

# Biodiversity Credit Markets

The role of law,  
regulation  
and policy

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April 2023



Taskforce on  
**Nature  
Markets**

KNOWLEDGE PRODUCT



# About



## Taskforce on Nature Markets

The Taskforce on Nature Markets' core objective is to shape a new generation of purposeful nature markets that deliver nature positive and equitable outcomes. It seeks to achieve this by:



Landscaping, analysing, and socialising **existing and emerging approaches**



Building awareness of **opportunities and risks** across policy, business, and civil society



Building the basis for a **community of practitioners** with a shared vision and narrative



Encouraging synergies between **innovations and innovative people/platforms**



Recommending and advancing **standards of practices** and enabling principles and supportive governance arrangements



Initiating and supporting **pathfinder initiatives** to scale the implementation of recommended approaches and actions.

The Taskforce is an initiative of, and hosted by, NatureFinance (previously the Finance for Biodiversity Initiative - F4B). It benefits from the broader portfolio of NatureFinance's work and the extensive knowledge of its partners and networks. The Taskforce is supported by the MAVA Foundation.

Find out more about the Taskforce on Nature Markets, its members, partners, work programme and how to get involved at [www.naturemarkets.net](http://www.naturemarkets.net)

# Biodiversity Credit Markets

## The role of law, regulation and policy



## About this report

The Taskforce on Nature Markets was established in March 2022 in response to a rise in markets that explicitly monetise and trade nature ('nature markets').

This knowledge product is part of the Taskforce's knowledge ecosystem, which aims to support the Taskforce in delivering its mandate of ensuring the global economy interfaces with nature in ways that deliver nature-positive, equitable, and net zero outcomes.

This paper was a collaborative piece of work, with Pollination, researched and written by Laura Waterford, Director, with support from Martijn Wilder AM, Founder and CEO, Dr Helen Crowley, Managing Director, Patricia Frederighi, Executive Director and Sarah Denman, Associate Director; with guiding feedback from Simon Zadek, Taskforce on Nature Markets Co-Lead, and editorial support from Monique Atouguia, Knowledge Manager for the Taskforce.

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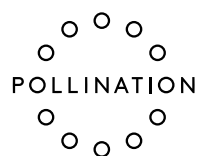
The Taskforce on Nature Markets is an initiative of Nature Finance which also hosts its secretariat. NatureFinance is a Geneva-based, international not-for-profit dedicated to aligning global finance with climate resilient, equitable and nature positive outcomes. Its work spans initiatives that are building and using biodiversity data to better manage nature related risks, developing purposeful nature markets, advancing financial innovations including in sovereign debt markets, strengthening nature related liabilities and citizen action on nature.

The views expressed in this paper are those of the author's alone. Any errors are our own.

## Acknowledgements

This paper has benefited from contributions from the entire NatureFinance (previously Finance for Biodiversity) team, and many others including contributions from members of the Taskforce and its Knowledge Partners.

The authors would like to thank those who dedicated time to speak with them throughout its development, read and reviewed various iterations and provided invaluable feedback. Specific thanks to Ralph Chami, Marcelo Furtado, Dorothee Herr, for their helpful exchanges in the process of writing the paper and/or feedback on an earlier draft.



Pollination is a specialist climate change investment and advisory firm, accelerating the transition to a net zero, nature positive future. Pollination's collective expertise and strong relationships at the highest levels of government and the private sector, shifts barriers and catalyses transformative partnerships.



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# Biodiversity Credit Markets

The role of law, regulation and policy

## Executive Summary

Biodiversity credit markets are increasingly recognised as one mechanism that can drive financing toward the protection, regeneration and stewardship of biodiversity, and close the biodiversity financing gap. Target 19 of the Montreal-Kunming Global Biodiversity Framework (**Global Biodiversity Framework**), agreed upon in December 2022, expressly refers to biodiversity credits as a potential mechanism for financial resource mobilisation.<sup>1</sup> Biodiversity credit markets were also a key focus at the OneForest Summit, hosted by France and Gabon in early March 2023. Other important collaborative initiatives include the [Biodiversity Credit Alliance](#), an alliance of field-based conservation practitioners and academics, and the World Economic Forum's Working Group on Biodiversity Credit Markets, both of which NatureFinance's Taskforce on Nature Markets is an active participant.<sup>2</sup>

As voluntary biodiversity credit markets continue to develop, the complexity and uncertainty of determining where to invest, what to measure, and what outcomes to track will no longer be a barrier to financial investment. To address the biodiversity crisis, it is necessary to establish a legal, policy, and regulatory framework that will give both supply-side and demand-side market actors the confidence to scale their investments in biodiversity at the necessary pace. Such measures will be key to unlocking private finance to help close the biodiversity financing gap. This paper explores the requirements for establishing and governing high integrity biodiversity credit markets, which can guide these markets towards more nature-positive and equitable outcomes.

This paper should be read alongside [‘The Future of Biodiversity Credit Markets: Governing High-Performance Biodiversity Credit Markets’](#)<sup>3</sup> which puts forward a taxonomy and identifies high-level principles and recommendations relevant to biodiversity credit markets. It proposes a ‘market governance stack’ that intersects with the roles of law, regulation, and policy in these markets. However, one principle is particularly critical: biodiversity credits and biodiversity offsets are fundamentally different approaches designed to achieve different outcomes:

**Biodiversity offset schemes** are driven by negative impacts on biodiversity in one location<sup>4</sup> that can be ‘offset’ or compensated for by purchasing biodiversity units, which are intended to represent an equivalent positive impact on biodiversity in another location.

By contrast, **biodiversity credit schemes** are not intended to facilitate the ‘offsetting’ of negative impacts on biodiversity. Rather, they are intended to finance ‘real’ gains for biodiversity that are not linked to negative impacts in another location.

As biodiversity credit markets scale and mature, strong governance frameworks will be important to ensure that they reach their potential and do not result in perverse outcomes. All stakeholders have a role to play in achieving this outcome. Legal, regulatory and policy actions can help to ensure high integrity outcomes in line with the following high-level principles and recommendations:

- Global efforts should focus on developing biodiversity credit markets as a **market-based mechanism to help deliver on the goals of the Global Biodiversity Framework**, distinct and separate from any biodiversity offset markets and schemes.
- Biodiversity credit markets should be viewed, governed, and regulated at the international level as one of a **suite of mechanisms that drive financing into the protection, regeneration, and stewardship of biodiversity by supporting the local stewards** of biodiversity, including Indigenous peoples and local communities (IPLCs).
- Governments should, and in some cases, are already proactively determining whether they will play a market administrator or an enablement role in the development of biodiversity credit markets. In either case, **governments should consider legislating to clarify the ownership of legal rights in biodiversity** and land/ seas to provide legal certainty for biodiversity credit markets and to ensure clarity on a buyer's 'right to claim' upon the purchase of a biodiversity credit. Consideration of IPLCs' rights in this context will be critical, including under customary law.
- Safeguards for IPLCs developed through the VCM should be adopted and enhanced, in the development of biodiversity credit markets through international frameworks and in accordance with existing guidance from civil society, including the IUCN Global Standard for Nature-based Solutions<sup>5</sup> and 'High-level Governance and Integrity Principles for Emerging Voluntary Biodiversity Credit Markets'.<sup>6</sup> **IPLC safeguards and outcomes should be essential elements of the verification process for biodiversity credit schemes.**
- Governments and consumer protection agencies should develop clear guidance regarding eligible claims associated with the use of voluntary biodiversity credits. While this guidance may have some specific jurisdictional characteristics, there should be coherence across all jurisdictions on critical elements, including IPLC safeguards and the separation of land ownership from the 'right to claim' for the purchase or trade of a biodiversity credit.
- As the biodiversity credit market matures and participants move towards secondary trades of biodiversity credits, including securitisation and derivatives, **governments and financial services regulators should ensure that biodiversity credits are regulated as financial instruments.**
- The following policy options and framing will catalyse the scaling of biodiversity credit markets by enabling an understanding of the financial risk of biodiversity loss and the financial value of protection, regeneration, and stewardship of biodiversity:
  - Mandating **natural capital accounting** at national and sub-national levels.
  - Requiring **nature-related risk reporting and disclosure** (e.g. in line with the Taskforce on Nature-related Financial Disclosures (TNFD) framework).
  - Providing **tax incentives for disclosing risk and setting nature targets** (e.g. in line with the guidance from the Science Based Targets Network (SBTN))

# Glossary of Key Terms

## BIODIVERSITY

The variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic **ecosystems** and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems.<sup>7</sup>

## BIODIVERSITY CREDIT<sup>8</sup>

A tradeable unit that represents a positive biodiversity outcome achieved by a **nature-based solutions** project registered under a **biodiversity credit scheme** that is based on scientifically derived and measurable metrics for **biodiversity**, and which is not used to offset an equivalent negative impact on biodiversity elsewhere.<sup>9</sup>

## BIODIVERSITY CREDIT SCHEME

A program administered by an entity (e.g. an NGO or government entity) to facilitate the issuance and trading of **biodiversity credits** in accordance with the requirements of a common standard and approved scientific methodology.<sup>10</sup>

## BIODIVERSITY OFFSET

A tradeable unit that represents a positive biodiversity outcome achieved by a **nature-based solutions** project registered under a **biodiversity offset scheme** that is based on scientifically derived and measurable metrics for **biodiversity**, and which is used to offset an equivalent negative impact on biodiversity elsewhere arising from project development after appropriate prevention and mitigation measures have been taken in accordance with the mitigation hierarchy.<sup>11</sup>

## BIODIVERSITY OFFSET SCHEME

A program administered by an entity (e.g. an NGO or government entity) to facilitate the issuance and trading of **biodiversity offsets** in accordance with the requirements of a common standard and approved scientific methodology.<sup>12</sup>

## ECOSYSTEM

A dynamic complex of plants, animals, and microorganisms, and their non-living environment, interacting as a functional unit. Examples include deserts, coral reefs, wetlands, and rainforests. Ecosystems are part **natural capital**.<sup>13</sup>

## ECOSYSTEM SERVICES

The benefits people obtain from **ecosystems**, which include the following:

- **Provisioning:** Material outputs from nature (e.g. seafood, water, fibre, genetic material).
- **Regulating:** Indirect benefits from nature generated through regulation of ecosystem processes (e.g. mitigation of climate change through carbon sequestration, water filtration by wetlands, erosion control and protection from storm surges by vegetation, crop pollination by insects).
- **Cultural:** Non-material benefits from nature (e.g. spiritual, aesthetic, recreational, and others).
- **Supporting:** Fundamental ecological processes that support the delivery of other ecosystem services (e.g. nutrient cycling, primary production, soil formation).<sup>14</sup>



**NATURAL  
CAPITAL  
(OR ECOSYSTEM  
ASSETS)**

The stock of renewable and nonrenewable natural resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people.<sup>15</sup>

**NATURE**

The term 'nature' is often used to refer broadly to the concepts of **biodiversity, natural capital, ecosystems** and **ecosystem services**, as well as a number of other terms that have not been defined here (e.g. 'environment' and 'natural resources').<sup>16</sup>

**NATURE-BASED  
SOLUTIONS (NBS)**

Actions to protect, sustainably manage and restore natural and modified **ecosystems** in ways that address societal challenges effectively and adaptively, to provide both human well-being and **biodiversity** benefits.<sup>17</sup>

**NATURE  
MARKET**

A system composed of transactions between separate buyers and sellers, in which the transacted goods or services specifically reflect a stock of **ecosystem assets** or a flow of **ecosystem services** from terrestrial or aquatic ecosystems.<sup>18</sup>

**UNIT-BASED  
NATURE  
MARKET<sup>19</sup>**

Nature markets that are underpinned by the sale and purchase of tradeable units based on scientifically derived and measurable metrics for different aspects of nature (e.g. **biodiversity**) or inputs or outputs that impact on nature, including GHG emissions, freshwater use and pollutants (e.g. chemicals, sediments and plastics).

**UNIT-BASED  
BIODIVERSITY  
MARKET**

Unit-based nature markets that are underpinned by the sale and purchase of tradeable units based on scientifically derived and measurable metrics for **biodiversity** via **biodiversity credit schemes** or **biodiversity offset schemes**.<sup>20</sup>




# Introduction

Biodiversity, which encompasses the living elements of nature, underpins our global economy. Nature is our life support system and 100% of the economy is 100% dependent on nature, but not all of nature's value is recognised in economic activity. Nature markets are a sub-set of the economy where nature is specifically traded and valued. Nature markets make up **\$9.8 trillion worth of goods and services — equivalent to 10 percent of global GDP** privately owned and market-accessible ecosystem assets are worth \$8 trillion.<sup>21</sup> But the explicit value of nature in markets represents a fraction of nature's true value.

