); work with and expand on other leading initiatives and guidance in the market (including the ICVCM Core Carbon Principles and Science Based Target initiative's (SBTi) Net-Zero Standard), and ensure the credibility of VCMI Claims made by companies. A provisional Claims of Code of Practice currently exists.⁸⁵

3.6 Design Challenge 3: Ensuring sufficient high-integrity supply of credits that offer nature positive outcomes

 Ensuring a scaled, credible pipeline of biodiversity credits is the supply-side counterpart of the demand-side challenge. Project developers must be at the heart of delivering this pipeline, including private, public, and community-based actors, as well as Indigenous Peoples. Some level of standardisation is needed for credits to be effectively certified and traded. Unlike carbon credits, where a tonne of carbon is the common currency wherever the credit is produced, it is likely that biodiversity credits will be more heterogeneous. For example, the metrics underlying a biodiversity credit will depend on the ecosystems – both terrestrial and marine – in which the credits are generated, and potentially also on the basis upon which the stewards of that ecosystem wish to trade. The identification and realisation of legal and customary rights to land, water, and ocean is likely to play a similar determining role as in carbon markets. Projects with unclear land and user rights will face severe difficulties to be brought to market.⁸⁶

Governments will have key roles in ensuring the integrity and continuity of supply, although these roles are likely to vary considerably between countries (or at the regional and sub-sovereign levels). Given the weaknesses of an approach which relies exclusively on private certification, there is a clear need to establish a robust enabling policy and regulatory framework, and to ensure its enforcement. Jurisdictional credit programmes, such as those developed in the carbon space,⁸⁷ are one option to investigate further.

 Governments may also be able to support the development of biodiversity credit markets in other ways, including the accreditation of project developers, the certification of credit schemes, fiscal and other incentives, and potentially approaches to underwriting the quality and/or the value of credits.


 The harmonisation of standards could benefit market growth and uptake, such as between ICVCM,⁸⁸ ISSB,⁸⁹ EFRAG⁹⁰ and others. What is needed may be an approach promoting integrated activities that deliver biodiversity, climate, and resilience benefits towards supporting broader SDGs.


Since the beginning of 2023 there has been a steady increase in pilot projects for biodiversity credits. Current efforts focus most heavily in Latin American and Africa.

Project developers such as rePlanet, Value Nature, South Pole, and Terrasos are continuously expanding their portfolios. As with credits produced by nature-based projects for the carbon market, the pipeline for biodiversity projects⁹¹ may face challenges in terms of start-up investment. Based on experiences from the carbon side, as well as broader natural capital work, much can be built on and learned from existing Technical Assistance and Accelerator programmes.


A recurring need is financial and business planning support to ensure projects enter a more profitable space. Financing can be by credits alone, through different revenue generating models, and/or through blended finance (see also GCF Box 9 use case 1). Technical Assistance facilities can reduce the risk profile of investment in new markets and lead to an increase in both the pipeline and volume of private capital investment (see also EFSD+ Box 10 use case 2).


These facilities can support efforts to build capacity for potential project proponents, improve governance, and provide financial and technical support for key project development steps. A suite of Technical Assistance and Accelerator programmes in the NbS space already exist.


 Responses from the field currently indicate that governments may face capacity issues given how quickly the market is projected to grow. While there are similarities to the carbon market, the nuances and complexities around biodiversity credit markets are still new for many governments, North and South alike.

 Integration of primary or mature ecosystems in the supply-side is key to scalability of biodiversity credits market. It will not only allow for timely scalability and credible impact, but will also resolve the challenge of attracting sustainable financial flows essential to maintain and grow primary nature. Where the carbon market has failed to deliver sustainable financial flows for high carbon sink areas, the biodiversity credits markets have an opportunity to do better.

Pilot projects established on private land are generally materialising much quicker than projects on public land, which can be more prone to approval delays. Many developers are taking a risky approach, as most countries have no regulation yet as to what can and cannot be sold, and under which conditions. The recent decisions by the Government of Zimbabwe⁹² to tightly restrict the trading of carbon credits illustrates the uncertain environment in which projects developers currently operate. A supply side arrangement established through government channels could provide much greater security for both developers and buyers.

 There is a need to reduce costs through MRV technologies, with the potential for replication and scalability. A landscaping exercise on available MRV technology which can support project developers in different ecosystems is an area that is currently missing.

 For high-integrity MRV efforts, socioeconomic impacts should be accounted for alongside biodiversity impacts. Regional factors, such as working with minority groups and language barriers, need to be considered in auditing efforts.

 Blockchain technologies are of great interest to accelerate biodiversity action, thus also for biodiversity credits. The Climate Innovation for Adaptation and Resilience (CIFAR) Alliance, as one example of interest to the biodiversity credit community, has conducted a **Landscape Assessment** which evaluates the **current state of blockchain-based technology applications**, and the role this new and foundational technology can play in enabling innovations with the potential to accelerate climate action (mitigation, adaptation, and resilience) and resulting positive outcomes for end users in emerging markets.⁹³ CIFAR is determining the opportunity for the digital finance industry to enable access to climate resilience solutions, and to scale up an innovation ecosystem for this emerging sector.

BOX 4 Use cases of pilot projects; MRV efforts and related activities



Use cases meant to inform the realisation of GEF/IIED High-level Report Recommendation 4: Pilot and test biodiversity-positive carbon credits and nature certificates as part of national biodiversity and climate strategy and plans

1. OVERVIEW OF BIODIVERSITY CREDITS BOTH SOLD AND IN THE PIPELINE

While biodiversity-positive carbon credits have been sold and traded for some time, biodiversity credits/certificates are only now becoming available and sold. The current overview includes:

Swedish bank buys first European biodiversity credits from Swedish Orsa forest area: 91 credits over an area of 13 ha at an undisclosed price.⁹⁴

In New Zealand, a prototype biodiversity unit sale was conducted between a conservation group 'seller' Sanctuary Mountain Maungatautari and commercial 'buyer' Profile Group Limited, a parent company of a range of businesses producing aluminium windows and doors.⁹⁵ This transaction was made possible by Ekos through its 'Sustainable Development Units Programme'.⁹⁶

In 2020 HSBC and the Queensland State Government purchased the world's first Reef Credits, a tradable unit that quantifies and values the work undertaken to improve water quality flowing onto the Great Barrier Reef.⁹⁷ HSBC paid \$36.40 per credit.⁹⁸

The Woodland Nature Credit was developed for Coillte and Forestry Partners to plant native woodlands across Ireland. The first tranche of the new product was announced with AXA Ireland financing the planting of 600,000 native trees through the purchase of €2 million of credits.⁹⁹

Trading platform Climate Trade reported just over 100 credits had traded on its exchange, representing 10 square metres of nature for 30 years (August 2022)¹⁰⁰.

In 2023 rePLANET agreed a deal with GlaxoSmithKline to develop biodiversity credits to protect the Cusuco National Park in Honduras.¹⁰¹

EcoAustraliaTM blend government-accredited Australian Biodiversity Units with international carbon credits from high-quality, Gold Standard projects. Two biodiversity projects are currently listed on the Victorian Government's Native Vegetation Credit Register.¹⁰²

US\$8 million are pledged for about 800,000 hectares across multiple areas and between different project developers.¹⁰³

While not yet sold and traded, the Niue Ocean Conservation Commitments (OCC) are a prototype of a credit designed to meet the specific requirements of Niue coral atoll.¹⁰⁴

New pilot projects have been announced for Uganda and Zambia.¹⁰⁵

Based on this initial overview, further analysis would be beneficial, for example to identify the sources and type of capital used for these pilot projects.

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2. HIFOR: HIGH-INTEGRITY FOREST BEYOND VALUE CHAIN IN BRAZIL

WCS and the State of Amazonas have signed an MoU¹⁰⁶ to assess feasibility, and if viable, implement and develop, a High Integrity Forest Removals (HIFOR) Investment Initiative.¹⁰⁷ The goal is to generate HIFOR Units for the purpose of providing ecosystem service payments to the stewards of the high-integrity tropical forests of the Sustainable Development Reserves of Mamirauá and Amaná. Each HIFOR Unit¹⁰⁸ corresponds to a non-compensatory tradeable environmental asset that is owned by the State of Amazonas and represents a verified net tonne of carbon removed from the atmosphere.

3. FIRST ART TREES CARBON CREDITS ISSUED, AND PIPELINE GROWING

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 and Guyana subsequently announced the sale of TREES Credits of \$750 million. In January 2023 ART announced the launch of an initiative to develop a certification for the co-benefits of jurisdictional REDD+ beyond carbon.^{109, 110}

4. AGRICARBON: MRV IN REGENERATIVE FARMING

The transition to regenerative farming relies on accurate measurement, reporting, and verification (MRV) of changes to Soil Organic Carbon stock (SOC) to prove the soil carbon benefits. Agricarbon secures reliable and consistent direct measurement of SOC over all soil types and land management systems. Their goal is to provide affordable, accurate soil carbon stock audits, based on high-intensity direct sampling, and that underpin carbon-buyer confidence in soil carbon sequestration.¹¹¹

BOX 5

Selected examples of integrity principles for the voluntary supply and demand of credits

- Use cases meant to inform the realisation of GEF/IIED High-level Report Recommendation 9: Elaborate and apply integrity principles for both the supply and demand sides of voluntary markets.

1. EXISTING PRINCIPLES FOR WORKING WITH FOREST COMMUNITIES

Members¹¹² to the Peoples Forest Partnership are already adhering to the Principles for working with forest communities.¹¹³ These address 9 governing principles around topics such as FPIC, fair and equitable revenue sharing and rights of Indigenous Peoples and local communities. The Peoples Forests Partnership was formed to support forest communities' call for their right to participate equitably in climate and conservation finance.

