

OCTOBER 2023



# State of Voluntary Biodiversity Credit Markets

A GLOBAL REVIEW OF  
BIODIVERSITY CREDIT SCHEMES

---

# Acknowledgements

## LEAD AUTHORS & INTEGRITY REVIEWERS

Laura Waterford, Director

Veda FitzSimons, Associate Director

Olivia Back, Associate

## TECHNICAL REVIEWERS

Helen Crowley, Managing Director

Erin Gianferrara, Director

Sage Bucher-Melcer, Associate Director

## CONTRIBUTORS

Amanda Young, Executive Director

Guy Williams, Executive Director

Jane Hutchinson, co-CEO Pollination Foundation

Ariadne Gorring, co-CEO Pollination Foundation

## ACKNOWLEDGEMENTS

This report and the accompanying report entitled 'Voluntary biodiversity credit scheme review: the NaturePlus™ Scheme developed by GreenCollar' was commissioned by GreenCollar and prepared by Pollination.

---

# Contents

---

4	<b>EXECUTIVE SUMMARY</b>	5	1.1 BACKGROUND & CONTEXT
		6	1.2 HIGH-LEVEL INSIGHTS
8	<b>GLOBAL CONTEXT &amp; LANDSCAPE</b>	9	2.1 GLOBAL CONTEXT & FRAMEWORKS
		11	2.2 LANDSCAPE OF DEMAND
		12	2.3 OVERVIEW OF EMERGING SCHEMES
17	<b>REVIEW FRAMEWORKS &amp; INSIGHTS</b>	18	3.1 DEVELOPMENT OF REVIEW FRAMEWORKS
		18	3.2 SCHEME SELECTION
		19	3.3 APPROACH TO REVIEW & INTERPRETATION
		19	3.4 SCHEME DESIGN REVIEW FINDINGS
		20	3.5 INTEGRITY CONSIDERATIONS
		24	3.6 TECHNICAL CONSIDERATIONS
27	<b>APPENDIX A: BREAKDOWN OF REVIEW RESULTS</b>		
40	<b>APPENDIX B: REVIEW FRAMEWORK SOURCE LIST</b>		

---

## FIGURES & TABLES

---

Figure 1: Recent developments towards creating the international legal framework for biodiversity credits

Figure 2: Mitigation Hierarchy

Figure 3: Scan of voluntary biodiversity credit schemes and initiatives globally

Figure 4: Cost of implementation, and integrity and technical robustness

Table 1: Unitisation and issuance trends

Table 2: Different outcomes targeted by biodiversity credit schemes

Table 3: Different approaches to applicable metrics

Table 4: Scheme selection considerations

Table 5: Scheme Design Review Findings

Table 6: Integrity Review Findings

Table 7: Additionality considerations depending on outcome focus

Table 8: Technical Review Findings

---

1.  
Executive  
Summary

A close-up photograph of several large, vibrant green leaves against a dark, almost black background. The leaves are the primary focus, showing detailed vein patterns and some natural imperfections like small holes and light-colored spots. The lighting is soft, highlighting the texture and color of the foliage.



## 1.1 Background & context

Since 2020, global attention on the biodiversity loss crisis and its implications for the global economy has increased. With this has also come increased expectations for economic actors to be more accountable and responsible for their impacts on nature. This includes better understanding and addressing the interface between business and nature. This will require businesses to disclose their nature-related risks and demonstrate a commitment to mitigating those risks, including by contributing to protecting, regenerating and stewarding nature.

As part of the response to the changing relationship between business and nature on the pathway to a nature-positive future, activity is underway globally to develop, support and regulate voluntary biodiversity credit schemes<sup>1</sup> as a means to drive private finance into positive biodiversity outcomes.

As this nascent market develops, work is needed to ensure it is able to deliver high-integrity outcomes for people and nature, including through the adoption of good governance approaches. Key to this will be alignment between the supply and demand sides of the market on how to categorise the different voluntary biodiversity credit schemes and products that are coming online as the 'supply side' grows and the business case for investment in those products is clarified.

In this context, Pollination developed an approach to assess current biodiversity credit schemes to highlight insights on the current state of the market and considerations for its ongoing development. This report sets out the findings of a global review of eight current or emerging biodiversity credit schemes conducted by Pollination over the last several months. Pollination developed three frameworks for comparative analysis of the key features of the eight biodiversity credit schemes. The assessment frameworks focused on design, integrity and technical considerations.