Moreover, the significant degradation and loss of species, ecosystems and the benefits that nature provides to people over the last 50 years<sup>22</sup> is evidence of the fact that biodiversity has not been valued appropriately in our economic paradigm. Importantly, the spiritual and cultural value that nature provides to human society is also well recognised but still significantly undervalued.

To date, nature has either been seen as a resource to be extracted or a public good. In particular, actions to protect, regenerate, and steward biodiversity have not been attributed economic value in the traditional sense because they have not been actions that investors may invest in to generate returns. Rather, those actions have largely relied on philanthropic and public funding, which has been insufficient. There is an estimated financing gap of between US\$ 598 billion and US\$ 824 billion per year to address global biodiversity loss.<sup>23</sup>

Many of the same governance and integrity concerns we have seen the VCM grapple with are already being raised in discussions around voluntary biodiversity credit markets. For that reason, it is imperative that this emerging market be built on the lessons from the VCM from the outset, along with consideration of issues specific to biodiversity. Importantly, lessons learned from both the VCM and biodiversity offset schemes have already informed initial guidance on high-level governance and integrity principles for emerging voluntary biodiversity credit markets.<sup>24</sup>



# **The role of law, regulation and policy**



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## The role of law, regulation and policy

Law, regulation, and policy are vital to the proper functioning of any market. For example, until the United Nations Framework Convention on Climate Change was agreed upon in 1992, there were no laws or policy measures in place to limit emissions of greenhouse gases into the atmosphere (GHG), and there was certainly no economic incentive to do so, as GHG emissions were perceived as an environmental externality to economic activity. This international framework laid the groundwork for the development of detailed laws, policy, and regulations over the last 30 years that both impose obligations and provide incentives to the private sector to mitigate climate change by reducing GHG emissions, including through the voluntary carbon market.

The United Nations Convention on Biological Diversity was also agreed in 1992. However, prior to 2022, we had not witnessed the same level of enthusiasm for the development of detailed laws, policies and regulations for market-based approaches to incentivise investment in actions to mitigate biodiversity loss. Rather, in the early 20<sup>th</sup> century, governments began to protect biodiversity, sometimes directly and often indirectly, through the conservation of areas of spectacular natural beauty or critical biodiversity habitats. In almost all cases, the funding for this has been insufficient and has come from public coffers and philanthropy.

Over the last three decades, conservation organisations have collaborated with both public and private sectors to create innovative mechanisms that finance positive biodiversity outcomes. These mechanisms include debt-for-nature swaps, payments for ecosystem services, and commodity certification schemes. However, they have not been sufficient to close the global biodiversity financing gap. As of 2019, current spending on biodiversity conservation was estimated to be between \$124 and \$143 billion per year, leaving an estimated financing gap of between US\$ 598 billion and US\$ 824 billion per year to address global biodiversity loss.<sup>25</sup>

There is increased recognition of the paradox that we are destroying and degrading the very biodiversity that we need for our society and economy to thrive. As a result, there is renewed focus and a global effort to close the biodiversity financing gap, with particular emphasis on the role that market-based mechanisms can play. The recent work of the Taskforce on Nature Markets has highlighted the opportunity to transform current nature markets and develop new market mechanisms with robust governance and integrity. These mechanisms can deliver much-needed positive outcomes for nature and biodiversity, as well as for IPLCs and society more broadly.<sup>26</sup>

In this context, biodiversity credit markets are increasingly being recognised as one mechanism that can drive financing into the protection, regeneration, and stewardship of biodiversity. Drawing on the experience from the development of carbon markets, we know that putting strong governance and integrity measures in place, underpinned by a framework of laws, policies, and regulations, will be a critical enabler in the development of biodiversity credit markets. It is key to realising their potential to unlock private finance and help close the biodiversity financing gap. This is required to give both supply and demand-side market actors the confidence to scale their investment in biodiversity at the pace required to address the biodiversity crisis.

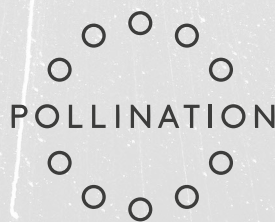




# Understanding different types of unit-based nature markets



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## Understanding different types of unit-based nature markets

Unit-based nature markets provide an important context for understanding how the objectives of the schemes and the implications of different uses of units and claims made by purchasers can inform policy decisions and the design of supporting legislative frameworks for new market-based schemes. There is a suite of unit-based schemes with nature-related outcomes that address one or more of the six planetary boundaries<sup>27</sup> that have been breached: biosphere integrity, climate change,<sup>28</sup> land system change, freshwater use, novel entities and biogeochemical flows.<sup>29</sup> These unit-based nature markets can be characterised by the nature-related outcomes that underpin the units and the use of / claims made by purchasers of the units (refer to Tables 1 & 2 below).

Drawing on this context, this paper focuses on legal, regulatory, and policy considerations relating to the development of unit-based biodiversity markets. This focus is driven by the fact that the emerging biodiversity credit markets are generating significant global interest across both the public and private sectors as a potentially scalable mechanism for private sector investment in nature, arguably second only to unit-based carbon markets.

**Table 1** Relationship between planetary boundaries and unit-based nature markets

PLANETARY BOUNDARY / DESCRIPTION	TYPES OF UNIT-BASED SCHEMES
<p><b>1. BIOSPHERE INTEGRITY</b> (i.e. biodiversity loss) Units represent measurable protection, regeneration or stewardship outcomes for a species / ecosystem</p>	<p><b>Biodiversity offset schemes:</b> Globally, a significant number of compliance schemes use biodiversity units to offset direct development impacts. Refer to sections 3 and 4 below.</p> <p><b>Biodiversity credit schemes:</b> There are emerging voluntary initiatives and pilot projects relating to unit-based voluntary biodiversity markets. Refer to section 3 and 5 below.</p>
<p><b>2. CLIMATE CHANGE</b> Units represent 1 tonne of CO<sub>2</sub> equivalent (CO<sub>2</sub>e) greenhouse gas (GHG) emissions removed or reduced from the atmosphere</p>	<p>Globally, a significant number of voluntary and compliance schemes / standards use carbon units generated by technology &amp; NbS<sup>30</sup> activities.</p> <p><b>Emissions trading schemes (ETS):</b> Examples of well-known national schemes include the European Union ETS and New Zealand ETS.</p> <p><b>Voluntary carbon schemes:</b> Examples of well-known voluntary standards / schemes include the Australian Emissions Reduction Fund, the Verified Carbon Standard and Gold Standard. Refer to section 6 below.</p>
<p><b>3. LAND SYSTEM CHANGE</b> (i.e. including deforestation) Partially addressed by unit-based schemes relating to climate change and biosphere integrity (see above)</p>	<p><b>ETS / voluntary carbon schemes:</b> Globally, a significant number of voluntary and compliance schemes / standards use carbon units created as a result of NbS avoiding deforestation / forest degradation projects. For example, this type of carbon credit can be generated under the Verified Carbon Standard's REDD+ program, the ART-TREES standard and Australia's national scheme.<sup>31</sup></p>
<p><b>4. FRESHWATER USE</b> Units represent an entitlement for the use of a defined volume of water from a specified source</p>	<p><b>Water allocation / trading schemes:</b> Compliance schemes based on the allocation of water units can be used to regulate freshwater water use. For example, a water allocation framework that would be underpinned by tradeable water 'management units' is being considered in the Ruamāhanga catchment in New Zealand.<sup>32</sup></p>



## PLANETARY BOUNDARY / DESCRIPTION

### 5. NOVEL ENTITIES

(i.e. the release of chemicals, including plastics, and organisms, into the environment)

**Chemicals** – Units represent a measurable reduction in chemicals (e.g. pesticides) entering a waterway / catchment area

**Sediments** – Units represent a measurable reduction in sediment entering a waterway / catchment area

**Plastics** – Units represent 1 tonne of plastic waste that has been reduced or avoided from being emitted into the biosphere.

### 6. BIOGEOCHEMICAL FLOWS

(i.e. phosphorus and nitrogen loading through the overuse of chemical fertilisers)  
Units represent a measurable reduction in nutrients entering a waterway / catchment area

## TYPES OF UNIT-BASED SCHEMES

**Water quality schemes:** A voluntary scheme known as the 'Reef Credit Scheme' has been established with the support of the Queensland State Government in Australia. Under the scheme, tradeable units (i.e. 'Reef Credits') are issued to project proponents for improvements to water quality achieved as a result of changes in land management practices.<sup>33</sup> Each unit under the scheme represents a specified volume of nutrient, pesticide or sediment prevented from entering the Great Barrier Reef catchment.<sup>34</sup>

**Plastic reduction schemes:** A voluntary scheme known as the 'Plastics Program' is being administered by the VCS.<sup>35</sup> Under this scheme, tradeable units (i.e. 'Plastic Credits') are issued to project proponents for collecting plastics from the environment or for recycling plastics that would otherwise not have been recycled.

**Water quality schemes:** Refer to the 'Reef Credit Scheme' example at item 5 above, noting that Reef Credits are issued for a specified volume of nutrient, pesticide or sediment prevented from entering the Great Barrier Reef catchment.<sup>36</sup>

**Table 2** Use of / claims made by purchasers of units

UNIT TYPE	USE CASE/S	SUPPORTED CLAIM/S	TYPES OF UNIT-BASED SCHEMES
<p><b>ENTITLEMENT UNIT</b> Objective is to manage the use of a finite natural resource</p>	Compliance	Compliance with regulatory approvals	Water allocation / trading schemes
<p><b>OFFSET UNIT</b> Objective is to achieve a net neutral outcome by offsetting directly offsetting equivalent negative impacts elsewhere</p>	Compliance or voluntary <sup>37</sup>	<p>Compliance with regulatory requirements</p> <p>Offset equivalent direct / supply chain impacts</p>	<p>Biodiversity offset schemes,</p> <p>ETS / voluntary carbon schemes</p> <p>Water quality schemes</p> <p>Plastic reduction schemes</p>
<p><b>CREDIT UNIT</b> Objective is to achieve a net positive outcome without directly offsetting negative impacts elsewhere</p>	Voluntary	<p>Contribution to global systems change in line with planetary boundaries</p> <p>Contribution to systemic nature-related risk mitigation</p>	<p>Biodiversity credit schemes, which aim to improve the overall state of nature and contribute to biodiversity net gain without directly offsetting impacts on biodiversity elsewhere<sup>38</sup></p>



# **Why use unit-based biodiversity markets for investment?**



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## Why use unit-based biodiversity markets for investment?

The unitisation of biodiversity outcomes is a key strength of a market-based approach to biodiversity investment because it provides a clear mechanism for articulating the impact of investments in addressing biodiversity loss and achieving high integrity protection, regeneration and stewardship outcomes over time. The complexity and uncertainty of what to invest in, what to measure and track in terms of outcomes will no longer be barriers to financial investment.

Biodiversity refers to the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems. It includes diversity within species, between species, and ecosystems.<sup>39</sup> The state and changes in state of these complex elements and interactions are challenging to measure. Additionally, biodiversity is highly location-specific. For this reason, the unitisation of biodiversity outcomes in a way that encompasses the complexity of biodiversity, while being pragmatic, verifiable and understandable for both investors and non-experts, is key to unlocking new investment in biodiversity.

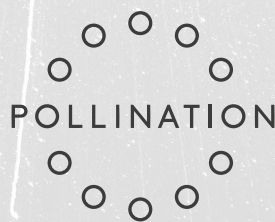
There are commonly accepted approaches to tracking the key characteristics of biodiversity, such as richness, abundance of species, vulnerability of those species and ecosystems, functionality and integrity. These characteristics can be used to define biodiversity baselines and track changes over time, and define those outcomes in the form of tradeable 'units'. However, there is currently no agreement on a universal metric, or suite of metrics that will underpin existing or emerging unit-based biodiversity markets.<sup>40</sup> The trend seems to be moving towards an outcomes-focused approach, where unit-based biodiversity schemes are based on a 'basket of metrics'.<sup>41</sup>



# **Compliance and voluntary unit-based biodiversity schemes**



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## Compliance and voluntary unit-based biodiversity schemes

The role of law, regulation and policy in ensuring biodiversity markets deliver high-integrity outcomes is relevant to both biodiversity offset schemes and biodiversity credit schemes. It is important to note the distinction between these two types of schemes because they are designed to achieve different outcomes (refer to Table 4 and sections 4 and 5 below). Biodiversity offset schemes are driven by a negative impact on biodiversity in one location that is 'offset' by the purchase of biodiversity units intended to represent an equivalent positive impact on biodiversity in another location.<sup>42</sup> By contrast, biodiversity credit schemes are not intended to facilitate the 'offsetting' or compensation of a negative impact on biodiversity, but rather measure 'real' gains for biodiversity.<sup>43</sup>

'Offsetting' is not straightforward in the context of unit-based biodiversity markets because biodiversity is locally specific, and assessing equivalence between positive and negative outcomes in different locations is therefore incredibly challenging. That being said, there has been a significant amount of work over the last two decades on how to do biodiversity offsets at a site level (refer to section 5 below). The learnings from these efforts will inform the development of biodiversity credit markets, but it is important to clearly articulate the principle that biodiversity credits should not be used to support claims that a negative impact elsewhere has been offset.