2. EXISTING INTEGRITY PRINCIPLES AND THOSE UNDER CONSULTATION (CARBON AND BIODIVERSITY)

A suite of well-documented principles exists or are currently under consultation:

- Integrity Council for the Voluntary Carbon Markets (ICVCM)¹¹⁴
- Voluntary Carbon Market Integrity Initiative (VCMI)¹¹⁵
- Tropical Forest Credit Integrity Guide¹¹⁶
- WEF 'High level governance and integrity principles for emerging voluntary biodiversity credit markets' consultation paper¹¹⁷
- BCA global biodiversity credit principles¹¹⁸
- TBC Design principles for high-integrity and scalable voluntary biodiversity credits¹¹⁹

3. EXISTING PRINCIPLES FOR COASTAL CARBON PROJECTS¹²⁰

The High-Quality Blue Carbon Principles and Guidance seeks to provide a consistent and accepted framework for blue carbon credits for credit purchasers, investors, suppliers, and project developers. This shared vision for quality can serve a foundational role in building confidence and momentum around blue carbon project development and investments.

The five principles, each of equal importance, are 1) Safeguard nature, 2) Empower People, 3) Employ the best information and carbon accounting principles, 4) Operate contextually and locally, and 5) Mobilise high-integrity capital.

3.7 Design Challenge 4: Securing adequate price and equitable distribution of rewards to project developers, sovereigns and Indigenous Peoples and local communities


Ensuring a ‘fair deal’, especially for the countries of origin – including project developers, local communities, and Indigenous Peoples – is a pre-condition for developing effective and viable biodiversity credit markets. This was a clear message from the One Forest Summit in Gabon. It is also a lesson from the experience of voluntary carbon markets that have lost credibility, in part because they have failed to deliver on equitable outcomes.


There are a host of approaches for improving equitable outcomes, including lessons from more progressive carbon market actors, and early-stage innovations in biodiversity credit markets.


Beyond good practice, there are market-level mechanisms that can be put in place that can level the playing field. This could include more overt price floors through profit sharing based on smart contracts, and more emphasis on transparent exchanges instead of over the counter trading.


Indigenous Peoples and local communities have a clear role to play as market designers (including on topics addressing measurement, management, policy, and revenue) in policy development. Capacity building and technical support for Indigenous Peoples and local communities are needed both to enable their engagement in market design and to learn from and share their experiences and project development knowledge.

Equity challenges between governments, project developers, and Indigenous Peoples and local communities also need to be addressed on the supply side. Inclusive stakeholder engagement, dialogue, and collaboration are crucial for defining and operationalising equitable distribution in the context of biodiversity credits.

 At the sovereign level, this includes how nature-rich countries can best ensure a shift in their favour of the historically adverse terms of trade between nature-intensive economies, and technology-intensive economies.

 At the sub-sovereign level, this includes how prices and wider market conditions can be set to ensure their fair share of market proceeds.

 At the project level it includes Free, Prior and Informed Consent (FPIC)¹²¹ becoming the standard implementation procedure, not as a one-off, but as a continuous engagement practice with Indigenous Peoples and local communities.

 **The United Nations Declaration on the Rights of Indigenous Peoples¹²² includes, but is not limited to, the collective right to self-determination of Indigenous peoples, right to own, use, develop, and control their lands, territories, and resources, and the right FPIC.**

 **The KMGBF takes full consideration of the contribution and rights of Indigenous Peoples and local communities and their representation and participation in decision-making in Target 22.**

Use cases of engagements and benefits of and for Indigenous Peoples and local communities

- | Use cases meant to inform the realisation of GEF/IIED High-level Report Recommendation 8:
○ | Ensure engagements of, and benefits for, Indigenous Peoples and local communities.

1. ENABLING ADEQUATE REPRESENTATION OF INDIGENOUS VOICES AND PERSPECTIVES IN THE NATURE-BASED CARBON WORLD

The Kawari Fund was created to help address the issues of social integrity, adequate representation, and informed participation of Indigenous Peoples and local communities in carbon negotiations, with particular focus on jurisdictional (national or subnational) initiatives. The fund provides a trusted source of financial support in the carbon space for Indigenous Peoples and local communities to strengthen their role and negotiating position in carbon markets while also ensuring that they benefit equitably from carbon trading schemes they engage with.¹²³

2. THE LEGAL STRUCTURE FOR BIODIVERSITY BENEFITS-SHARING RELATED TO GENETIC RESOURCES, BRAZIL¹²⁴

In 2015, the Brazilian Biodiversity Law was passed to streamline procedures and give clearer guidelines on how to share benefits with communities. It stipulated that benefits could be negotiated at the time when there is a commercially viable product. An online registry was created where Brazilian and international users have to declare their activities related to the use of traditional knowledge, whether it is assessed using western science or traditional terms ('genetic heritage' SisGen/CGEN). The Biodiversity Law also addressed ways of sharing benefits directly with an identifiable community or through a government fund in cases where traditional knowledge was obtained from diffuse sources. During final project stages, a company is responsible for approaching the Brazilian government to formally report the product they've created and negotiate how benefits will be shared within the supply chain. This ensures that a record of communications will be available to both the Brazilian government and the community.

3. PLAN VIVO'S BENEFIT SHARING MECHANISM – 60% BACK TO COMMUNITIES

All income from the sale of Plan Vivo Biodiversity Certificates (PVBCs) must be distributed according to an agreed Benefit Sharing Mechanism, developed in partnership with project participants. Primary stakeholders, including local communities and project participants are entitled to receive at least 60% retail income from the sale of PVBCs. The sales are used to deliver direct benefits to primary stakeholders with clear accountability of how this 60% contribution is spent. Primary stakeholders have agreed on the distribution of the 60% through a high-quality, inclusive community consultation process. Examples of costs that may be supported by participant/community income include the development of schools, churches, health clinics, local employment, and procurement of equipment.

4. APPLYING PLAN VIVO IN PRACTICE: THE NAKAU PROJECTS¹²⁵

Nakau is a leader in sustainably financed, Indigenous-led ecosystem protection and restoration, focused on payment for ecosystem services and carbon projects in Solomon Islands, Vanuatu, and Fiji. 60% of the financial benefits go to Indigenous customary landowners who are the carbon rights holders and 'project owners.' The income is reinvested to build economic, social, cultural and environmental resilience in the community e.g. salaries for rangers, infrastructure for agroforestry, washing facilities etc.

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5. REPLANET – 60% BACK TO COMMUNITIES THROUGH LIFETIME OF THE CREDITS¹²⁶

All rePLANET Blue and rePLANET Wildlife commit at least 60% of the issuance price of carbon and biodiversity credits to local stakeholders: owners, users, or managers of the site being restored or protected. All contracts also have a clause that requires the buyer to return 60% of any profits over the issuance price from carbon credit sales on the secondary markets or increases in world prices (judged against the Forest Trends Land-use change biannual market data) at the point of verification if the credits are being retired – doubling (even quintupling) the income received by local communities in the long-term. If the carbon prices collapse, local stakeholders still get the agreed baseline payments.

6. ACORN – 80% BACK TO COMMUNITIES¹²⁷

Acorn is Rabobank's response to climate change. They sell CO₂ that is sequestered through smallholder agroforestry into carbon credits on the voluntary carbon market (certified through Plan Vivo) or as insetting units within supply chains. Carbon credits are sold to organisations with strong emission reduction commitments and 80% of the income of every sold credit flows back to the smallholder.

7. THE GREAT BEAR RAINFOREST PROJECT IN CANADA

Project Finance for Permanence (PFP) is a financial model that brings together governments, IPs and LCs, funders, and other partners to secure long-term conservation, full and sustained funding, and community benefits. Through this approach, protected places stay protected because they are collaboratively designed, locally-led, nationally supported, sustainably funded, and highly accountable. Thanks to their strong governance, PFP has the potential to successfully integrate market-based solutions within comprehensive resource mobilisation packages.

The Great Bear Rainforest and Haida Gwaii agreement is an example of a successful PFP. It was an historic collaboration between First Nations and the Government of British Columbia, Canada. In this case, the Conservation Investments and Incentives Initiative (CIII)¹²⁸ was created by First Nations communities with government and industry, and ensures a robust framework that can fairly and effectively lever private investment, including possible future credits.

8. LIMITED ENGAGEMENT OF INDIGENOUS PEOPLES AND LOCAL COMMUNITIES ON BIODIVERSITY CREDITS MARKET DEVELOPMENT THUS FAR

As custodians of over 80% of the world's biodiversity,¹²⁹ it is crucial that IPLC voices are embedded into the design of biodiversity credit markets and that IPLCs have a direct seat at the decision-making table. Initial research has been conducted by IIED, in collaboration with NatureFinance, to map the views of IPLC groups on nature credit markets and their engagement within a selection of biodiversity credit pilot schemes. The aim is to better understand active IPLC participants in the field of carbon and biodiversity credits. Initial conclusions suggest that publicly visible engagement or views from IPLCs on biodiversity credits beyond those involved in the leading pilot projects is limited. Successful examples with high IPLC engagement are primarily linked to biodiversity enhanced carbon offsets.

9. POTENTIAL FUTURE ROLES OF INDIGENOUS PEOPLES AND LOCAL COMMUNITIES

The mission of the Biodiversity Credits Alliance's (BCA) Communities Panel is to fully and effectively engage nature-dependent IPs and LC in the design and development of BCA principles and products and secure full respect of the rights of IPLC. To respect rights to cultural heritage and the value of traditional knowledge, could be the designated authority and/or be directly included in the systems(s) providing accreditation or endorsement of nature certificates in various regions. This could be a value-add to investors who would perceive a premium credit where the endorsement was obtained.

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FORTHCOMING WORK

1. UNEP FI: FORTHCOMING REPORT

UNEP FI's forthcoming Discussion Paper will focus on the investor side and the resources already available to guide engagement with IPs and LCs in nature-related markets. Safeguards and guidance are already widely available to guide investors in engaging with IPs and LCs, and can support mutual benefits, however, they are often poorly or insufficiently applied. Investors considering entering the nature-related market must engage with IPs and LCs on fair terms: this is the only avenue to identify, manage, and mitigate environmental, social, and financial risks on both sides.

While basic principles can act as a guide, the need to improve systematic engagement between communities and investors requires the following:

- i)** Changes in the enabling environment such as bringing FPIC into national legislation and recognition of indigenous peoples' rights
- ii)** Dedicated efforts in the development and operations of nature markets. A BCA Communities Advisory Panel (CAP) is being established to fully and effectively engage nature-steward IPs and LCs in the design and development of BCA principles and products and secure full respect of the rights of IPs and LCs therein.