Biodiversity credit schemes, unlike biodiversity offset schemes, are intended to facilitate private sector investment in the protection, regeneration and stewardship of nature only and are not associated with offsetting or compensating for a negative impact elsewhere.<sup>44</sup> There are two reasons companies might choose to make this kind of investment:<sup>45</sup>

### 1

#### **Contribution to systems change:**

to fulfil a voluntary corporate commitment to contribute to a nature-positive future by 2030<sup>46</sup> by helping to finance the systemic change required to address biodiversity loss and thereby realise that goal.

### 2

#### **Mitigation of nature-related risk:**

to demonstrate positive action towards the mitigation of nature-related risks associated with biodiversity loss to which the company is exposed, and which they will increasingly be expected to disclose under the TNFD framework from 2023.



**Table 3** Key features of biodiversity offset and credit schemes

SCHEME TYPE	USE CASE/S	UNIT TYPE	OBJECTIVE	SUPPORTED CLAIM/S <sup>47</sup>
1. BIODIVERSITY OFFSET SCHEME	Compliance or voluntary <sup>48</sup>	Biodiversity <i>offset</i>	No net loss ( <b>NNL</b> ) of biodiversity or biodiversity net gain ( <b>BNG</b> ) / net positive impacts ( <b>NPI</b> )	Compliance with regulatory requirements  Offset equivalent direct / supply chain impacts
2. BIODIVERSITY CREDIT SCHEME	Voluntary	Biodiversity <i>credit</i>	Positive outcome for biodiversity (not linked to directly offsetting negative impacts elsewhere)	Contribution to global systems change in line with planetary boundaries and nature positive  Contribution to systemic nature-related risk mitigation



# **Key lessons from biodiversity offset schemes**



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## Key lessons from biodiversity offset schemes

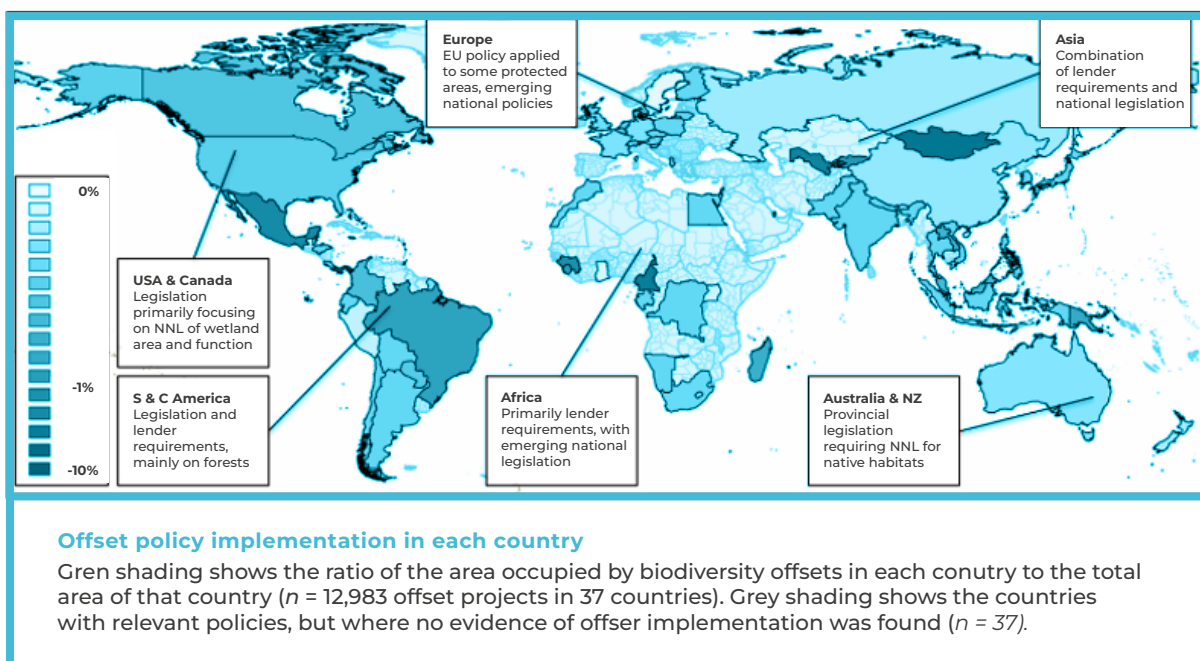
At present, more than 100 countries have either laws or policies in place that require biodiversity compensation or support voluntary compensation measures for direct development impacts. Regulated schemes are more prevalent in the global north as compared to the global south,<sup>49</sup> and over 12,000 biodiversity offsets are in place globally (refer to Figure 1 below).<sup>50</sup>

Biodiversity offsetting is used to compensate for the negative impacts of development on biodiversity, with the objective of achieving No Net Loss (NNL) or Biodiversity Net Gain (BNG) / Net Positive Impact (NPI),<sup>51</sup> either in compliance with regulations or on a voluntary basis. Biodiversity offsets can be broadly defined as ‘measurable conservation outcomes of actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken’.<sup>52</sup>

Typically, project developers are legally obliged to purchase biodiversity offset under government-administered biodiversity offset schemes to compensate for the direct impacts on biodiversity that result from clearing native vegetation for the project.<sup>53</sup> In the absence of government-regulated biodiversity offset schemes, project developers have also increasingly used biodiversity offsetting on a bespoke, voluntary basis from the 2000s,<sup>54</sup> often in accordance and guidance from the Business and Biodiversity Offsets Program.<sup>55</sup> Lender requirements, such as the International Finance Corporation performance standards, are key drivers of the voluntary use of biodiversity offsetting and NNL commitments in the context of direct development impacts.<sup>56</sup>

Importantly, it is widely recognised that biodiversity offsetting should only be used within the framing of the mitigation hierarchy<sup>57</sup> as a tool to manage ‘unavoidable’ impacts on biodiversity.<sup>58</sup>

**Figure 1** Geographic distribution of biodiversity compensation policies



Source: IUCN Global Inventory of Biodiversity Offset Policies<sup>59</sup>



## Case study: England's 2023 10% BNG offset requirement

The United Kingdom Government's Environment Act 2021 introduced a mandatory requirement for biodiversity net gain, which mandates that all planning applications in England must demonstrate how a development will enhance biodiversity and protect habitats from 2023.<sup>60</sup> Developers and landowners are required to assess the value of natural habitats before and after development, and ensure that there is a net gain of at least 10% between the two biodiversity values.<sup>61</sup> This is the most ambitious regulatory requirement for new development globally.

The relevant biodiversity gains can be delivered either on-site or off-site, by securing an appropriate compensation site or via statutory biodiversity credits (i.e. biodiversity offsets), where a development cannot achieve biodiversity net gain either wholly or partly onsite. On-site habitat delivery is incentivised and ascribed a higher biodiversity value than habitat delivered off-site or through statutory biodiversity offsets.<sup>62</sup>

The creation of a new nationwide biodiversity offset market has proved controversial.<sup>63</sup> Although the provision of on-site and like-for-like habitats is encouraged, the English biodiversity net gain scheme allows developers to invest in different habitat types to the ones impacted as a result of development. This has raised concern that some developments that result in the loss of irreplaceable habitats, such as ancient woodland, may still meet the 10% BNG requirement under the scheme.<sup>64</sup>

Despite the prevalence of biodiversity offsets globally, evaluations of their effectiveness of biodiversity offsets "are rare, and most do not use robust methods".<sup>65</sup> Many biodiversity offset schemes have attracted strong criticism for failing to achieve their objective of NNL or BNG / NPI.<sup>66</sup> According to research by the International Union for Conservation of Nature (IUCN), 77% of over 100 countries with biodiversity offset/compensation laws and policies relating to direct development impacts do not properly enforce the mitigation hierarchy. This means that the use of biodiversity offsets are exercised as a measure of last resort (i.e. after avoiding and minimising impacts on biodiversity to the greatest extent possible).<sup>67</sup> As noted above, it is very challenging to determine equivalence between negative impacts on biodiversity in one location and positive impacts on biodiversity in another location, a fundamental pre-requisite for ensuring at least NNL of biodiversity.

In that respect, one of the key criticisms of biodiversity offset schemes relates to the fact that many schemes rely on calculating the 'gains' (i.e. positive biodiversity impacts) that underpin biodiversity offsets in relative terms (i.e. based on a predicted future trend of biodiversity decline), rather than in absolute terms (i.e. real increases over time compared to the current state). According to Simmonds et al, "[t]he problem with relying on relative gains occurs when compensation activities seek to protect or manage existing biota (e.g. a site containing a particular ecosystem) to avert its anticipated future loss. If used to counterbalance a loss, the absolute outcome of this averted loss offsetting will be a net loss for biodiversity compared with when the decision is made, since there is no increase in biota over time—the "gain" is simply the prevention of a predicted decline".<sup>68</sup>

## Case study: Criticisms of Australia's biodiversity offset schemes / policy

Australia has biodiversity offset schemes in place at the national and subnational (i.e. State) levels, and these are some of the longest-running schemes of this kind in the world. Unfortunately, a series of reviews into their efficacy have demonstrated the difficulty in applying offset schemes to achieve real NNL outcomes.

A review conducted in 2020 of Australia's national biodiversity legislation concluded that the mitigation hierarchy is not being properly applied. The review highlighted that "some developers see offsets as something to be negotiated from the outset, rather than making a commitment to proper exploration of options to avoid or mitigate impacts".<sup>69</sup> In addition, the review found that most offsets subject to the scheme are averted loss offsets, which provide only weak protection of remnant habitats that may never have been at risk of development.<sup>70</sup>

The biodiversity offsets scheme in the State of New South Wales has also attracted significant criticism for its negligible impact on biodiversity outcomes. A review of the scheme in 2022 found that it lacks clearly articulated goals and performance measures to set out how sites are expected to contribute to biodiversity outcomes in line with the relevant legislation.<sup>71</sup> The report also identified transparency issues and inadequate mechanisms to monitor and measure biodiversity outcomes at sites.<sup>72</sup> This creates a risk that biodiversity gains made through the scheme will not be sufficient to offset losses resulting from development.

A similar biodiversity offset scheme in the State of Victoria has received criticism for failing to achieve its objective of NNL of biodiversity from native vegetation clearing on private land.<sup>73</sup> According to a review of the scheme in 2021, the native vegetation calculator used to assess offset requirements is fundamentally flawed because it lacks a key input – habitat distribution models – for 477 threatened species, which account for 25 per cent of all threatened species in Victoria. Therefore, for those species, the calculator is unable to identify sufficient offset requirements,<sup>74</sup> and the number of offset credits that landowners are required to purchase would not fully compensate for the loss of threatened species and their habitats. Additionally, the review found that reporting on the efficacy of the scheme did not focus on quantitative performance indicators such as net biodiversity loss or gain from native vegetation clearing but instead focused on outputs and process.<sup>75</sup>

The analysis of the UK and Australian biodiversity offset schemes shows that there are serious failings in driving NNL and BNG / NPI outcomes using biodiversity offsets as compensation for the negative impacts on biodiversity from site-based development. This is partly due to the complexity of the schemes, but also due to the lack of incentives to apply the mitigation hierarchy.

The scope for these schemes to contribute to absolute biodiversity improvement and a nature-positive trajectory is limited by the following important factors:

## 1

**Inherent biodiversity loss:** these schemes are designed primarily to facilitate development and therefore they are inherently predicated on an accepted loss of biodiversity, provided that the projected loss can be “offset” at a different location.

## 2

**Limited impacts addressed:** the NNL or marginal BNG / NPI objectives related to direct impacts on biodiversity under these schemes are insufficient to deliver the positive biodiversity outcomes required to contribute to a nature-positive future. Companies have negative impacts on biodiversity not only through their direct operations (including activities beyond the clearing of native ecosystems) but also through their value chains. Biodiversity offset schemes are designed only to compensate for direct impacts on biodiversity, and as a result, their scope is limited in addressing these impacts.

To prevent further biodiversity declines resulting from direct impacts of development, significant strengthening of legal requirements and increased rigour in implementing biodiversity offset schemes is necessary. However, due to the fundamental premise underpinning these schemes, biodiversity offsets are not a viable mechanism to address broad-scale biodiversity loss. Instead, with improvements, they may be used to compensate for some direct impacts on biodiversity.

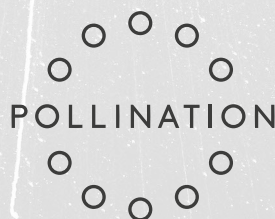




# **Overview of emerging voluntary biodiversity credit markets**



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# Overview of emerging voluntary biodiversity credit markets

Biodiversity credit markets are likely to develop in two ways:

## 1

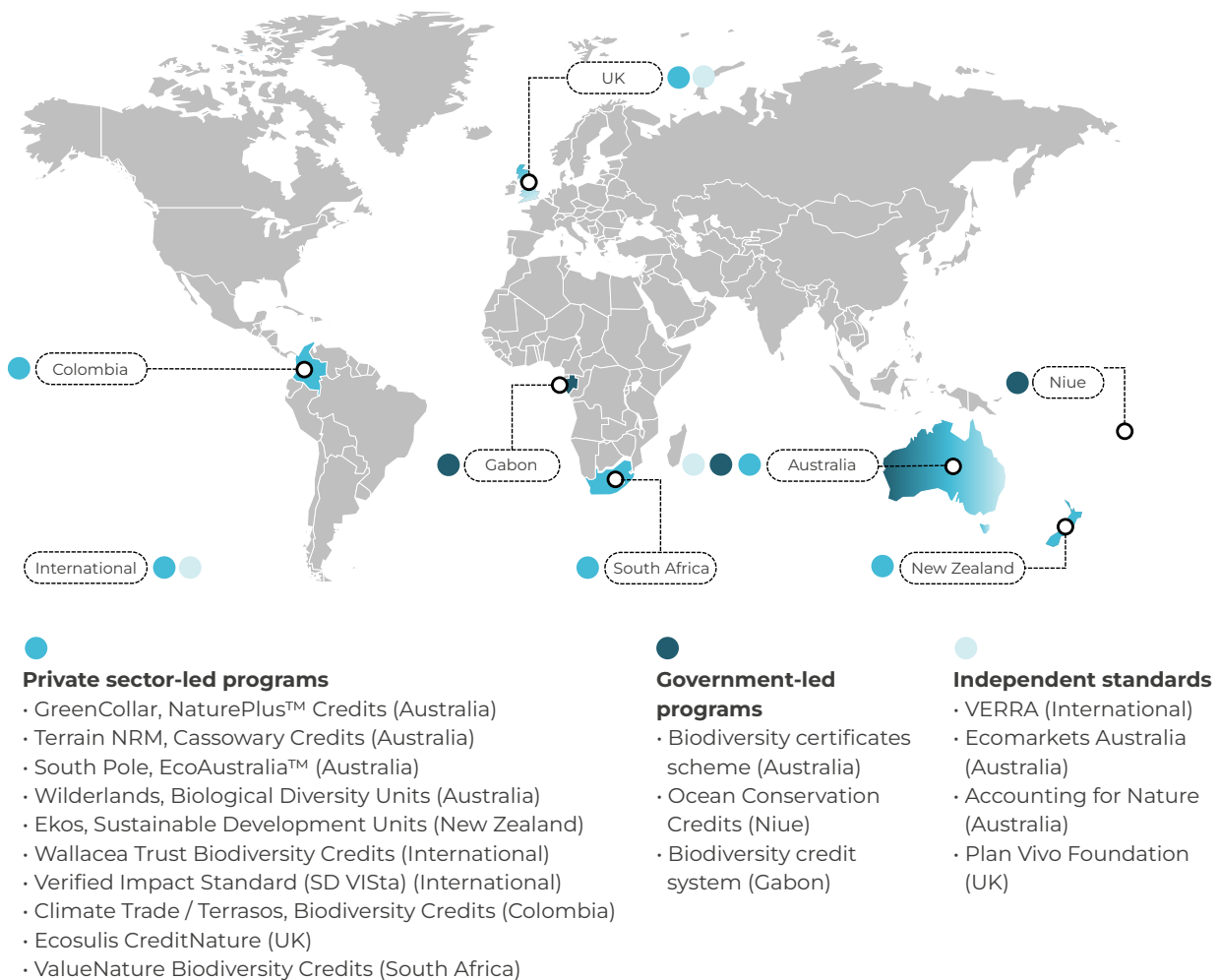
**Private sector-led:** Private sector actors or NGOs may administer these schemes under voluntary standards.

## 2

**Government-led:** National or subnational governments may administer these schemes under legislation or policy.

Both approaches are already starting to play out globally (refer to Figure 2).

**Figure 2** Global biodiversity credit market initiatives<sup>76</sup>



Current international governance and integrity initiatives include the Taskforce for Nature Markets, WEF Financing for Nature Global Initiative and IUCN Global Standard for Nature Based Solutions.

In relation to private-sector-led schemes, the recent paper on biodiversity credit markets by the World Economic Forum identified a number of initiatives underway and included four case studies:<sup>77</sup>

1

**New Zealand:** “sustainable development units” purchased by a supply chain business to fund verified biodiversity outcomes in a mountain sanctuary – not considered as offsets.

2

**Colombia:** “voluntary biodiversity credits” sold by the Spectacled Bear Habitat Bank to conserve the Bosque de Niebla cloud forest, home to a number of endangered species.

3

**Australia:** sale of EcoAustralia™ credits, each of which combines one “Australian biodiversity unit” (ABU) with one tonne carbon credit (issued by Gold Standard). Each ABU represents 1.5 square metres of habitat protection.

4

**Global:** a working group convened by the Wallacea Trust has developed an open-source biodiversity credit methodology that applies to all ecoregions worldwide. It specifies a basket of at least five metrics, awarding one credit per 1% of measurable uplift or avoided loss per hectare.

In relation to government-led schemes, the Governments of Niue, Australia and Gabon have signalled their interest in facilitating the development of biodiversity credit markets.

### Case study: The Niue Government’s support for an Ocean Conservation Credit scheme<sup>78</sup>

On 12 July 2022, the Government of Niue’s delegation to the 51st Pacific Islands Forum presented its Ocean Conservation Credit (OCC) at the Blue Pacific Leaders Ocean Panel.

There is limited information available about the OCC scheme, but in a media release the Government of Niue has described OCCs as “*a new environmental instrument to monetise elements of some of the cost and benefits arising in its ocean space to help fund Niue’s broader adaptation, resilience and sustainable blue economy*”.

Niue has signalled that it “*needs early anchor investors in the OCCs, to leverage global markets in the Ocean protection, biodiversity and climate finance space*”. The Government of Niue and some philanthropic partners have already committed to supporting early purchases of OCCs, and Niue is hoping to secure additional key bilateral partners for this purpose as well.



## Case study: The Australia Government's proposed biodiversity certificate scheme

The Australian Government is currently developing a new legislative framework to support a national voluntary biodiversity market called the “Nature Repair Market” scheme.<sup>79</sup> 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<sup>80</sup> has recently ended, the Government has outlined the foundational elements that the legislation will likely cover.<sup>81</sup>

The key principle of the Nature Repair Market scheme is that biodiversity projects must enhance or protect native biodiversity. This can be done in a number of ways, such as planting local species on previously cleared land and protecting habitats for endangered species. A biodiversity certificate would be issued for the project if it meets certain requirements, which could then be traded on a voluntary credit market.

The Australian Government acknowledges that maintaining integrity is paramount to ensure that the national voluntary biodiversity market operates effectively.<sup>82</sup> To this end, the legislation would establish an expert advisory committee to provide advice and recommendations on compliance with biodiversity integrity standards. Additionally, an independent regulator would administer a compliance and assurance system.

In June 2022, the Minister of Environment, Water and Forests of Gabon stated: “We will start working on a biodiversity credit system like carbon credits. The Congo Basin is the heart and lungs of Africa, and it helps to maintain the stability of our continent. Surely we can put a price on this service and put a value on this equatorial forest”.<sup>83</sup>

**Biodiversity  
Credit  
Markets**



**Legal, regulatory  
and policy  
considerations  
for biodiversity  
credit markets**



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## Legal, regulatory and policy considerations for biodiversity credit markets

Many of the same governance and integrity concerns that have been raised in discussions around voluntary carbon markets (**VCM**) are also being discussed in the context of voluntary biodiversity credit markets. These include, but are not confined to, the following:

Who holds the legal rights in the biodiversity and land / seas that underpin a biodiversity credits project and biodiversity credit?

What legal infrastructure is required to enable the administration of biodiversity credit schemes?

Should biodiversity credits be regulated as financial products?

How can we mitigate the risk of 'greenwashing' litigation and enforcement action against purchasers of biodiversity credits?

Buyers, investors, and regulators are continually advocating for increased integrity of the VCM, including in relation to Nature-based Solutions (NbS) carbon credits.<sup>84</sup> It is imperative to build the emerging biodiversity credit markets on the lessons learned from the VCM, along with consideration of issues that are specific to biodiversity, from the outset. This is necessary not only to avoid perverse outcomes but also to instil confidence in the market. Biodiversity credit markets must develop under a strong governance framework that cuts across law, regulation, policy and soft governance approaches.<sup>85</sup>

**Table 4** High-level considerations and levers

CONSIDERATION	DESCRIPTION OF CONSIDERATION	LEVER
<b>1. INTERNATIONAL BIODIVERSITY FRAMEWORK</b>	International policy frameworks have the potential to establish high-level rules for biodiversity credit markets. In addition, host governments and participants in the biodiversity credit market will require clarity with respect to how positive biodiversity outcomes delivered from private sector investment in biodiversity credits are accounted for at a national level.	<ul style="list-style-type: none"> <li>· International agreements / conventions</li> </ul>
<b>2. SCHEME DESIGN &amp; ADMINISTRATION</b>	Government-led biodiversity credit schemes will require governments to administer schemes in accordance with standard and scientific methodologies underpinned by relevant laws or policies. Private sector-led biodiversity credit schemes, on the other hand, are likely to involve both government and industry-led governance initiatives in scheme design and administration.	<ul style="list-style-type: none"> <li>· National / subnational policy</li> <li>· National / subnational legislation</li> <li>· Stakeholder-led governance (e.g. integrity principles<sup>86</sup> or an overarching standards body<sup>87</sup>)</li> </ul>
<b>3. LEGAL RIGHTS TO BIODIVERSITY &amp; LAND / SEAS</b>	In order for biodiversity credits to be validly sold and purchased by different entities, the initial seller must prove that they have the underlying legal right: <ul style="list-style-type: none"> <li>· to the biodiversity represented by the credit; and</li> <li>· to carry out the activities on the land / seas in accordance with the relevant biodiversity credit scheme.</li> </ul>	<ul style="list-style-type: none"> <li>· National / subnational legislation</li> <li>· National / subnational customary law</li> </ul>
<b>4. SAFEGUARDS FOR IPLCs</b>	Given that biodiversity credit projects will be based on land and sea, it is necessary to ensure that safeguards are in place to protect the interests of IPLCs, including the need for Free, Prior and Informed Consent (FPIC) and meaningful benefit sharing.	<ul style="list-style-type: none"> <li>· International agreements / conventions</li> <li>· Civil society guidance</li> <li>· National / subnational policy</li> <li>· National / subnational legislation</li> <li>· Stakeholder-led governance (e.g. integrity principles or an overarching standards body)</li> </ul>
<b>5. INTEGRITY OF CLAIMS</b>	Low integrity of claims made by purchasers of biodiversity credits regarding their use is likely to face increasing scrutiny by civil society and consumer protection agencies, creating a risk of enforcement action and litigation.	<ul style="list-style-type: none"> <li>· National / subnational policy</li> <li>· Regulation by non-government actors</li> <li>· Litigation</li> <li>· Stakeholder-led governance (e.g. integrity principles or an overarching standards body)</li> </ul>
<b>6. INTEGRITY OF FINANCIAL MARKETS</b>	The trading of biodiversity credits or derivatives may be regulated under financial services legislation and enforced by corporate and financial services regulators in order to manage risks relating to insider dealing, market manipulation, and money laundering, amongst others.	<ul style="list-style-type: none"> <li>· National / subnational legislation</li> <li>· Regulation by non-government actors</li> </ul>

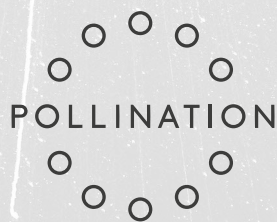




# **Discussion of governance considerations**



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## Discussion of governance considerations

### INTERNATIONAL FRAMEWORK

The Global Biodiversity Framework does not establish the international framework for biodiversity credit markets in the same way as the Paris Agreement has done for international carbon markets under Article 6. However, Target 19 of the Global Biodiversity Framework expressly refers to biodiversity credits as a potential mechanism for financial resource mobilisation.<sup>88</sup>

This sends a powerful signal to the private sector about the opportunity for investment in nature through biodiversity credit markets. Setting the international rules for biodiversity credit markets should be prioritised in future CBD negotiations and protocols to help mainstream the use of private capital to achieve positive biodiversity outcome and set universal expectations around scheme design and safeguards for IPLCs, including the need for FPIC and meaningful benefit sharing.<sup>89</sup> This could potentially involve establishing a global biodiversity credit regulator under the GBF.<sup>90</sup>

Another complicating factor in the VCM is how climate mitigation outcomes, delivered via private sector investment in carbon credits, are accounted for at a national level. That is, it raises questions such as whether emissions reductions or removals financed by private sector actors purchasing carbon credits can be counted towards a country's nationally determined contribution under the Paris Agreement, and whether corresponding adjustments to national GHG inventories under the Paris Agreement are required to account for the purchase and export of emissions reductions or removals by private sector actors. This issue may also be relevant to biodiversity outcomes financed by private sector investment into biodiversity credits.