2. ART TREES: FORTHCOMING CO-BENEFIT MODULE BASED ON PARTNERSHIP WITH INDIGENOUS AND LOCAL COMMUNITIES' ORGANISATIONS

In January 2023 ART announced the launch of an initiative to develop an optional certification for the co-benefits of jurisdictional REDD+ beyond carbon, intended to bring additional value to TREES carbon credits that are certified and issued by ART. The certification's modules will include socio-cultural benefits of forests to Indigenous Peoples and local communities. In February 2023, the indigenous and local communities' organisations ANECAP, COICA, Red MOCAF, and REPALAC announced that they have agreed to partner with ART to develop the module on socio-cultural benefits.¹³⁰

3.8 Design Challenge 5: Establishing robust governance and broader, transparent institutional arrangements

All the above design challenges can only be met if they are underpinned by robust governance and broader institutional arrangements, as well as alignment with local and global biodiversity plans (see section 3.10). The experience of voluntary carbon markets informs us that:

Private certification schemes have a role to play but are insufficient to ensure high-integrity credits, let alone broader public good outcomes from credit markets such as equity.

Robust national and sub-national (jurisdictional) policy and regulatory measures are needed, building on, and going beyond, the experience of regulating voluntary carbon markets.

High levels of transparency are needed, notwithstanding relevant aspects of commercial confidentiality, of traded credits and possibly also traders.

International governance needs to be far more robust, although it is unlikely to be anchored by a single, global regulator, with innovations required to establish binding market rules.

High-integrity markets are underpinned by institutional arrangements that include transparent registers and platforms.

Effective supervisory mechanisms to ensure that policies and regulations are adequately implemented.

National policies and regulations are emerging to harness and shape biodiversity credit and, more broadly, nature markets (see Box 6). Many recent developments build on, and go well beyond, the experience of regulating voluntary carbon markets.¹³¹

Experiences, lessons, and views from local communities and Indigenous Peoples need to be connected to global governance debates and market design processes in a systematic way.

There is much at stake in creating a stable policy and regulatory environment.

Colombia has had rules requiring and governing biodiversity offsetting since 2013, and this has supported the emergence of voluntary biodiversity credit schemes and habitat banks.

Australia has mandatory biodiversity offset schemes at the national and subnational (state) levels, some of the longest-running schemes of this kind in the world. More recently it has passed the Nature Repair Bill, creating a regulatory basis for catalysing a new generation of biodiversity credit markets.

On the other hand, ensuring the right timing for introducing regulatory measures is of great importance, as witnessed during the efforts of the Zimbabwean government to closely regulate the voluntary carbon offset market. Their decision to take 50% of all revenues generated from offset projects has created some momentary turmoil in the global carbon market and unease amongst project developers and investors.¹³²

There is no need for a 'one-size-fits-all' national regulatory framework to govern biodiversity credit markets as they evolve. However, it is likely that lessons learnt between countries will rapidly lead to some common elements emerging. Moreover, there will be a need for some common architecture as efforts increase to deliver international, not just national, financial flows through credit markets.

BOX 7 Use cases for national schemes and other activities

1. COLOMBIA LEADING LATIN AMERICAN BIODIVERSITY OFFSETTING, WITH VOLUNTARY ACTION IN PURSUIT

Colombia has had biodiversity compensation regulation since 2013, seeking no net loss of biodiversity, targeted at planned development projects such as mining, oil, and gas infrastructure to offset residual biodiversity impacts by restoring or protecting an equivalent habitat elsewhere. The equivalence ratios range from 1:4 to 1:10.¹³³

Colombia has since established of habitat banks, public or private areas managed for their significant environmental values and work under a performance-based payment. Habitat banks offer credits to those entities under regulatory compliance, yet credits can also be bought by individuals or companies on a voluntary basis.¹³⁴ Revenue generated from the sales goes back to pay for management activities. Currently ten habitat banks are registered in Colombia, and a recent paper by UNDP, BIOFIN, and Terrasos outlines the need for additional policy reforms to strengthen this approach.¹³⁵

2. MANDATORY AND VOLUNTARY BIODIVERSITY SCHEMES IN AUSTRALIA

Australia has mandatory biodiversity offset schemes in place at the national and subnational (state) levels, some of the longest-running schemes of this kind in the world. Unfortunately, a series of reviews into their efficiency have demonstrated the difficulty in applying offset schemes to achieve real no net loss (NNL) of biodiversity outcomes (see use case 3 in Box 7). The Australian Government is also currently developing a new legislative framework to support a national voluntary biodiversity market called the 'Nature Repair Market' scheme. The market aims to provide a financial incentive for environmental projects and deliver benefits for landholders, investors, and the environment. Although consultation on the proposed legislation has recently ended, the Government has outlined the foundational elements that the legislation will likely cover.

3. NEW MANDATORY OBLIGATIONS IN ENGLAND AND EMERGING NATURE MARKETS FRAMEWORK IN THE UK

The UK has established mandatory obligations¹³⁶ in England. There is potential for mandatory regulations to be expanded across the UK for project developers with high-negative impacts on biodiversity (Nationally Significant Infrastructure Projects (NSIPs)).¹³⁷ The biodiversity net gain (BNG) regulations foresee a minimum of 10% BNG for most future developments.¹³⁸

Through its 'Nature Markets Framework' (March 2023),¹³⁹ the UK embraced tradeable credits to stimulate private investments in nature markets, via secondary markets. It reflects on the need for clear governance arrangements, including on purpose (to deliver benefits for nature, economy, and local communities), principles and standards, transparency, and regulations.

4. GROWING INTEREST FOR A VOLUNTARY BIODIVERSITY CREDIT MARKET IN NEW ZEALAND¹⁴⁰

A government commissioned panel is urging New Zealand to set up a voluntary biodiversity credit market with a combination of planning controls, infrastructure investment, and economic incentives to safeguard biodiversity. A biodiversity credit scheme may happen complementary to the NZ ETS, with the anticipation of driving private and philanthropic capital into positive biodiversity outcomes.

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5. INDONESIA REOPENS DOOR FOR FOREIGN ENTITIES TO BUY CARBON CREDITS

After a period of uncertainty and a market closed to international buyers,¹⁴¹ Indonesia announced in May 2023 that it would allow foreign entities to purchase credits in the Indonesian carbon market again. All entities participating in carbon-trading activities in the country must be registered with the national registry system (SRN) and the transaction process done in Indonesia through the country's carbon exchange.^{142, 143}

6. REGIONAL LEADERSHIP: AFRICA CARBON MARKETS INITIATIVE (ACMI)

Launched at COP27, ACMI is a forum for parties to discuss and identify opportunities and areas of potential collaboration for mobilisation of climate finance in Africa through voluntary carbon markets.

ACMI has announced it is compiling a catalogue of African carbon credit projects to increase visibility and transparency of the continent's diverse existing and pipeline supply. Their Roadmap outlines the establishment of a biodiversity/nature credit model as an opportunity to address the shortcoming of the VCM for high forest, low deforestation areas, including a proposal to set up a consortium of stakeholders to discuss risks and opportunities and conduct pilot projects.¹⁴⁴

7. BIODIVERSITY FINANCE PLANS

CBD COP15 encouraged parties to develop and update national biodiversity finance plans to support effective implementation of the KMGBF. In 2022 the GEF approved funding for an Umbrella Program to Support Development of Biodiversity Finance Plans to enable countries to mobilise resources at scale to implement the KMGBF. Implemented by UNDP, this global programme supports the development of national biodiversity financing plans, including baseline diagnostics, capacity, and institutional arrangements. It will support over 90 countries that have not benefited from the UNDP Biodiversity Finance Initiative (BIOFIN).

In line with recommendations 1 and 3 of the GEF/IIED report, the development of national biodiversity finance plans is an opportunity for countries to assess the potential of biodiversity credits within their particular context and articulate their contribution within a comprehensive resource mobilisation strategy. Ultimately, biodiversity finance plans could spur the development of biodiversity credit schemes and corresponding national institutional frameworks.

8. WORLD BANK SET TO TAKE ON RISK OF INSURING CARBON CREDITS AMID MARKET UPHEAVAL¹⁴⁵

The World Bank's insurance arm is working on plans to protect carbon offsetting projects against political risks in developing countries as a growing number of governments seek to impose new rules onto the market.

The Multilateral Investment Guarantee Agency (MIGA) expects to gain an expanding role in providing insurance cover to carbon projects to facilitate large-scale investment in countries considered as high-risk. Other actors in this space include Howden Group Holdings¹⁴⁶ and Kita.¹⁴⁷

BOX 8 Use cases of reviews of existing national schemes

1. INDEPENDENT REVIEW OF AUSTRALIAN CARBON CREDIT UNITS¹⁴⁸

The purpose of the independent review (also called the Chubb review) was to ensure ACCUs and the carbon crediting framework maintain a strong and credible reputation supported by participants, purchasers, and the broader community. The independent Panel examined governance arrangements and legislative requirements of the carbon crediting scheme, as well as the integrity of the key methods used, and other scheme settings affecting the integrity of ACCUs. It considered the broader impacts of carbon projects, including for agriculture, biodiversity, participation of First Nations people, and regional communities. The Panel also examined the requirements for use of ACCUs under Climate Active.

2. ACCC REVIEW AND RECOMMENDATIONS FOR WATER MARKET REFORM

The Australian Competition and Consumer Commission (ACCC) conducted a review of the current water trading arrangements in the Murray–Darling Basin. Basin water markets lack many features that make markets work effectively.¹⁴⁹ A range of deficiencies in the settings for, and governance of, water trading was identified as undermining the efficiency of water markets and the agricultural industries that depend on them. The recommendations centre around 4 themes: governance of the Basin water markets, market integrity and conduct, trade processing and water market information, and market architecture.¹⁵⁰

3. SHORTCOMING OF THE AUSTRALIAN NSW BIODIVERSITY OFFSETS SCHEME¹⁵¹

The NSW Biodiversity Offsets Scheme was established in 2017 under the Biodiversity Conservation Act 2016. The purpose of the Act is to 'maintain a healthy, productive, and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development'. The Scheme enables landholders to establish in-perpetuity Biodiversity Stewardship Agreements to generate credits for the unique biodiversity on a site. These credits can be sold to offset the negative impact of development on biodiversity.