While biodiversity credit markets are one mechanism that governments could use to leverage private sector finance to help deliver the global biodiversity targets at a national level, this approach could raise questions about the appropriateness of both a corporate buyer of biodiversity credits and a national government claiming for the same conservation outcomes under the Global Biodiversity Framework. Without international agreement on how to address this issue, national governments can provide certainty to the private sector on this point through policy or legislation from the outset.

This issue of 'double claiming' could also arise if one country seeks to contribute to the global biodiversity targets by funding biodiversity outcomes in another country, potentially through a biodiversity credit market mechanism.<sup>91</sup> If this type of arrangement were to occur, it would be important for the participating countries to clearly define, contractually, which of them would have the right to claim responsibility for the relevant conservation outcomes.

## SCHEME DESIGN AND ADMINISTRATION

At a national or subnational level, scheme design and administration will be key to scaling biodiversity credit markets in a way that supports investor confidence and equitable outcomes for all stakeholders, including IPLCs. Governments can play one of two primary roles in scaling biodiversity credit markets:

# 1

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**Market administration:** Establishing a government-led biodiversity credit scheme and playing an active role in market administration.

# 2

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**Market enablement:** Establishing the necessary conditions to support the take up of private-sector led biodiversity credit schemes that are administered by a non-government entity (e.g, NGOs).

For both government-led and private-sector-led approaches to the development of outcomes-based<sup>92</sup> biodiversity credit markets, the scheme administrator will need to carry out the following key functions to support primary market transactions (amongst others):<sup>93</sup>

# 1

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**Registry:** Develop and administer a registry for projects and credits.

# 3

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**Method(s):** Approval of scientific methodologies to generate biodiversity credits, which set out:

- Type(s) of land on which the methodology can be applied.
- Activities that are required to improve biodiversity outcomes.
- Monitoring requirements to measure biodiversity outcomes.

# 2

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**Standard:** Develop an overarching standard setting out project and proponent eligibility requirements, taking into account the following:

- Whether the outcomes of the project are likely to be additional.
- Whether the project proponent is a fit and proper person to carry out the project.
- Whether the project proponent has the legal rights to biodiversity and land to carry out the project.
- Whether the project proponent has obtained the free, prior and informed consent of IPLCs and put in place appropriate benefit sharing arrangements with IPLCs<sup>94</sup>

# 4

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**Registration:** Approval and registration of projects in accordance with the overarching standard and applicable methodology requirements.

# 5

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**Verification:** Independent auditing verification of reported outcomes.

# 6

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**Issuance:** Issuance of biodiversity credits via the registry.

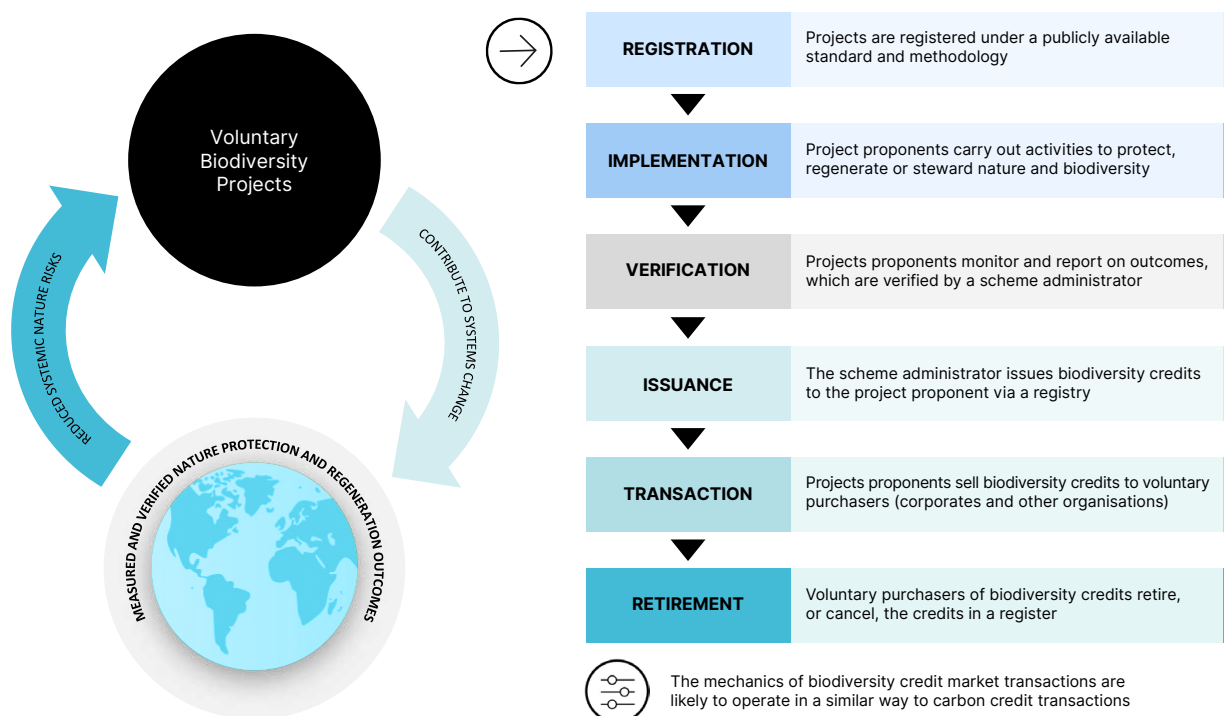
# 7

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**Cancellation:** Facilitation of trading and cancellation of biodiversity credits via the registry.

For context, Figure 3 below illustrates how primary biodiversity credit transactions could be structured.<sup>95</sup>

**Figure 3** Potential steps in a primary biodiversity credit transaction



National or subnational governments that choose to play a market administration role will have the responsibility of establishing and administering the elements of a biodiversity credit scheme to facilitate transactions as outlined above. This can be done via either legislation or policy. Note that an approach that utilises legislation is likely to provide more certainty to the market and therefore drive greater investment.



## LEGAL RIGHT TO BIODIVERSITY AND LAND / SEA

In jurisdictions without legislation dealing expressly with the ownership of legal rights to biodiversity and land / seas, interpretation of common law and customary law may be required to determine whether the initial seller of a biodiversity credit has either the underlying legal right: (1) to the biodiversity represented by the credit; or, (2) to carry out the activities on the land / seas in accordance with the relevant biodiversity credit scheme. In such circumstances, potential buyers of biodiversity credits may be unwilling to pay for the assets due to lack of certainty regarding the legal rights underpinning the asset.<sup>96</sup>

Lack of clarity concerning the ownership of carbon and land / sea rights has also presented some challenges for the development of the VCM, and some jurisdictions have passed legislation clarifying the ownership of these rights for that reason. To support the development of biodiversity credit markets, legislation that clearly attributes legal rights to biodiversity and land / seas could also be enacted. Consideration of IPLCs' rights in this context will be critical, including under customary law.<sup>97</sup>

## SAFEGUARDS FOR IPLCS

Over the past decades, a number of safeguards have been developed to protect the rights of IPLCs in relation to NbS carbon credits, through trial and error, and adjustments have been made to address integrity risks in the VCM. These safeguards are implemented through transparent and independent governance processes and address the following principles with respect to IPLC engagement with NbS projects: free, prior and informed consent (**FPIC**), benefit-sharing mechanisms, equitable participation, power sharing, recognition and security of rights, and clarity of responsibilities.<sup>98</sup>

These safeguards should be adopted in the development of biodiversity credit markets<sup>99</sup> through international frameworks and in accordance with existing guidance from civil society, including the IUCN Global Standard for Nature-based Solutions<sup>100</sup> and 'High-level governance and integrity principles for emerging voluntary biodiversity credit markets'.<sup>101</sup> In addition, clear policy or legislative guidance at the national or subnational level in relation to IPLC safeguards could go further than existing expectations by, for example, setting a minimum requirement for benefit sharing with IPLCs.

This area also presents an interesting case study regarding the possible intersection of the development of biodiversity credit schemes with other significant legal trends in the nature space. One potential consideration in this regard relates to the potential interaction between biodiversity credit projects and the recognition of legal rights for nature.

## **Case study: The intersection of nature and biodiversity credit markets and legal rights of nature**

NbS projects generally require the full and effective participation of all relevant stakeholders, including IPLCs.<sup>102</sup> In particular, obtaining FPIC helps ensure that a project does not cause harm to local communities. Any benefits arising from NbS projects, such as finance from the protection, regeneration, or stewardship of ecosystems and biodiversity, should also be shared with IPLCs. Failure to obtain FPIC and undertake fair benefit-sharing can lead to significant financial and reputational damage to project proponents and investors.

At the same time, there is a growing trend of jurisdictions recognising legal rights for nature. This is based on the understanding that ecosystems and natural features are not merely property that can be owned by human beings, but are entities that have a legal right to exist and thrive. Such rights can be enforced by people, governments, and communities on the ecosystem or natural feature's behalf. As a result, FPIC and benefit-sharing requirements could soon be extended to nature itself.

Article 71 of the Ecuadorian constitution grants all people the right to call upon public authorities to enforce the rights of nature.<sup>103</sup> Communities in the United States have implemented rules granting ecosystems the right to clear air, water and soil.<sup>104</sup> In New Zealand, the Te Urewera forest-rich region<sup>105</sup> and the Whanganui River<sup>106</sup> have both been granted legal personhood with associated rights and powers. In both cases, a custodian board has been appointed to enforce the rights of the natural feature, and may grant concessions (for example a permit or easement) only if the activity promotes the wellbeing of the natural feature.

Accordingly, if an NbS project to generate, for example, carbon or biodiversity credits is carried out on land that includes a natural feature with legal personhood, consent would likely need to be sought from the relevant community on behalf of the natural feature. In the New Zealand example, such consent would likely only be provided if the project could demonstrate the improvement of the health of the natural feature to the satisfaction of the custodian board. With regards to benefit-sharing, a percentage of the financial benefits received from the project could be allocated to ensure the natural feature's future protection and regeneration, above and beyond the activities of the project.

## INTEGRITY OF CLAIMS

The integrity of claims made by purchasers of carbon credits in relation to their use is under increasing scrutiny by civil society and consumer protection agencies, creating a risk of enforcement action and litigation. For example, in the Netherlands, Shell has been reprimanded twice by the national consumer protection agency for advertising 'CO2-neutral' car petrol and claiming the use of carbon credits as 'CO2 compensation'.<sup>107</sup> Dutch airline KLM is also facing a court action for violating consumer law with its 'CO2 compensation' marketing.<sup>108</sup>

These governance levers operate outside the realm of government policy and legislation. Nevertheless, they are likely to be important factors in shaping the development of biodiversity credit markets, alongside carbon markets. Considerations for the validity of claims in relation to biodiversity credit markets are likely related to:

circumstances which may lead to double claiming of the same outcome (e.g. whether both a government and a private sector purchaser of biodiversity credits can claim the same biodiversity outcome);<sup>109</sup>

whether biodiversity outcomes represented by biodiversity credits can be transferred internationally;<sup>110</sup>

whether a private sector purchaser of biodiversity credits can claim to have used those credits to 'offset' their negative impacts on biodiversity elsewhere; and<sup>111</sup>

whether carbon and biodiversity outcomes achieved by the same NbS project can be unitised and sold separately with corresponding claims.

To alleviate greenwashing concerns that could prevent private sector investment at scale in biodiversity credit markets, governments could collaborate with consumer protection agencies to develop clear guidance for eligible claims associated with the use of voluntary biodiversity credits.