An audit by DPE and the BCT examined whether the Biodiversity Offsets Scheme ('the Scheme') had been effectively designed and implemented to compensate for the loss of biodiversity due to development, and it found it to have had limited effectiveness, with key concerns about transparency, sustainability, and integrity yet to be fully resolved.

There is wide consensus that biodiversity (as well as the next generation of carbon) credit markets need to be transparent, and that traders and other actors need to be accountable.¹⁵² The question is, in what ways, how, and with what means of redress?

Transaction-level transparency includes a wide range of forms. This can be ‘just enough’ transparency to ensure price discovery and liquidity, to a more radical transparency approach that allows all market actors, public bodies, and interested stakeholders to see the terms of every deal.

Deal-level transparency might be accompanied by transparency of market actors, as would be the case in more mature, regulated markets. This would be one way of discouraging low-quality traders.

Regulatory oversight can be used to enhance transparency and accountability through enforceable code of conduct of market intermediaries, provisions that prohibit price manipulation, price reporting requirements, and insider trading provisions.

Centralised, government-managed national data sharing and access platforms also play an important role in market transparency and performance.

As seen in other markets (e.g. extractive industries)¹⁵³ there is a strong sense of the need to create public awareness around natural resource management and efforts to reduce opportunities for corruption between the public and private sector. Attention is also being paid to ways of prompting greater external oversight of emerging and existing nature credit markets.

The amplification of stakeholder voices in the market is especially important given their role of ensuring that credits are what they purport to be, rights have not been undermined, and contracts have been appropriate and fulfilled. There is value to drawing on the extensive experience of grievance mechanisms linked to development financing, but more consideration is needed to transfer their principles into a working form in the context of dynamic markets.

Use cases of applications of innovative technology and promising participatory and transparent approaches



Following use cases meant to inform the realisation of GEF/IIED High-level Report Recommendations encouraging participatory and transparent approaches, application of innovative technology (e.g. Recommendation 7).

1. CREDITNATURE – NATURE IMPACT TOKENS¹⁵⁴

Nature Impact Tokens offer nature positive investment opportunities, representing a stake in verified ecosystem recovery projects. They combine proof of provenance and asset-level data with a unique value proposition. Investors can report quantified nature positive impact, enhancing brand reputation and PR value, and creating HR opportunities in employee recruitment, retention, and benefits packages.

2. CLIMATE CHAIN COALITION (CCC)¹⁵⁵

The CCC is evolving in response to demands by members and stakeholders to focus on activities which can resolve an array of challenges, primarily: growing partnerships across climate and digital communities (including the Digital Innovation Community and Digital Innovation Pavilion within the UNFCCC process), supporting knowledge creation and sharing, and access to resources to accelerate growth of solutions, and co-leading and co-creating collaborative efforts (such as via new Climate Chain Labs) for shared data and digital innovation infrastructure.

3. ACX: A GLOBAL DIGITAL EXCHANGE WITH TRANSPARENT PRICING¹⁵⁶

ACX is a Global Carbon Exchange using distributed ledger technology on a traditional trading architecture, leveraging blockchain architecture to create securitised carbon credits. This allows traders to gain exposure to an asset class as opposed to individual projects. Every contract (eg CET, GNT, GNT+) is backed by a 1 tCO₂e carbon credit that sits in the Exchange's Trust. In May 2023 ACK hosted the world's first micro-mobility carbon credits auction, making the credits publicly available. The event attracted interest from a wide range of companies with StoneX Financial Inc. and ClimateSeed winning with bids of \$8.45-\$8.50.¹⁵⁷

4. THE LANDBANKING GROUP: AN INTEGRATED MARKET INFRASTRUCTURE FOR NATURE TRANSACTIONS¹⁵⁸

The Landbanking Group offers an end-to-end solution for natural capital in the four dimensions of biodiversity, water, soil, and carbon. Investors, corporates, and other market actors can reward land stewards for their performance in restoring and preserving nature. In return, they hold natural capital as an asset to create enterprise value. This is achieved by combining remote sensing and AI technology with an innovative financial solution that assetises nature outcomes as intangible assets on the balance sheet.

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5. ERADICATING MISLEADING CLIMATE CLAIMS: EFFORTS BY THE ACCC¹⁵⁹

The ACCC enforces the Competition and Consumer Act 2010 and other legislation promoting competition and fair trading, and regulate national infrastructure, for the benefit of all Australians. The ACCC is currently conducting internet sweeps of at least 200 company websites across a range of targeted sectors including energy, vehicles, food and drink packaging, and more, to identify misleading environmental and sustainability marketing claims (greenwashing) and fake or misleading online business reviews.

6. SELECTED RECOMMENDATIONS FROM THE ACCC ON THE WATER TRADING ARRANGEMENTS REVEALING NEED FOR CONSISTENCY AND COMPLETENESS OF DATA

In its Murray–Darling Basin water markets inquiry (February 2021) the ACCC examined whether price manipulation, inside information, and collusion had occurred. The analysis highlighted the need for significant improvements in the consistency and completeness of Murray–Darling Basin water market data to enable ongoing surveillance and regular reporting of market activities, with the ability to undertake investigations and take enforcement action if misconduct is identified. This would help to address the underlying concerns of many stakeholders and restore confidence in water markets.¹⁶⁰

7. EU TACKLING UNSUPPORTED CARBON NEUTRAL CLAIMS TO ADDRESS GREENWASHING¹⁶¹

To ensure consumers receive reliable, comparable, and verifiable environmental information on products, the EU proposal includes: clear criteria on how companies should prove environmental claims and labels, requirements for claims and labels to be checked by an independent and accredited verifier, and new rules on governance of environmental labelling schemes to ensure they are transparent and reliable.

8. FOLLOW THE MONEY: EXTRACTIVE INDUSTRIES TRANSPARENCY INITIATIVE (EITI)

By becoming a member of the Extractive Industries Transparency Initiative (EITI), countries commit to disclosing information along the extractive industry value chain. Disclosure includes how extraction rights are awarded, how revenues make their way through government, and how they benefit the public. Through participation in the EITI, more than 50 countries have agreed to a common set of rules governing what has to be disclosed and when – according to the EITI Standard. IFC and the World Bank are partners of the EITI,¹⁶² with governments like the US strong supporters.¹⁶³

9. CARBON CREDIT RATING AGENCIES TO PROVIDE GUIDANCE TO UNREGULATED MARKETS

As outlined in a Wall Street Journal article,¹⁶⁴ carbon-credit-rating firms aim to give buyers confidence in assessing the unregulated market for carbon offsets to fulfil their decarbonisation promises. Rating agencies covering nature-based projects include Sylvera, Renoster, BeZero, and Calyx.


3.9 Outlook: Credits as one element of broader financial instruments

Biodiversity credits will not exist in a vacuum and will only ever be one part of any broader approach to aligning global financial flows with the KMGBF and the Paris Climate Agreement and the respective national action and implementation plans. The diversity of objectives for biodiversity protection are manifold, including restoring ecosystems, preserving existing forests and ocean, changing agricultural practices, and influencing the value chain of corporates. This requires a suite of finance and policy instruments.

The potential of biodiversity credits needs to be understood in this wider context of financing opportunities and needs, as well as international and national resource mobilisation strategies.

This highlights the need to explore the potential for connecting biodiversity credits with other financing sources and broader economic and market instruments, including other targets as stipulated by the KMGBF, such as Target 15 (assessment and disclosure of impacts and dependencies) and Target 18 (subsidy reform). Possible synergies between biodiversity and carbon markets have already been noted. Beyond this, there are links with existing financial channels, from development finance (including infrastructure financing), to sovereign debt markets. Such synergies need to be further explored.

Integrating biodiversity credits into new, inter-governmental financing instruments is another area of potential, such as the Forest Country Packages being considered in the run-up to UNFCCC COP28. The key will be to not only provide for adequate blending of approaches, but also for the proper sequencing of the instruments in question, evolving around a 'maturity-concessionality' gradient.¹⁶⁵

 A key pillar to appropriately combining instruments is the establishment of partnerships between multiple financiers and actors. Coalitions of partners at both national and international levels are in the best position to generate and realign the necessary financial flows.



The GCF Working Paper '**Making blended finance work for nature-based solutions**' provides an overview of various financial instruments available for climate action and nature conservation, focusing on the innovative approaches taken by GCF and its partners to catalyse finance at scale. The paper discusses five categories of instruments to catalyse finance for NbS and how instruments can be combined for maximum impact, such as through blended finance mechanisms.¹⁶⁶

Significant focus and experience in biodiversity positive carbon projects comes from forest or agriculture-related activities. More recently, efforts have also included project implementation in coastal areas, primarily focused on mangroves and other 'blue carbon' ecosystems.

That said, carbon-led schemes have not been beneficial to those ecosystems that have a low(er) mitigation potential, but have significant climate adaptation, resilience, and biodiversity benefits.



Biodiversity credits, notwithstanding the current market design challenges, could be a means to support ecosystem management of coral reefs and other marine ecosystems as well as low carbon, high biodiversity, terrestrial sites. Biodiversity and carbon priority areas do not necessarily overlap, and both approaches could work together. An increased focus on marine ecosystems could create new opportunities for Small Island Developing States (SIDS) as they hold vast areas of Exclusive Economic Zones (EEZ).



As part of an integrated sustainable finance planning and resource mobilisation strategy, a key question is what will happen with projects after the currently envisioned credit funding ends after about 30 years. The global community will be called into action to think about a solution here early on.

Use cases of biodiversity credits as part of a comprehensive approach to resource mobilisation



Use cases meant to inform the realisation of GEF/IIED High-level Report 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 mobilisation.

1. GCF FUNDED PROJECT IN MEXICO COMBINING DIFFERENT FINANCING INSTRUMENTS

The GCF is currently supporting the development of a structure for blended finance in ecosystems off the coast of Quintana Roo, Yucatán and Campeche in Mexico. This project, known as Acción Yucatán, aims to increase climate resilience of vulnerable populations, ecosystems, and productive systems through nature-based solutions and sustainable livelihoods associated to natural protected areas.