## INTEGRITY OF FINANCIAL MARKETS

In a number of jurisdictions, both primary and secondary carbon markets are subject to regulation under financial services legislation by corporate and financial services regulators to prevent market abuse (e.g. insider dealing, market manipulation, and money laundering). This includes the EU and Australia.

### **Case study: EU regulation of the primary and secondary emissions allowance market<sup>112</sup>**

Emission allowances traded under the US ETS have been classified as financial instruments since January 2018. Prior to that, only the derivative contracts of emission allowances were within the scope of financial market rules.

The European Commission has explained that the rules of the Markets in Financial Instruments Directive and Regulation enhance the overall transparency of the carbon market, both in terms of publicly available data for all participants and information submitted to supervisors. The application of the rules also ensures the ability of supervisors to act swiftly and decisively on cases of misconduct, unfair treatment of clients, and threats to the orderly functioning of the market. Anti-money laundering safeguards (e.g. know-your-customer checks) are also extended to all segments of the carbon market.

Although biodiversity credit markets are nascent, biodiversity credits also represent a financial asset that can be traded and securitised in the same way as carbon credits. Therefore, regulating biodiversity credit markets under financial services legislation from the beginning could help to provide the robust level of oversight required to prevent market abuse as markets mature and participants move towards secondary trades, securitisation and derivative products.





# **Potential legal enablers for scaling biodiversity credit markets**



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## Potential legal enablers for scaling biodiversity credit markets

There are several potential ways to create an enabling environment to scale private sector investment in biodiversity credit markets:

**1**

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Mandatory preparation and disclosure of natural capital accounts.

**2**

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Mandatory disclosure of nature / biodiversity- related financial risks.

**3**

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Imposition of a nature / biodiversity tax and trading system.

The potential drivers for investment for each of these legal enablers are set out in Table 5 below, along with a short description.

**Table 5**

Potential legal enablers for scaling biodiversity credit markets

ENABLER / DRIVER	DESCRIPTION
<p><b>1. MANDATORY NATURAL CAPITAL ACCOUNTING</b>  <b>Indirect investment driver:</b> Increased stakeholder scrutiny of impacts and dependencies on nature</p>	<p>In the same way corporations have legislative obligations to prepare annual GHG gas inventories and report their GHG emissions to governments,<sup>113</sup> they could be required to prepare periodic natural capital accounts for real assets within their sphere of control and report on natural capital trends for those assets to governments.</p> <p>For example, the TNFD has endorsed the preparation of natural capital accounts by corporates to assess the state of nature, stating: “Environmental accounting standards, such as, but not limited to, those provided by Accounting for Nature,<sup>114</sup> generally require the measurement of the actual condition of an environmental asset through the use of earth observation, sensors, field observations, eDNA and other data gathering options and technologies.”<sup>115</sup></p> <p>Requiring corporations to monitor and report on the state of nature within their sphere of control by preparing natural capital accounts would increase internal awareness of adverse impacts on nature caused by their direct operations (if there is a negative trend over time). It would also increase stakeholder scrutiny if that information is made publicly available. This, in turn, would indirectly increase pressure on corporates to demonstrate that they are contributing to positive outcomes for nature, which could be achieved through the purchase of biodiversity credits.</p>
<p><b>2. MANDATORY NATURE RISK DISCLOSURES</b>  <b>Indirect investment driver:</b> Increased stakeholder scrutiny of impacts and dependencies on nature and associated financial risks</p>	<p>Since their publication in 2017, the TCFD recommendations have been widely adopted. Countries such as the UK, New Zealand Brazil, the EU, Hong Kong, Japan, Singapore and Switzerland have committed to making Taskforce on Climate-related Financial Disclosures (TCFD) reporting mandatory.<sup>116</sup></p> <p>As the TCFD has done for climate-related financial risks, the TNFD is intended to provide a framework for the disclosure of nature-related financial risks by banks, investors and corporates. Governments could also make TNFD reporting mandatory starting from 2030 when the TNFD’s final recommendations are expected to be made public.</p> <p>Making TNFD disclosures mandatory for corporations would increase internal awareness of adverse impacts of their activities on nature, both in their direct operations and supply chains. The disclosure of this information would also increase stakeholder scrutiny, as it would become publicly available. This would indirectly increase pressure on corporates to demonstrate their investment in positive outcomes for nature, thus mitigating their exposure to systemic nature-related risks. One way to do this is through purchase of biodiversity credits.</p>
<p><b>3. NATURE / BIODIVERSITY TAX</b>  <b>Direct investment driver:</b> Compliance with legal obligations to facilitate government investment</p>	<p>Governments could impose a nature / biodiversity tax on corporates that have a negative impact on nature and biodiversity. Eugenie Mathieu, Senior ESG Analyst &amp; Earth Pillar Lead, at Avia Investors, has argued that: ‘Unlike carbon taxes, a single “biodiversity tax” is likely to be unworkable due to the complexity of the issue. But governments still have ways to ensure externalities related to biodiversity loss are reflected on company balance sheets: taxes on nature-destructive activities such as fish consumption or travel on cruise ships would help shift corporate behaviour’.<sup>117</sup></p> <p>However, one way to conceive a broader approach to imposing a nature / biodiversity tax would be to hold companies liable for negative impacts on the state of nature at real assets within their sphere of control based on the periodic disclosure of natural capital accounts (as described in item 1 above).</p> <p>The tax could, for example, be based on a proportion of a company’s revenue relative to its negative impacts on natural capital values, or on the projected cost of restoring lost natural capital values if a company fails to do so within a specified period of time. The proceeds from the tax could then be applied by the government to fund the purchase of biodiversity credits from projects in accordance with government priorities, such as meeting an international commitment to protect 30% of the country’s land and oceans.<sup>118</sup></p> <p>This approach would serve as an incentive for corporates to reduce their negative impacts on nature at real assets within their sphere of control, while also providing the government with funding to invest in biodiversity protection, regeneration and stewardship outcomes in priority areas through biodiversity credit markets.</p>

These options are not mutually exclusive and, in fact, have the ability to be mutually reinforcing. For example, natural capital accounting and disclosure obligations can underpin a nature / biodiversity tax regime. Although there are no well-known examples of broad nature / biodiversity tax regimes having been implemented globally, we are already starting to see movement in relation to mandatory TNFD / biodiversity risk reporting.

The head of the UN Convention of Biological Diversity, Elizabeth Maruma Mrema has called for mandatory TNFD disclosures.<sup>119</sup> Speaking in relation to the UK's position on mandatory TNFD disclosure, Zac Goldsmith, Minister for the Pacific and the International Environment, has also stated: 'It's not yet government policy, but I'm absolutely convinced it will be at some point soon'.<sup>120</sup> Furthermore, France has already legislated for mandatory biodiversity risk disclosures from 2022.

### **Case study: Mandatory disclosure of nature and biodiversity-related financial risks**

France has implemented a world-leading law that mandates financial institutions to disclose risks related to biodiversity.<sup>121</sup> This law applies the concept of 'double materiality', requiring financial institutions to report on both physical risks (i.e. their dependency on nature) and transition risks (i.e. their impact on nature).

From 2022, financial institutions must establish and disclose a strategy for reducing their impacts on biodiversity, including objectives to be achieved by 2030 that align with the targets set out in the Convention on Biological Diversity.<sup>122</sup> Institutions must analyse how they are contributing to the reduction of biodiversity impacts identified by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.

Having conducted this analysis, institutions must develop an action plan to reduce their exposure to environmental, social and governance risks identified. They must also disclose information on the steps they have taken to incorporate environmental, social and governance criteria in their risk management framework.<sup>123</sup>

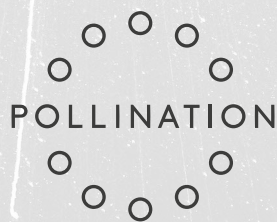




# **Conclusion and recommendations**



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## Conclusion and recommendations

As biodiversity credit markets scale and mature, strong governance frameworks will be important to ensure that they reach their potential and do not result in perverse outcomes. All stakeholders have a role to play in achieving this outcome, and legal, regulatory and policy actions can help to ensure high integrity outcomes in line with the following high-level principles and recommendations:

PRINCIPLE	DESCRIPTION	KEY STAKEHOLDER/S
<b>1. BIODIVERSITY CREDIT MARKETS</b>	Global efforts should focus on the development of biodiversity credit markets as a market-based mechanism to help achieve the goals of the Global Biodiversity Framework. These should be distinct and separate from any biodiversity offset markets and schemes.	<ul style="list-style-type: none"> <li>• National governments</li> <li>• IPLCs</li> <li>• Private sector</li> <li>• Civil society</li> </ul>
<b>2. INTERNATIONAL BIODIVERSITY FRAMEWORK</b>	The development of biodiversity credit markets should be coherent with Target 19 in the Global Biodiversity Framework and the associated resource mobilisation strategy. Biodiversity credit markets should be viewed, governed and regulated at the international level as one of a suite of mechanisms that drive financing into the protection, regeneration and stewardship of biodiversity through supporting the local stewards of biodiversity, including IPLCs.	<ul style="list-style-type: none"> <li>• National governments</li> <li>• IPLCs</li> <li>• Private sector</li> <li>• Civil society</li> </ul>
<b>3. THE ROLE OF PUBLIC POLICY</b>	Governments should proactively determine whether they will play a market administration or market enablement role in the development of biodiversity credit markets. In either case, governments should consider legislating to clarify the ownership of legal rights to biodiversity and land / seas to provide legal certainty for biodiversity credit markets. This would ensure clarity on the ‘right to claim’ upon the purchase or trade of a biodiversity credit. Consideration of IPLCs’ rights in this context will be critical, including under customary law.	<ul style="list-style-type: none"> <li>• National and subnational governments</li> <li>• IPLCs</li> <li>• Private sector</li> </ul>
<b>4. SAFEGUARDS FOR IPLCs</b>	IPLC safeguards developed through the VCM should be adopted and enhanced in the development of biodiversity credit markets through international frameworks and in accordance with existing guidance from civil society, including the IUCN Global Standard for Nature-based Solutions <sup>124</sup> and ‘High-level governance and integrity principles for emerging voluntary biodiversity credit markets’. <sup>125</sup> IPLC safeguards and outcomes should be essential elements of the verification process for biodiversity credit schemes.	<ul style="list-style-type: none"> <li>• National and subnational governments</li> <li>• IPLCs</li> <li>• Private sector</li> <li>• Civil society</li> </ul>
<b>5. INTEGRITY OF CLAIMS</b>	Governments and consumer protection agencies should develop clear guidance with regard to eligible claims associated with the use of voluntary biodiversity credits. While this guidance may have some specific jurisdictional characteristics, there should be coherence across all jurisdictions on critical elements, including IPLC safeguards and the separation of land ownership from the ‘right to claim’ for the purchase or trade of a biodiversity credit.	<ul style="list-style-type: none"> <li>• National and subnational governments</li> <li>• Private sector</li> <li>• Non-government regulators</li> <li>• Civil society</li> </ul>
<b>6. INTEGRITY OF FINANCIAL MARKETS</b>	To prevent market abuse as markets mature and participants move towards secondary trades, securitisation and derivatives, governments and financial services regulators should ensure the regulation of biodiversity credits as financial instruments.	<ul style="list-style-type: none"> <li>• National and subnational governments</li> <li>• Private sector</li> <li>• Non-government regulators</li> <li>• Civil society</li> </ul>
<b>7. ADDITIONAL LEGAL &amp; POLICY MEASURES</b>	To help scale biodiversity credit markets, governments could pursue the following options: a. Mandatory natural capital accounting at national and sub-national levels. b. Mandatory nature-related risk reporting and disclosure (e.g. in line with the TNFD framework). c. Tax incentives for disclosing risk and setting nature targets (e.g. in line with SBTN guidance).	<ul style="list-style-type: none"> <li>• National and subnational governments</li> <li>• Private sector</li> <li>• Civil society</li> </ul>

# ENDNOTES

<sup>1</sup> Convention on Biological Diversity (2022) Nations Adopt Four Goals, 23 Targets for 2030 In Landmark UN Biodiversity Agreement:

[https://prod.drupal.www.infra.cbd.int/sites/default/files/2022-12/221219-CBD-PressRelease-COP15-Final\\_O.pdf](https://prod.drupal.www.infra.cbd.int/sites/default/files/2022-12/221219-CBD-PressRelease-COP15-Final_O.pdf)

<sup>2</sup> See, for example: World Economic Forum (WEF) (2022) Biodiversity Credits: Unlocking Financial Markets for Nature-Positive Outcomes: [https://www3.weforum.org/docs/WEF\\_Biodiversity\\_Credit\\_Market\\_2022.pdf](https://www3.weforum.org/docs/WEF_Biodiversity_Credit_Market_2022.pdf)

<sup>3</sup> NatureFinance (2023) The Future of Biodiversity Credit Markets:

<https://www.naturefinance.net/wp-content/uploads/2023/02/TheFutureOfBiodiversityCreditMarkets.pdf>.