A combination of economic and market instruments (carbon credits) with empowerment instruments (technical assistance) and financial instruments (loans, credits and insurance) is a powerful means of overcoming the classic shortcomings of carbon credits. In this case, parametric insurance will be sold along with carbon credits, thus reducing the risk for buyers that underlying assets could be destroyed. The combination of income from carbon credits with that of productive activities, supported by credits for results, will ensure that local livelihoods are not only enhanced but also made more sustainable. (Project as presented in the Green Climate Fund working paper No.5 - Making blended finance work for nature-based solutions).¹⁶⁷

2. THE EUROPEAN FUND FOR SUSTAINABLE DEVELOPMENT PLUS (EFSD+) COMBINING DIFFERENT RISK-SHARING INSTRUMENTS¹⁶⁸

The EFSD+ is part of the EU's investment framework for external action. It ensures world-wide coverage for blending, guarantees, and other financial operations. It is a comprehensive instrument that includes guarantees, grants provided through 'blending' (a mix of EU grants with bank loans), technical assistance to help improve the quality of projects, and the implementation of reforms and other support tools to support the development of partner countries.

3. FINANCING OPPORTUNITIES FOR COASTAL ECOSYSTEMS AND OPPORTUNITIES OF FIS¹⁶⁹

In a recent report published by the IFC, (blue) carbon credits have been included as one means of financing sources for activities looking at coastal wetlands conservation and restoration. The report notes that as blue carbon projects are in high demand, a number of large buyers are willing to commit to forward carbon credit agreements and offer amenities, including premium prices and upfront payments. FIS, amongst others, could play a key role in offering firm carbon purchase agreements.

Continues on the next page ▼

4. GFCR AS A BLENDED FINANCE MECHANISM TO INCUBATE AND INVEST IN NBS

The Global Fund for Coral Reefs (GFCR)¹⁷⁰ is a blended finance instrument to accelerate the deployment of urgently needed public and private investment to strengthen the resilience of coral reefs and reef-dependent communities. The GFCR will invest a combined \$725M in the blue economy to strengthen coral reef resilience.¹⁷¹

5. URUGUAY'S SUSTAINABILITY LINKED BOND¹⁷²

The coupon adjustment is based upon Uruguay's compliance with preset Sustainability Performance Targets tied to two Key Performance Indicators outlined in Uruguay's Sovereign Sustainability-Linked Bond Framework:¹⁷³ Greenhouse Gas emissions intensity as a share of GDP, and the maintenance of native forest area (at least 100% maintenance of native forest compared to reference year 2012, with 3% increase of native forest as the stretch target). As part of the country's engagement for enhanced climate transparency, Uruguay's General Forestry Directorate (DGF) will carry out satellite-imaging mapping (of the native forest area every four years).¹⁷⁴

6. THE WILDLIFE CONSERVATION BOND¹⁷⁵

The Wildlife Conservation Bond or 'Rhino Bond', issued in March 2022 by the World Bank with GEF support, is a landmark and replicable example of an innovative instrument leveraging blended finance to mobilise private capital for biodiversity. 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, resulting in a groundbreaking financial structure that enables private sector investment in global public goods. It also represents a new approach in conservation financing that passes project risks to capital market investors and allows donors to pay for conservation outcomes.¹⁷⁶



A Global Roadmap to Harness Biodiversity Credits for the Benefit of People and Planet **4**

**A political statement endorsed
by global governments
Paris, 22nd June 2023**

The need for ambitious collective action

There can be no new Global Finance Pact without addressing the intertwined crisis of climate change and biodiversity loss. While the urgency of acting on climate change is widely understood, and financing climate action has made significant progress in recent years, action on biodiversity loss and the move towards a nature positive economy has only recently gained momentum – supported in part through the adoption of the Kunming-Montréal Global Biodiversity Framework (KMGBF), and its landmark commitment to protect 30% of land and 30% of ocean by 2030.

There is a critical need to align global financial flows with the KMGBF's mission, goals, and targets, and to build a nature positive economy that recognises the intrinsic value of nature and the ecosystem services it provides. This all must be done in a manner consistent with the contribution and rights of Indigenous Peoples and local communities, as set out in the KMGBF, as the guardians of much of the world's remaining biodiversity.

The KMGBF calls for a substantial increase in the mobilisation of public and private resources to close the nature finance gap, to at least US\$200 billion annually by 2030, and calls for all public and private financial actors to work together, using a range of financial instruments, to deliver these goals.

This mobilisation is not only essential – it is possible. Indeed, there is already demand from the private sector for innovative options for financing biodiversity. In some cases, this is because companies want to minimise their impact on nature, either to ensure their own sustainability, or for the sake of the benefit of the planet and its peoples; in other cases, it is to offset harm they may cause, or to deliver against wider corporate responsibility commitments.

Complementing that private sector demand, interest in biodiversity credits has been expressed at the highest political levels.

President Macron at the UNFCCC COP27 meeting in Sharm-El-Sheikh in November 2022 launched the Positive Conservation Partnerships (PCP) and requested the Global Environment Facility (GEF) to draft a report on the potential role for carbon and biodiversity credits. The GEF led report was presented to leaders present at the France and Gabon co-hosted One Forest Summit in Libreville in March 2023, called by Presidents Macron and Bongo. Its key recommendations were to scale up biodiversity positive carbon credits and biodiversity certificates, and to maximise their potential contribution in building ambitious Forest Country Packages.

The 10 Point Plan launched at UNGA-77 by Ecuador, Gabon, the Maldives, and the UK, endorsed by over 40 countries, provides a concrete action plan for bridging the global biodiversity finance gap and also calls for the development of innovative financial instruments. To support delivery of the 10 Point Plan, the UK Government in February 2023 hosted a 'Nature Action: Private Sector Mobilisation' event bringing together Ministers, senior business representatives, and civil society leaders to highlight the role of the private sector in transitioning to net zero, nature positive economies. The event resulted in commitments to urgently explore the role that biodiversity credit markets have to play in closing the nature finance gap.

Finally, innovative instruments, including biodiversity positive carbon credits, are also a key action area under the Forests and Climate Leaders' Partnership (FCLP) a coalition of 26 countries and the EU launched at COP27.

The increase in interest in biodiversity credits has generated a dense and complex marketplace of ideas. Public, private, and non-profit actors are considering local, national, and international solutions. Key collaborative initiatives include the Biodiversity Credit Alliance, the Taskforce on Nature Markets, the World Economic Forum (WEF), and the World Business Council for Sustainable Development (WBCSD). Each contribution is helpful. There are different models emerging across different contexts, countries, and jurisdictions.

In order to develop biodiversity credits at the global scale needed, there is a need to converge these processes and approaches towards a set of agreed approaches to developing and governing high-integrity markets in ways that address key design challenges.

Moreover, the deployment of biodiversity credits at scale necessitates them being part of a broader, ambitious ecosystem of approaches to mobilising finance for biodiversity, including the links to carbon markets through the development of biodiversity-enhanced carbon credits, and through being an element of international financing initiatives such as Country Packages.

Objectives of the Global Roadmap

There is a need to facilitate the creation and growth of high-integrity biodiversity credit markets, and encourage enabling policy and regulatory mechanisms, in ways that are credible, timely, and coherent on an international level. This can only work if these high-integrity biodiversity credits deliver measurable positive biodiversity impacts and equitable outcomes at both the sovereign and local levels to those who care for nature, in particular Indigenous Peoples and local communities who are core to securing the health of biodiversity worldwide.

Our collective ambitions will only be realised through a careful process, global co-design, and concerted international cooperation between policy makers and regulators, scientific experts, project developers, and financial actors, as well as local communities and Indigenous Peoples.

This could be supported by the establishment of a core set of principles and governing arrangements including rules and guidance, which will draw on and initiate national pilots based on the rich set of examples and approaches currently being taken forward by various existing processes and initiatives. The development of market instruments for nature will be essential, but it is important to note that these markets are still, in most cases, in very early stages. We are at the start of a long journey towards the full maturity of such markets and clarity as to their added-value and how best to realise it.

Our collective challenge is to ensure that technical, market, and political tracks converge towards well-structured markets that deliver for nature, climate, and people.

France and the United Kingdom therefore propose to help to address this collective challenge by initiating an open and inclusive process, working with other countries and key partners and drawing on existing processes and initiatives, with a view to scaling up the use of biodiversity positive carbon credits and biodiversity certificates, and structure biodiversity credit markets in ways that deliver significant, equitable, nature positive outcomes.

The Advisory Panel

A high-level, multistakeholder Advisory Panel will be established to deliver the envisaged Global Roadmap that will bring together and harness the most important and impactful collective thinking and practice on developing high-integrity biodiversity credits, with the active involvement of the Global Environment Facility (GEF).

The Advisory Panel will deliver its findings and recommendations to a coalition of countries committed to the use of biodiversity credits as a key way to accelerate financing for biodiversity. Its findings and recommendations will be taken up by a wide range of non-state actors including market participants.

Pathway and Milestones

The Advisory Panel will anchor its activities around the key milestones in the international calendar

presented by the climate change and biodiversity conventions, as well as any other relevant multilateral processes such as UNEA or the G7 and G20. These all provide opportunities for high-level engagement on incremental steps towards the development of the market, and will include:

By **UNFCCC COP28**, the Advisory Panel will submit its roadmap to a larger group of key stakeholders including sovereigns and IPLCs and market actors. The roadmap will include actionable recommendations on scaling up biodiversity credits and support the development of the practical and political conditions under which the first representative transactions will take place and send positive signals to the marketplace.

By **UNCBD COP16**, the Advisory Panel, with the cooperation of the larger group of stakeholders, will build on the recommendations for piloting approaches for the rapid development of equitable and high-integrity biodiversity credit markets that can be scaled, and deliver significant new sources of finance for biodiversity outcomes.

The Advisory Panel will build as much as possible on the existing engagement and expertise in related processes,

initiatives, and platforms, identifying commonalities and gaps and building on synergies in designing approaches that support ambitious actions to ensure that high-integrity biodiversity credit markets move from theory to delivery.