This report is also intended to reinforce and build on other significant and related papers published by the Global Environment Facility (2023):

[https://www.thegef.org/sites/default/files/documents/2023-03/GEF\\_IIED\\_Innovative\\_Finance\\_Nature\\_People\\_2023\\_03\\_1.pdf](https://www.thegef.org/sites/default/files/documents/2023-03/GEF_IIED_Innovative_Finance_Nature_People_2023_03_1.pdf) as well as that of the International Institute for Environment and Development (IIED) (2023):

<https://iied.org/sites/default/files/pdfs/2022-11/21216IIED.pdf>.

<sup>4</sup> For example, land clearing carried out by project developers has a negative impact on biodiversity.

<sup>5</sup> International Union for Conservation of Nature (IUCN) Global Standard for Nature-based Solutions:

<https://portals.iucn.org/library/sites/library/files/documents/2020-020-En.pdf>

<sup>6</sup> WEF (2022) High-Level Governance and Integrity Principles for Emerging Voluntary Biodiversity Credit Markets: [https://www3.weforum.org/docs/WEF\\_Biodiversity\\_Credits\\_Markets\\_Integrity\\_and\\_Governance\\_Principles\\_Consultation.pdf](https://www3.weforum.org/docs/WEF_Biodiversity_Credits_Markets_Integrity_and_Governance_Principles_Consultation.pdf)

<sup>7</sup> Capital Coalition (2021) Natural Capital Protocol:

[https://capitalscoalition.org/capitals-approach/natural-capital-protocol/?fwp\\_filter\\_tabs=guide\\_supplement](https://capitalscoalition.org/capitals-approach/natural-capital-protocol/?fwp_filter_tabs=guide_supplement)

<sup>8</sup> Note that the terminology used in relation to voluntary biodiversity credit markets is still evolving. This report uses the term “biodiversity credit” throughout in line with the distinction drawn in Target 19 of the Global Biodiversity Framework between “biodiversity credits” and “biodiversity offsets” and NatureFinance’s recent discussion paper of ‘The Future of Biodiversity Credit Markets’. We note that other terms that are used interchangeably with “biodiversity credit” in the context of voluntary biodiversity credit markets include “nature certificates” and “biocredits” See, for example, IIED (2022):

<https://iied.org/sites/default/files/pdfs/2022-11/21216IIED.pdf> and GEF (2023):

[https://www.thegef.org/sites/default/files/documents/2023-03/GEF\\_IIED\\_Innovative\\_Finance\\_Nature\\_People\\_2023\\_03\\_1.pdf](https://www.thegef.org/sites/default/files/documents/2023-03/GEF_IIED_Innovative_Finance_Nature_People_2023_03_1.pdf), respectively.

<sup>9</sup> Note that another definition of a “biodiversity credit” is an “economic instrument that can be used to finance biodiversity-enhancing actions (such as protecting or restoring species, ecosystems or natural habitats) through the creation and sale of biodiversity units”:

<https://www.iied.org/sites/default/files/pdfs/migrate/16664IIED.pdf>. The definitional approach adopted in this paper is required in order to distinguish between biodiversity credit markets and biodiversity offset markets effectively. See also the descriptions of ‘philanthropic claims/certificate markets’, ‘in-setting credit markets’ and ‘biodiversity financial assets’ in the taxonomy developed by NatureFinance in its report (2023), The Future of Biodiversity Credit Markets: Governing High-Performance Biodiversity Credit Markets:

<https://www.naturefinance.net/wp-content/uploads/2023/02/TheFutureOfBiodiversityCreditMarkets.pdf>, pp. 22 - 23.

<sup>10</sup> Ibid.

<sup>11</sup> Note that a commonly adopted definition of a “biodiversity offset” is a “measurable conservation outcomes of actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken”:

[https://www.forest-trends.org/wp-content/uploads/2018/11/BBOP\\_Updated\\_Glossary-01-11-18.pdf](https://www.forest-trends.org/wp-content/uploads/2018/11/BBOP_Updated_Glossary-01-11-18.pdf). The definitional approach adopted in this paper is required in order to distinguish between biodiversity credit markets and biodiversity offset markets effectively.

<sup>12</sup> See also the description of ‘biodiversity offset markets’ in the taxonomy developed by NatureFinance in its report (2023), The Future of Biodiversity Credit Markets: Governing High-Performance Biodiversity Credit Markets: <https://www.naturefinance.net/wp-content/uploads/2023/02/TheFutureOfBiodiversityCreditMarkets.pdf>, p. 22.



<sup>13</sup> Capital Coalition (2021) Natural Capital Protocol:  
[https://capitalscoalition.org/capitals-approach/natural-capital-protocol/?fwp\\_filter\\_tabs=guide\\_supplement](https://capitalscoalition.org/capitals-approach/natural-capital-protocol/?fwp_filter_tabs=guide_supplement)

<sup>14</sup> Ibid.

<sup>15</sup> Ibid.

<sup>16</sup> Sustainable Insurance Forum (2021) Nature-Related Risks in the Global Insurance Sector:  
[https://www.sustainableinsuranceforum.org/view\\_pdf.php?pdf\\_file=wp-content/uploads/2021/11/UNDP-SIF-Scoping-Study\\_Nature-Related-Risks-in-the-Global-Insurance-Sector.pdf](https://www.sustainableinsuranceforum.org/view_pdf.php?pdf_file=wp-content/uploads/2021/11/UNDP-SIF-Scoping-Study_Nature-Related-Risks-in-the-Global-Insurance-Sector.pdf)

<sup>17</sup> IUCN (2020) IUCN Global Standard for NbS:  
<https://www.iucn.org/news/europe/202007/iucn-global-standard-nbs>

<sup>18</sup> Taskforce in Nature Markets (2022) Nature in an Era of Crises:  
<https://www.naturefinance.net/wp-content/uploads/2022/09/TNMNatureInAnEraOfCrises.pdf>

<sup>19</sup> Note that this definition is broadly consistent with the use of the term 'nature credit markets' in the recent NatureFinance report (2023) The Future of Biodiversity Credit Markets: Governing High-Performance Biodiversity Credit Markets:  
<https://www.naturefinance.net/wp-content/uploads/2023/02/TheFutureOfBiodiversityCreditMarkets.pdf>. However, the definitional approach adopted in this paper is required in order to distinguish between biodiversity credit markets and biodiversity offset markets effectively.

<sup>20</sup> Note that this definition builds on the definition of 'nature credit markets' provided in the FinanceNature (2022) Nature in an Era of Crisis as "markets in which credits that reflect efforts to enhance or conserve ecosystem assets or services are traded":  
<https://www.naturefinance.net/wp-content/uploads/2022/09/TNMNatureInAnEraOfCrises.pdf>. The more technical definition adopted in this paper is required in order to distinguish between biodiversity credit markets and biodiversity offset markets effectively.

<sup>21</sup> Taskforce on Nature Markets (2022) Global Nature Markets Landscaping Study:  
[https://uploads-ssl.webflow.com/623a362e6b1a3e2eb749839c/638f463b2d6c475a6a32e5f6\\_GlobalNatureMarketsLandscapingStudy.pdf](https://uploads-ssl.webflow.com/623a362e6b1a3e2eb749839c/638f463b2d6c475a6a32e5f6_GlobalNatureMarketsLandscapingStudy.pdf)

<sup>22</sup> For example, there has been an estimated average decline of 69% in species populations since 1970, see WWF (2022) Living Planet Report: [https://wwflpr.awsassets.panda.org/downloads/lpr\\_2022\\_full\\_report.pdf](https://wwflpr.awsassets.panda.org/downloads/lpr_2022_full_report.pdf).

<sup>23</sup> Paulson Institute (2020) Financing Nature: Closing the Global Biodiversity Financing Gap:  
<https://www.paulsoninstitute.org/conservation/financing-nature-report/#:~:text=To%20reverse%20the%20decline%20in,598%2D824%20billion%20per%20year.>

<sup>24</sup> WEF (2022) High-Level Governance and Integrity Principles for Emerging Voluntary Biodiversity Credit Markets:  
[https://www3.weforum.org/docs/WEF\\_Biodiversity\\_Credits\\_Markets\\_Integrity\\_and\\_Governance\\_Principles\\_Consultation.pdf](https://www3.weforum.org/docs/WEF_Biodiversity_Credits_Markets_Integrity_and_Governance_Principles_Consultation.pdf)

<sup>25</sup> Paulson Institute (2020) Financing Nature: Closing the Global Biodiversity Financing Gap:  
[https://www.paulsoninstitute.org/wp-content/uploads/2020/10/FINANCING-NATURE\\_Full-Report\\_Final-with-endorsements\\_101420.pdf](https://www.paulsoninstitute.org/wp-content/uploads/2020/10/FINANCING-NATURE_Full-Report_Final-with-endorsements_101420.pdf)

<sup>26</sup> Taskforce on Nature Markets (2022) Global Nature Markets Landscaping Study:  
[https://uploads-ssl.webflow.com/623a362e6b1a3e2eb749839c/638f463b2d6c475a6a32e5f6\\_GlobalNatureMarketsLandscapingStudy.pdf](https://uploads-ssl.webflow.com/623a362e6b1a3e2eb749839c/638f463b2d6c475a6a32e5f6_GlobalNatureMarketsLandscapingStudy.pdf)

<sup>27</sup> There are nine planetary boundaries which have been scientifically defined and collectively represent the Earth's biophysical limits, six of which have been breached. See Stockholm Resilience Centre (2022) Planetary Boundaries: <https://www.stockholmresilience.org/research/planetary-boundaries.html>. Beyond these boundaries, there is an increasing risk that the Earth's systems could reach tipping points, and begin to operate outside of the stable state they have been in for the past 10,000 years.

<sup>28</sup> Note this planetary boundary is indirectly addressed by unit-based schemes that are primarily intended to address other planetary boundaries.

<sup>29</sup> There are not currently any well-known examples of unit-based schemes that have been designed to address the remaining three planetary boundaries: ocean acidification (not breached); stratospheric ozone depletion (not breached); atmospheric aerosol loading (undefined).

<sup>30</sup> NbS are defined as "actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits". See IUCN (2020) IUCN Global Standard for Nature-based Solutions: 2020-020-En.pdf (iucn.org)

<sup>31</sup> Note that the currently accepted scope of REDD+ activities is documented under the UNFCCC's Cancun Agreement, and includes the following activities which are undertaken by a developing country: (i) reducing emissions from deforestation; (ii) reducing emissions from forest degradation; (iii) conservation of forest carbon stocks; (iv) sustainable management of forests; (v) enhancement of forest carbon stocks. See FAO (2022): <https://www.fao.org/redd/en/>

<sup>32</sup> Murray McLea and Mike Thompson (2016) Concepts for managing water allocation: <https://www.gw.govt.nz/assets/Documents/2022/05/concepts-for-managing-water-allocation-to-rwc-23-05-2016.pdf>

<sup>33</sup> Queensland Government (2022) Reef Credit Scheme: <https://www.qld.gov.au/environment/coasts-waterways/reef/reef-credit-scheme>

<sup>34</sup> Eco-markets (2022) What is the Reef Credit Scheme?: <https://eco-markets.org.au/reef-credits/>

<sup>35</sup> Verra, Plastic Waste Reduction Standard: <https://verra.org/project/plastic-program/plastic-credits/>

<sup>36</sup> Eco-markets (2022) What is the Reef Credit Scheme?: <https://eco-markets.org.au/reef-credits/>

<sup>37</sup> Note that in some cases private sector actors use biodiversity offsets to voluntarily offset direct / supply chain impacts on biodiversity.

<sup>38</sup> [https://www3.weforum.org/docs/WEF\\_Biodiversity\\_Credit\\_Market\\_2022.pdf](https://www3.weforum.org/docs/WEF_Biodiversity_Credit_Market_2022.pdf), pp 4, 5.

<sup>39</sup> [https://capitalscoalition.org/capitals-approach/natural-capital-protocol/?fwp\\_filter\\_tabs=guide\\_supplement](https://capitalscoalition.org/capitals-approach/natural-capital-protocol/?fwp_filter_tabs=guide_supplement)

<sup>40</sup> Note that the Biodiversity Credit Alliance has proposed the following high-level technical definition of a biodiversity credit: “a quantifiable unit representing a biodiversity conservation and/or enhancement claim using a scientific methodology”: <https://www.biodiversitycreditalliance.org/>.