The Advisory Panel will guide an open and inclusive working process

that will draw on insights from policy makers and regulators, Indigenous Peoples and local communities, market actors including the financial community, experts, and broader civil society.

The Advisory Panel will form and guide inclusive, expert working groups

which will support the production of an articulation of the state of play and 'what good looks like' for their respective focal areas, for UNFCCC COP28. The focal areas for working groups will include consideration of:

1

Providing credible, timely, and affordable measurement and monitoring of the state, improvement and/or maintenance of biodiversity.

2

Scaling sustained, and high-integrity demand for credits and associated financing.

3

Ensuring sufficient, high-integrity supply of credits offering nature positive outcomes.

4

Securing adequate price and equitable distribution of rewards to project developers, sovereigns, and Indigenous Peoples and local communities.

5

Establishing robust governance and broader, transparent institutional arrangements.

France and the UK will each designate a high-level representative to help facilitate the formation of an inclusive global Advisory Panel aiming for a first meeting in July 2023.

These governments will also work alongside political leaders from other interested countries to help broaden the political coalition of governments driving this Roadmap for high-integrity biodiversity credit markets forward in the coming months.



5

**Concluding
Reflections**

Untangling biodiversity from the global economy is not an option. A resilient global economy requires maintaining and, over time, enhancing, stocks of natural capital, which in turn calls for a combination of approaches including policies, regulations and standards, societal norms and expectations, and market instruments.

The need for, and potential value of, biodiversity credits arises because the bulk of our global economy continues to deplete natural capital stocks and uses of biodiversity unsustainably.

Biodiversity credits can complement other approaches in encouraging businesses to take greater account of biodiversity, use it sustainably, use less of it, and invest more in nature's preservation and restoration. All of this can only work if biodiversity credits deliver greater equity, livelihoods, and security to those who care for nature, namely Indigenous Peoples and local communities, including farmers.

This paper concludes that biodiversity credits have the potential to deliver financing, support nature's stewards, and improve biodiversity outcomes.

Their development, alongside other finance mechanisms for biodiversity, merits the full and urgent attention of the international community. The paper is intended to provide the building blocks for such concerted and timely action.

ANNEX 1

The need for ambitious collective action

This survey was conducted by Carbone 4, as part of the broader request by the French Government for this paper. The objective of this section is to provide an overview of the main stakeholders in the international voluntary biodiversity credits (VBCs) community (mostly represented through the BCA and OBC membership), the scope and content of their work, their needs, and views for the development of VBCs.

An online survey was sent to 23 organisations and initiatives, identified as the main actors in the biodiversity credit community, and the results of this survey are presented here after in three parts:

- I. Types of organisations and nature of their work
- II. Methodologies for quantifying biodiversity gains
- III. Progress to date and main needs

The overview and results presented here are not exhaustive and rely on the membership of the BCA and OBC. It may however be used as an initial, indicative contribution to the intended deliberations of the High-Level Advisory Panel.

1. Types of organisations and nature of their work

List of respondents

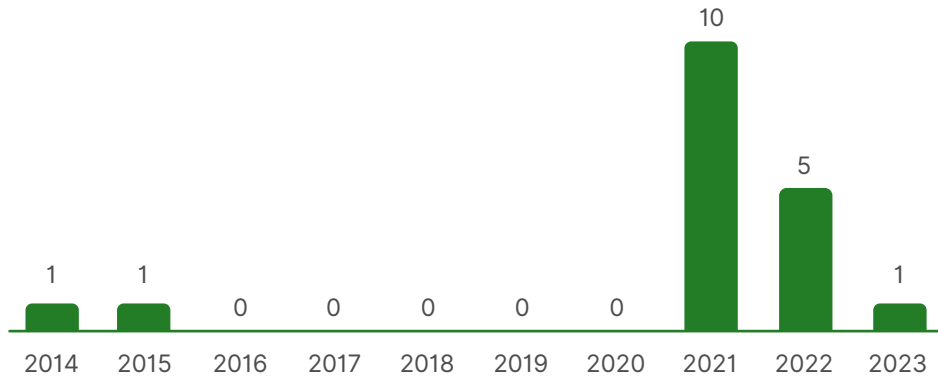
In total, 23 organisations were contacted. Responses were received from 18, listed below.

Name of the organization / Initiative	Member of Biodiversity Credit Alliance (BCA)¹⁷⁷	Involved in the Organization for Biodiversity Certificates (OBC)¹⁷⁸	Member of SD VISTa Nature Framework¹⁷⁹ advisory group	Cooperating with Plan Vivo¹⁸⁰
Biodiversity Credit Alliance (BCA)	X			X
Organization for Biodiversity Certificates (OBC)	X	X		
Verra - SD VISTa Nature Framework			X	
Plan Vivo Foundation	X			X
Terrasos	X		X	
Qarlbo Natural Asset Company	X			
Pollination			X	
Pivotal Future Ltd	X		X	
aDryada		X		
ValueNature	X			
rePLANET	X			X
Planete Urgence		X		
Recelio				
Ekos	X			
Rebalance Earth	X		X	
Le Printemps des Terres		X		
Ecosystem Restoration Standard (ERS)		X		
CDC Biodiversité				

Surge in activities around 2021

Most of organisations started engaging in VBCs in 2021 or 2022, which confirms that the topic is still at an early phase. Two players, Ekos and Terrasos, started before 2015.

When did you start working on biodiversity credits?



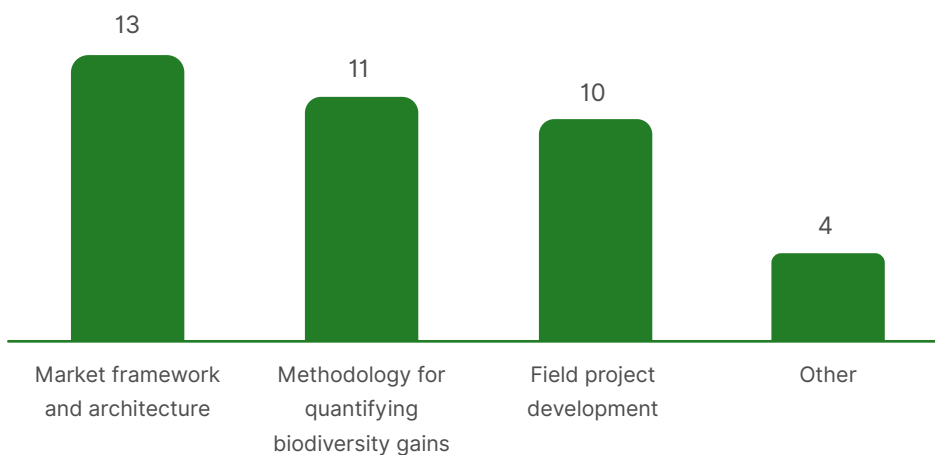
Areas of work

The following three areas were proposed for selection:

- Market framework and architecture: working on recommendations for the global framework of the future VBC markets, contribution to definition of biodiversity credits, integrity of associated claims, market structure and rules, certification, etc.
- Methodology for quantifying biodiversity gains: developing tools and methods to quantify the biodiversity gains of field initiatives.
- Field project development: development of conservation and regeneration/restoration on-the-ground projects.

Each area is well represented among respondents.

What is (are) your specific area(s) of work on the biodiversity credit topic?



Respondents could choose multiple answers to this question. 13 of the respondents contribute to work on market framework and architecture, 11 of them work on methodologies for quantifying biodiversity gains; furthermore, 10 organisations are involved in field project development and 4 of them identified other types of work, including:

- Ground-based data collection and analytics at scale
- Standard/certification development, governance, digital registry, and verification protocols
- Mapping of the VBC ecosystem and literature review.

Some of the players working on the 'market framework' declared doing so as part of their participation in the BCA or the OBC.

Also, some of the players are working on the same quantification methodology, and 9 distinct methodologies were identified overall (see Section II).

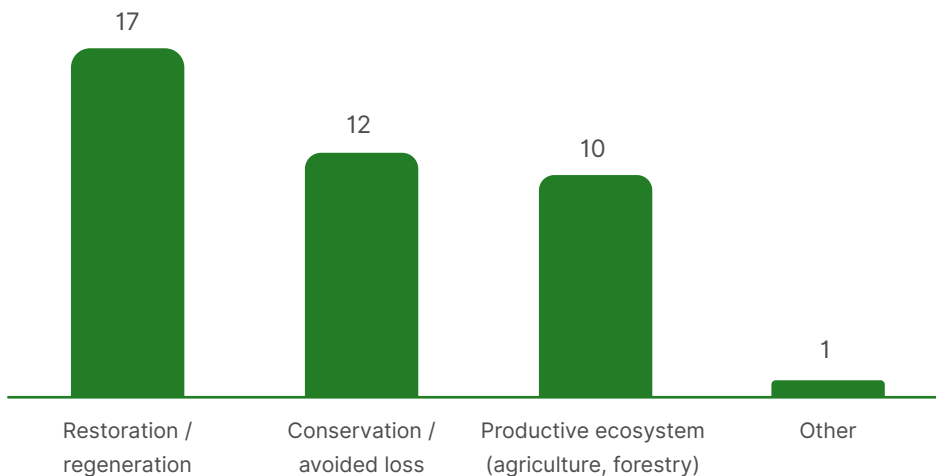
Prioritised ecosystem management activity

Three types of investment in VBC were proposed:

- 1) Restoration/regeneration
- 2) Conservation/avoided loss
- 3) Gains in productive landscape (agriculture or forestry)

Restoration/regeneration stands out as the main focus, as almost all respondents (17 out of 18) declared to work on this type of projects. 12 of them work on conservation/avoided loss projects and 11 of them work to achieve gains in productive ecosystems.

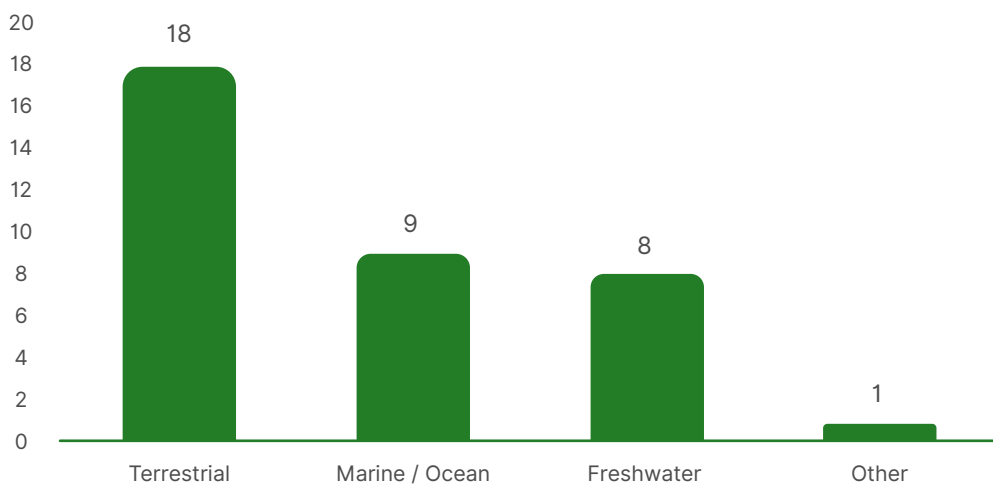
What is the scope of your work, in terms of type of investment?



Prioritised biomes and ecosystems

Respondents could choose multiple answers to this question. All respondents prioritise terrestrial biome, while 9 prioritise marine/ocean biomes, and 8 prioritise freshwater biomes.

What is the scope of your work, in terms of type of investment?



As for current trends in methodological development in the field of biodiversity gain quantification, terrestrial ecosystems stand out as the main focus.

This could be explained by the fact that the scientific literature is more abundant for terrestrial ecosystem, and/or that this is also where most field projects are developed.

2. Methodologies for quantifying biodiversity gains

We identified 9 distinct methodologies under development for quantifying biodiversity gains, as 2 of the 11 entities that declared to be working on this topic are contributing in the MNHN-Carbone 4-OBC methodology (aDryada, Printemps des Terres).

Overview of the methodologies for quantifying biodiversity gains

MNHN: Carbone 4 and OBC: methodology developed by the French National Museum of Natural History (MNHN) and Carbone 4, commissioned by OBC. Under the methodology, a group of scientific experts is constituted per each category of ecosystems, (land use type x biogeographic regions) staffed with specialists in the biodiversity of a given ecosystem. The experts take part in a process designed to bring out a scientific consensus on the biodiversity gains associated with a given change in state, characterised by changes in management practices and ecosystem attributes. Once developed, the method can be used to generate ex-ante projections, or ex-post assessments of biodiversity gains based on field measurements.

Wallacea Trust: Plan Vivo: A biodiversity gain quantification methodology was developed by the Wallacea Trust, and adapted for use with the Plan Vivo biodiversity standard (PV Nature). A biodiversity credit is a 1% uplift or avoided loss per hectare in the median value of a selected taxa that reflect the conservation objectives of the project site. It is measured through a basket of biodiversity metrics covering at least 5 taxa, combining species richness, conservation importance, and abundance. Metrics are surveyed using a combination of traditional (on the ground) biodiversity surveying methods and technologies like metabarcoding.

Value Nature: A biodiversity credit represents the protection or restoration of 1 hectare of land over a 10 year period, with a 30 year permanence window. Reporting against this credit includes biodiversity monitoring using a suite of remote and in-situ sensors to detect incremental changes in ecosystem integrity on an annual basis, combined with annual financial reporting on credit revenue expenditure and flows to biodiversity custodians over the 10 years. From this they will create verified Biodiversity Units of Gain (BUGs). The appropriate BUGs will be determined for each project site and could follow existing standards such as the Plan Vivo Nature Standard, or pending Standards such as their own (change in ecosystem integrity), Gold Standard, or Verra's, combined with financial reporting on credit revenue expenditure and flows to biodiversity custodians. The biodiversity reporting is informed by underlying metrics like wildlife/habitat intactness, habitat structure/ composition, and wildlife population estimates.

Ecosystem Restoration Standard (ERS): ERS performs biodiversity baseline assessments through two processes: community consultation on biodiversity and ecosystem, and defining a reference ecosystem that represents the non-degraded version of the ecosystem. Wildlife is monitored at least quarterly following the Transect Walk methodology, and observations are recorded in an app. Some projects might need additional monitoring sources, such as camera traps, bioacoustics, and eDNA.

Terrasos: a biodiversity credit corresponds to 30 years of conservation and/or restoration of 10m² of a threatened ecosystem. Credits are released based on performance and management milestones and entered in a registry called biotrust.

The SD VISTA Nature Framework: There will be an overarching framework/methodology, likely complemented by ecosystem or biome specific modules (in development).

Pivotal future: Use of technology to scale the collection of species-level biodiversity data, and machine learning to scale its analysis. The results are synthesised into trackable metrics.

Qarlbo: a methodology geared towards forest ecosystems including production forests, divided in 3 sub-methodologies: conservation, restoration, and nature positive forest management.

EKOS: The unit type is a habitat hectare unit that contains the scope of zero (or as close to zero as possible) pest and weed densities in each project hectare. The method is applicable for New Zealand where most terrestrial conservation management involves invasive pest/predator and weed control. The units are issued on the basis of measured, reported and verified pest/weed control management interventions, following a scientifically robust theory of change and intervention logic model, and the demonstration of zero/close to zero pest densities in pest monitoring.

Differences in the biodiversity credit units

Biodiversity credits defined by different methodologies are expressed in different units:

- Wallacea Plan Vivo, Pivotal future, and ERS methodologies derive a global biodiversity metric from species-level biodiversity metrics.
- The MNHN Carbone 4 OBC methodology uses a metric that is similar to the MSA.m2 (Mean Species Abundance), assessing the global integrity of an ecosystem on a scale where 0 corresponds to the absence of biodiversity and 1 corresponds to an intact ecosystem.
- ValueNature defines 'hectares of protected/restored land' and derives ecosystem integrity (as an index) on an annual basis derived from a global biodiversity metric that incorporates both species-level and landcover change biodiversity metrics and include a temporal criterion ('...for 10 years with 30 years permanence window'), additionally they can apply other methodologies as represented in their BUGs during this period.
- Terrassos' biodiversity credit corresponds to 30 years of conservation and/or restoration of 10m2 of a threatened ecosystem.
- Ekos also express the results in terms of areas without introducing degrees of restoration and has a special focus on pests and weeds.

Differences in the indicators

Beyond the unit of biodiversity credits, the methods leverage different types of indicators:

- **Species level indicators:** measuring indicators that directly reflect abundance and/or diversity of species or their populations (ex: ecological studies, bioacoustics) – used for example by Wallacea Plan Vivo, Pivotal, ERS.
- **Ecosystem level indicators:** measuring indicators corresponding to ecosystem characteristics (e.g. tree species diversity, soil carbon concentration) used, for example, by Value Nature and MNHN-Carbone 4-OBC.
- **Data on practices:** measuring indicators relative to management practices (e.g. pesticide use, soil management) used, for example, by MNHN-Carbone 4-OBC.
- **Pressure specific indicators:** for the EKOS approach.

These indicators may leverage technological tools (e.g. remote sensing, bioacoustics, DNA analysis), or derive from field measures or questionnaires.

A diversity of methodologies that could be positive for the development of VBCs

The information provided in this Annex only offers a quick overview of main methodologies. A more in-depth study would be needed to understand these different methodologies in detail. However, it is clear that efforts are characterised by a high degree of heterogeneity, not only in approach, but also in assumptions, and even in the nature of what is measured.

This heterogeneity is not necessarily bad news: the question of quantifying biodiversity gains continues to be explored, and we know that nature changes are complex and difficult to capture in a metric. The subject is still under development, and it seems appropriate to test several approaches to have better chances of obtaining trustworthy methods. Given the great diversity of nature, there is no guarantee that it will be possible to create a method that performs well in all contexts, and perhaps several approaches will be needed, corresponding to different contexts. In this way, these methodologies could prove to be complementary rather than competing.

However, the heterogeneity can benefit from a common vocabulary and definitions. This will allow to compare methodologies, understand what kind of situation each method is best suited for, what it proposes to measure, and how. This will bring methodologies closer to buyers and accelerate early transactions.

3. Progress to date and main needs

11 respondents already have field projects where they have generated biodiversity credits or where they plan to do so. These projects take place worldwide, including in South America, Africa, and Europe. Countries include Sweden, Uruguay, Zambia, the UK, Mexico, Italy, France, Panama, Colombia, Costa Rica, and Madagascar.

The participants were asked to share their views on what was needed for the development of a robust voluntary biodiversity credits market. This only represents the views of those organisations consulted through the survey and would need to be expanded in a more in-depth analysis, casting a wider net of stakeholders and actors.

The following main topics emerged:

Global-level needs

- **Global architecture:** respondents declared that there was a need for defining a global architecture of the voluntary biodiversity credit market. This includes definition of global integrity principles, common vocabulary, and clear market framework to create transparency and trust in VBCs.
- **Assessment of biodiversity gains:** respondents indicated that there was a need for validated approaches that should be robust, accurate and scalable, and based on robust data collection processes.
- **Standardisation:** respondents suggested that the market would benefit from consensus on key topics, such as a fungible unit of measurement. This would help building confidence amongst corporates and investors in the viability of biodiversity credits as an investment vehicle.
- **Clarity on compatibility with existing instruments, MRV tools and/or regulations:** respondents shared that the biodiversity credit market needed to be consistent and aligned with existing MRV tools (e.g. Ecosystem Integrity, Habitat Intactness), as well as with carbon credit markets. They also felt the need for regulators and policy makers to make sure that any emerging biodiversity credit regulation is compatible with the laws and regulations of local jurisdictions.
- **Government support** of VBC mechanisms and encouragement for corporates to start engaging in biodiversity assessment.