<sup>41</sup> WEF (2022) Biodiversity Credits: Unlocking Financial Markets for Nature-Positive Outcomes: <https://iied.org/sites/default/files/pdfs/2022-11/21216IIED.pdf>, pp. 10, 16, 17, 20-23; GEF (2023) Innovative Finance for Nature and People: Opportunities and Challenges for Biodiversity-Positive Carbon Credits and Nature Certificates: [https://www.thegef.org/sites/default/files/documents/2023-03/GEF\\_IIED\\_Innovative\\_Finance\\_Nature\\_People\\_2023\\_03\\_1.pdf](https://www.thegef.org/sites/default/files/documents/2023-03/GEF_IIED_Innovative_Finance_Nature_People_2023_03_1.pdf), p. 50. Note this paper does not critically consider whether this is the correct approach to metrics to underpin unit-based biodiversity markets and that in this context this paper uses the term ‘biodiversity markets’ throughout in accordance with popular usage only and not to suggest that unit-based biodiversity schemes are underpinned by a universal ‘biodiversity’ metric or metrics, which does not currently exist.

<sup>42</sup> For example, land clearing carried out by project developers having a negative impact on biodiversity.

<sup>43</sup> Note that a distinction between ‘offsets’ and ‘credits’ has not historically been made in regulated and voluntary carbon markets. Tradeable units representing 1 tonne of CO<sub>2</sub>e removed or reduced from the atmosphere are often referred to as ‘carbon credits’ or ‘carbon offsets’. This is because it is generally accepted that GHG emissions can be ‘offset’ because GHGs are global, rather than locally specific, and the unit of measure is fungible.

<sup>44</sup> This is consistent with commentary that has been published by the Biodiversity Credit Alliance: <https://www.biodiversitycreditalliance.org/>, Global Environment Facility (GEF) [https://www.thegef.org/sites/default/files/documents/2023-03/GEF\\_IIED\\_Innovative\\_Finance\\_Nature\\_People\\_2023\\_03\\_1.pdf](https://www.thegef.org/sites/default/files/documents/2023-03/GEF_IIED_Innovative_Finance_Nature_People_2023_03_1.pdf), and International Institute for Environment and Development (IIED) <https://iied.org/sites/default/files/pdfs/2022-11/21216IIED.pdf>.

<sup>45</sup> World Economic Forum (WEF) (2022) Biodiversity Credits: Unlocking Financial Markets for Nature-Positive Outcomes: [https://www3.weforum.org/docs/WEF\\_Biodiversity\\_Credit\\_Market\\_2022.pdf](https://www3.weforum.org/docs/WEF_Biodiversity_Credit_Market_2022.pdf), pp 4, 5; GEF (2023) Innovative Finance for Nature and People: Opportunities and Challenges for Biodiversity-Positive Carbon Credits and Nature Certificates: [https://www.thegef.org/sites/default/files/documents/2023-03/GEF\\_IIED\\_Innovative\\_Finance\\_Nature\\_People\\_2023\\_03\\_1.pdf](https://www.thegef.org/sites/default/files/documents/2023-03/GEF_IIED_Innovative_Finance_Nature_People_2023_03_1.pdf), pp 48-49.

<sup>46</sup> Note that this societal-level goal is emerging as the “north star” for voluntary corporate commitments on nature. See Harvey Locke et al (2022) A Nature-Positive World: The Global Goal for Nature: [https://www.nature.org/content/dam/tnc/nature/en/documents/NaturePositive\\_GlobalGoalCEO.pdf](https://www.nature.org/content/dam/tnc/nature/en/documents/NaturePositive_GlobalGoalCEO.pdf).

<sup>47</sup> Depending on scheme design / objectives.

<sup>48</sup> Note that in some cases private sector actors use biodiversity offsets to voluntarily offset direct / supply chain impacts on biodiversity.

<sup>49</sup> IUCN (2019) World View - A Snapshot of National Biodiversity Offset Policies: <https://portals.iucn.org/offsetpolicy/>; Sophus Olav Sven Emil zu Ermgassen, Pratiwi Utamiputri, Leon Bennun, Stephen Edwards and Joseph William Bull (2019) The Role of “No Net Loss” Policies in Conserving Biodiversity Threatened by the Global Infrastructure Boom: [https://www.sciencedirect.com/science/article/pii/S2590332219301332#:~:text=Regulation%20of%20Infrastruct,ure%20Impacts%20on%20Biodiversity&text=%E2%80%9CNo%20net%20loss%E2%80%9D%20\(NNL\)%20polici,es%20are%20an%20increasingly,cases%2C%20land%2Duse%20change.](https://www.sciencedirect.com/science/article/pii/S2590332219301332#:~:text=Regulation%20of%20Infrastruct,ure%20Impacts%20on%20Biodiversity&text=%E2%80%9CNo%20net%20loss%E2%80%9D%20(NNL)%20polici,es%20are%20an%20increasingly,cases%2C%20land%2Duse%20change.)

<sup>50</sup> Ibid.

Katie Devenish, Sébastien Desbureaux, Simon Willcock and Julia P. G. Jones (2022) On track to achieve no net loss of forest at Madagascar’s biggest mine: <https://www.nature.com/articles/s41893-022-00850-7>, p. 498.

<sup>51</sup> There are increasingly calls for biodiversity offset schemes to target BNG / NPI in preference to NNL, see Jeremy S. Simmonds et al (2019) Aligning ecological compensation policies with the Post-2020 Global Biodiversity Framework to achieve real net gain in biodiversity: <https://conbio.onlinelibrary.wiley.com/doi/pdf/10.1111/csp2.12634>

<sup>52</sup> Forest Trends (2018) Business and Biodiversity Offsets Programme: [https://www.forest-trends.org/wp-content/uploads/2018/11/BBOP\\_Updated\\_Glossary-01-11-18.pdf](https://www.forest-trends.org/wp-content/uploads/2018/11/BBOP_Updated_Glossary-01-11-18.pdf), p. 9.

<sup>53</sup> Joseph William Bull and Niels Strange (2018) The global extent of biodiversity offset implementation under no net loss policies: <https://www.nature.com/articles/s41893-018-0176-z>

Katherine Needham, Frans P. de Vries, Paul R. Armsworth, and Nick Hanley (2019) Designing markets for biodiversity offsets: Lessons from tradable pollution permits: <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2664.13372>

Marianne Darbi (2020) Biodiversity Offsets Between Regulation and Voluntary Commitment: A Typology of Approaches Towards Environmental Compensation and No Net Loss of Biodiversity: <https://link.springer.com/book/10.1007/978-3-030-25594-7>

<sup>54</sup> Ibid

Becca Madsen, Nathaniel Carroll, Kelly Moore Brands (2010) State of Biodiversity Markets Report: Offset and Compensation Programs Worldwide: <http://www.ecosystemmarketplace.com/documents/acrobat/sbdmr.pdf>

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<sup>56</sup> IFC (2012) Performance Standards on Environmental and Social Sustainability Vol. 2: [https://www.ifc.org/wps/wcm/connect/Topics\\_Ext\\_Content/IFC\\_External\\_Corporate\\_Site/Sustainability-At-IFC/Policies-Standards/Performance-Standards](https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/Performance-Standards); <https://www.nature.com/articles/s41893-022-00850-7>, p 498;

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<sup>58</sup> Katherine Needham, Frans P. de Vries, Paul R. Armsworth, and Nick Hanley (2019) Designing markets for biodiversity offsets: Lessons from tradable pollution permits: <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2664.13372>.

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<sup>60</sup> Legislation.Gov.UK, Environment Act 2021: <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>

<sup>61</sup> Legislation.Gov.UK, Environment Act 2021, Schedule 14, Part 1: <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>

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<sup>67</sup> IUCN (2019) World View - A Snapshot of National Biodiversity Offset Policies: <https://portals.iucn.org/offsetpolicy/>

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<sup>69</sup> Graeme Samuel (2020) Final Review of the EPBC Act: <https://epbcactreview.environment.gov.au/resources/final-report>

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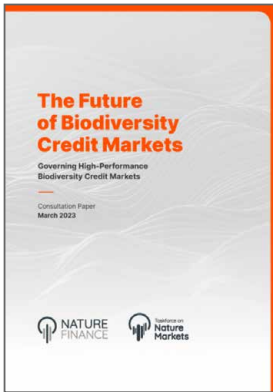
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- <sup>89</sup> Refer also to the section on IPLC safeguards below.
- <sup>90</sup> NatureFinance (2023) The Future of Biodiversity Credit Markets:  
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- <sup>91</sup> Note that an international approach to the achievement of this target would need to be cognisant of the need for representative protection of the Earth’s biodiversity in all regions.
- <sup>92</sup> Some schemes may be based on payments for the implementation of activities expected to generate biodiversity outcomes, rather than verified outcomes (or a hybrid approach). Note that this discussion focuses on schemes that facilitate payments for verified biodiversity outcomes.
- <sup>93</sup> Note that alternative disruptive technology solutions may be able to address some of these requirements. For example, one of the objectives of the Biodiversity Credit Alliance is “[t]o 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”:  
<https://www.biodiversitycreditalliance.org/>.
- <sup>94</sup> Refer also to the section on IPLC safeguards below.
- <sup>95</sup> Refer also to the section on financial market integrity below. Note that alternative disruptive technology solutions may play a significant role in ensuring market integrity in the future. For example, one of the objectives of the Biodiversity Credit Alliance is “[t]o 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”:  
<https://www.biodiversitycreditalliance.org/>
- <sup>96</sup> Note that in the case of the need for project proponents to obtain legal right to carry out the activities, this would involve negotiations with all persons with a legal interest in the land (e.g. traditional owners, the government, private citizens and banks).
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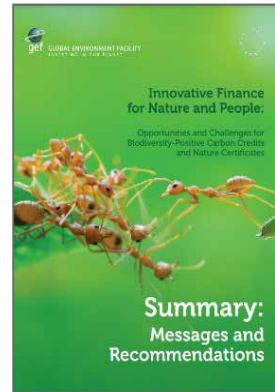
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- <sup>111</sup> Refer to Table 4 above.
- <sup>112</sup> European Commission (2021) Ensuring the integrity of the European carbon market: [https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/ensuring-integrity-european-carbon-market\\_en](https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/ensuring-integrity-european-carbon-market_en)
- <sup>113</sup> For example, in Australia, corporate groups that emit 50 kt or more of scope 1 and scope 2 greenhouse gases (CO<sub>2</sub>-e) are required to report to a government regulator under the National Greenhouse and Energy Reporting Act 2007 (Cth).
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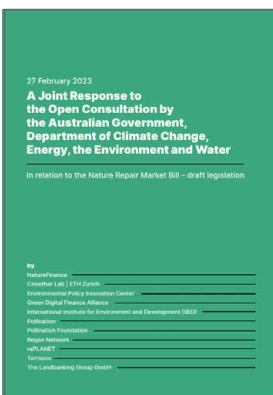
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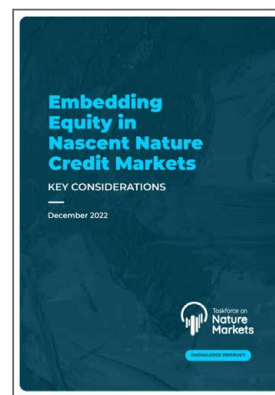
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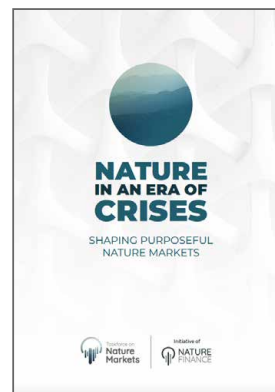
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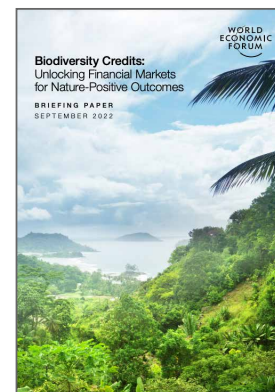
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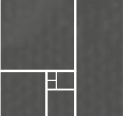
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**Nature Data & Disclosure:** Increasing the quality and quantity of nature data, risk assessment and transparency across financial markets to enable integrated assessments of nature-climate risks and impacts.



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NatureFinance is the next phase of impact of the Finance for Biodiversity Initiative (F4B), established with support from the MAVA Foundation. The work also benefits from partnerships with, and support from, the Children's Investment Fund Foundation (CIFF) and the Finance Hub of the Gordon and Betty Moore Foundation.



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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.



# Biodiversity Credit Markets

The role of law,  
regulation  
and policy

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April 2023



Taskforce on  
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