Organisation-level needs

- **Connection with regulators and policy makers:** respondents felt a need to be connected to the discussions led by governments to fully understand the way emerging relevant regulations and policies apply and facilitate VBC markets. They also suggested that the development of biodiversity credits be considered in the development of national biodiversity regulatory frameworks.
- **Connection with potential buyers:** respondents need support in identifying potential buyers and understanding the global demand for VBCs.
- **Connection with other players:** respondents felt the need to be better connected with the other players of the biodiversity credit ecosystem to cooperate in the development of high-integrity biodiversity credits.
- **Funding:** stakeholders stated the need for funding to finance their pilot projects and to continue developing their methodologies.

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9

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²⁸ SEED. (n.d.). Retrieved from <https://seed-index.com/>

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³⁰ IUCN. (n.d.). Green List of Protected and Conserved Areas - Resource. Retrieved from iucn.org

³¹ ENCORE (2023). Data. Retrieved from encore.naturalcapital.finance

³² Copernicus Global Land Service. (n.d.). Vegetation Productivity Index. Retrieved from encore.naturalcapital.finance

³³ Protected Planet. (n.d.). Explore the World's Protected Areas. Retrieved from protectedplanet.net

³⁴ Forest Integrity Network. (n.d.). Forest Landscape Integrity Index. Retrieved from forestintegrity.com

³⁵ The BCA's objective are:

- To define and categorise 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
- To index of all credits issued under the Global Principals.
- To establish a community of practice for those organisations in the quantification of biodiversity credits.

³⁶ OBC is supported by eDryada, Le Printemps des Terres, Carbone 4, Museum Natural History, and Gold Standard Foundation and is part of the BCA Task-Force. The OBC is designing a field-based bottom-up assessment initiative that will allow for an accurate representation of local impacts including carbon and biodiversity— referred to as an ecosystem carrying approach to measure and manage biodiversity. The methodology will be designed for specific locations and will be defined in collaboration with gathering various stakeholders of biodiversity credits (field actors, companies, NGO, scientific institutions, impact funds) with the objective of supporting the creation of a global biodiversity certificates mechanism, including through technical and methodological contributions.

First draft of the methodology is expected at the end of 2023.

OBC work is articulated around 2 main workstreams:

1. A "technical" workstream, which aims at developing by 2024 science-based and operational methodologies for the measurement of the state, improvement and/or maintenance of biodiversity. Two Proof-of-Concepts are being implemented in 2023.

2. A "market framework" workstream which aims at proposing global principles for the architecture of the biodiversity credit mechanism, including related to the scale and integrity of demand, distribution of rewards, governance, and coordination with global efforts for biodiversity.

³⁷ Verra. (n.d.). New Biodiversity Methodology. Retrieved from <https://verra.org/new-biodiversity-methodology/>

³⁸ To develop the nature crediting framework, Verra launched the Nature Framework Development Group (NFDG), comprised of the Blue Nature Alliance (with support from McKinsey & Company), Conservation Finance Alliance, Conservation International, Great Barrier Reef Foundation, International Union for Conservation of Nature (IUCN), The Biodiversity Consultancy, and Verra as independent standard setter. An expert Advisory Group supports this work, and broad stakeholder consultation and piloting are planned for 2023.

³⁹ Wallacea Trust. (2023). Methodology for Awarding Biodiversity Credits Version 2.1 (May 2023)

⁴⁰ The median value of the percentage changes of each of the metrics over the baseline are used as a value for overall biodiversity improvement or avoided loss and multiplied by the area in hectares to issue Nature Certificates. This allows a unit of biodiversity change to be defined as a 1% increase or avoided loss in the median value of a basket of taxa that reflect the conservation objectives for the site. Plan Vivo are testing the methodology against 14 plot projects submitted and have completed the first public consultation with a target of summer 2023 for launch of the standard.

⁴¹ Gold Standard. (n.d.). Certified SDG Impacts. Retrieved from <https://www.goldstandard.org/impact-quantification/certified-sdg-impacts>

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⁴³ It's been developed by the Botanic Gardens Conservation International (BGCI), the Society for Ecological Restoration (SER), World Agroforestry Centre – ICRAF, TRAFFIC, Ecosia, The Plan Vivo Foundation (PVF) and It.org. The standard is being tested in 6 countries.

⁴⁴ The Nature Investment Standards Programme (n.d.) <https://www.bsigroup.com/en-GB/about-bsi/uk-national-standards-body/sustainability-and-climate-action/nature-investment/>

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⁴⁶ SBTN. <https://sciencebasedtargetsnetwork.org/how-it-works/the-first-science-based-targets-for-nature/>

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⁴⁹ The IUCN Biodiversity-Positive approach is complementary and additive to other nNature -pPositive approaches in that it:

- Focuses on living nature, or biodiversity, and is therefore complementary to other approaches that include non-living nature such as water, air and soil (such as the Land and Water hubs of the Science-Based Targets Network (SBTN) and the Natural Capital Protocol); IUCN's approach is currently restricted to terrestrial biodiversity but will be extended to include marine and freshwater biodiversity by the end of 2023.

- Enables users to quantify negative and positive impacts on living nature, using science-based metrics for species and ecosystems, thereby allowing assessments of potential and delivered impacts across the globe, and for those contributions to be compared with each other and aggregated at higher levels, for instance at country or sector level.;

- Builds on, and goes beyond, the mitigation hierarchy, which provides an evidence-based and widely used framework for action that is already mainstreamed into environmental impact assessments for many sectors.;

- Focuses on quantifying positive and negative impacts to living nature, not on dependencies on nature, which are generated from ecosystem services and are best measured by existing and complementary approaches such as TESSA, InVEST and ARIES.;

- Enables companies (and their investors) to assess where they are on the journey to nNature- pPositive with respect to living nature, and to register and track inputs to global policy goals.

The anticipated long-term outcome of IUCN's Biodiversity-Positive approach is that all economic and social actors identify, plan and effectively and measurably deliver their verified, robust outcomes for biodiversity, at a scale sufficient to ensure (with others' contributions) a nNature -pPositive future, and deliver the Global Biodiversity Framework targets.

⁵⁰ IUCN -- The Species Threat Abatement and Restoration (STAR) Metric <https://www.iucnredlist.org/assessment/star#:~:text=The%20Species%20Threat%20Abatement%20Restoration,footprint%2C%20or%20within%20a%20country.>

⁵¹ World Bank. (2023). State and Trends of Carbon Pricing 2023 <https://openknowledge.worldbank.org/entities/publication/58f2a409-9bb7-4ee6-899d-be47835c838f>

⁵² Carbon Pulse. (2023). Developed biodiversity market schemes have seen \$8 mln pledged for credits - report Link

⁵³ GlaxoSmithKline (GSK). (n.d.). Understanding Impact and Dependencies on Nature. Retrieved from [gsk.com](https://www.gsk.com)

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⁵⁶ Ecosystem Marketplace. (2022). The Art of Integrity: Ecosystem Marketplace's State of the Voluntary Carbon Markets 2022 Q3. Retrieved from ecosystemmarketplace.com

⁵⁷ Carbon Pulse. (2023). Major blue carbon project gets Pakistan govt approval to operate in voluntary market <https://carbon-pulse.com/205356/#:~:text=The%20Pakistan%20government%20has%20given,line%20with%20Paris%20Agreement%20specifications.>

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- As of early 2023, seventeen (17) jurisdictions are in the pipeline for crediting having submitted TREES Concept documents to ART, listed in the public ART Registry
 - ART-issued TREES 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 (CORSA)
 - 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.
- In January 2023 ART announced the launch of an initiative to develop a 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-CO₂ 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. ART has formed committees to develop the modules and anticipates a public comment period by the end of 2023.
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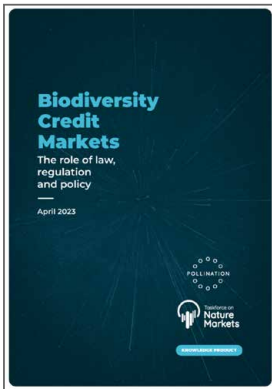
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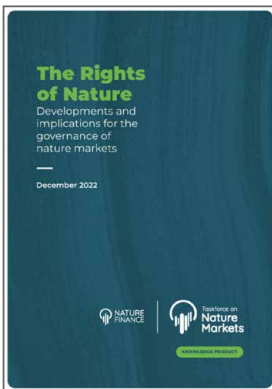
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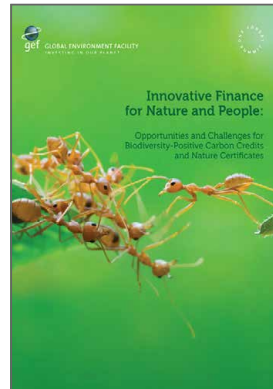
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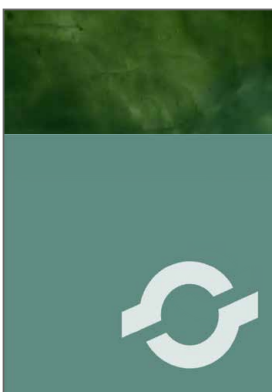
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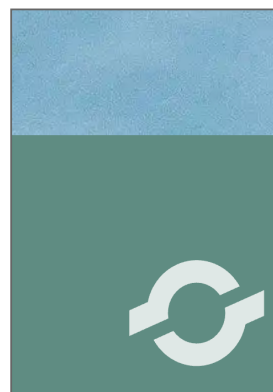
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Our work is shaping the many dimensions, actors and change pathways at the nature-finance nexus to thrive and contribute to development.


How we make change:




Nature Markets: shaping principles-based nature markets by increasing awareness, innovations and better governance of nature-linked markets including nature credits and soft commodity markets.




Nature Liability: extending the liabilities of financial institutions for nature outcomes, including the application of anti-money laundering rules to break the links between investment and nature crimes.



Nature Data & Disclosure: Increasing the quality and quantity of nature data, risk assessment and transparency across financial markets to enable integrated assessments of nature-climate risks and impacts.



Sovereign Debt: Engaging market actors, and governing institutions in efforts to place nature in the world's sovereign debt markets, including scaling the issuance of sustainability performance-linked sovereign bonds.



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Our use of Fibonacci sequence imagery is inspired by the association of this unique ratio with the maintenance of balance, and its appearance everywhere in nature- from the arrangement of leaves on a stem to atoms, uncurling ferns, hurricanes and celestial bodies.

Harnessing Biodiversity Credits for People and Planet

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