Pollination has also published a copy of the review frameworks prepared by Pollination that can be used as a guide to evaluate and compare the design, technical and integrity features of current and emerging schemes. The schemes reviewed for the purposes of this report were selected to be a representative sample of the current biodiversity credit schemes at the time the assessment was undertaken (refer to **Section 3.2** for more detail).

The result of Pollination's analysis of 8 biodiversity credit schemes is outlined in this report and includes:

- a summary of the global context and current supply and demand landscape for voluntary biodiversity credits, and
- an overview of the findings of the comparative analysis.



<sup>1</sup> For the purposes of this report, the term 'biodiversity credit scheme' is used to refer broadly to schemes that seek to generate measurable positive natural-capital, ecosystem, and biodiversity outcomes, that are, in turn, represented as a token, credit or certificate that can be bought and sold.

## 1.2 High-level insights

Voluntary biodiversity credit schemes have been developing at an extraordinary pace over the last two to three years. Pollination’s review of the state of the market shows that there is significant awareness and support for the development of high integrity and technically rigorous biodiversity credit schemes and products all over the world. There are four key areas, outlined in **Section 1.2.1** below, in which Pollination anticipates there will be significant evolution over the next few years as voluntary biodiversity credit markets are increasingly looked to as a mechanism to help deliver high-integrity outcomes for people and nature in the nature-positive transition.

Pollination’s analysis has also shown that there are trends emerging in how schemes are approaching design features and objectives, as well as integrity and technical considerations. Notably, there is a tension between high integrity and technically rigorous schemes that are also flexible and pragmatic to encourage supply-side participation to meet demand. For example, there are some design elements of biodiversity credit schemes that may be ideal from an integrity perspective, but will take time and technological advancement to enable them to be able to be implemented in a cost-effective manner.

### 1.2.1 KEY SCHEME DESIGN TRENDS

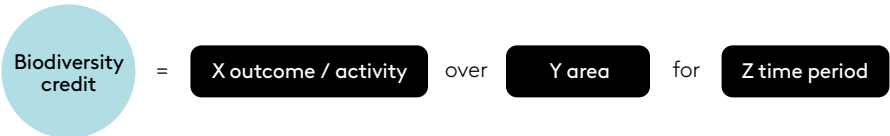
Pollination’s review has highlighted some key trends in relation to scheme design considerations of voluntary biodiversity credit schemes.

- **Targeted outcomes:** there are significant differences across the reviewed schemes in relation to the biodiversity outcomes targeted. Categories of outcomes supported by the reviewed schemes are:

(1) Protection; (2) Regeneration; (3) Stewardship (i.e., maintenance of ecological value); and / or (4) Adaptation (e.g., in relation to climate change impacts). Importantly, these outcomes are not mutually exclusive and can be targeted in different ways by a scheme that allows for different project types or ‘stacking’ so that one project achieves multiple outcomes simultaneously or at different points in time.

- **Metrics focus:** there are a range of approaches taken to targeted metrics across the reviewed schemes:
  1. **Ecosystem:** Enables the tracking of a ‘basket-of-metrics’ across all aspects of the relevant ecosystem type (terrestrial, marine, or aquatic),
  2. **Habitat:** Requires the tracking of a set of biodiversity metrics across critical aspects of habitat for a specific fauna species, and
  3. **Vegetation:** Requires the tracking of a set of biodiversity metrics relevant to vegetation condition as a proxy for the overall condition of terrestrial ecosystems.
- **Crediting approach:** Table 1 below summarises trends for crediting approaches under the reviewed schemes.
- **Jurisdictional / ecosystem coverage:** Several of the reviewed schemes intend to have global applicability and to apply to all ecosystem types. Some reviewed schemes intend to apply only to terrestrial ecosystems.

TABLE 1: UNITISATION AND ISSUANCE TRENDS

<p><b>Unitisation</b></p>	<p>The majority of the reviewed schemes adopt set area and time metrics for credit unitisation:</p>  <p>The diagram illustrates the formula for Biodiversity credit unitisation: Biodiversity credit = X outcome / activity over Y area for Z time period. Each component (X, Y, Z) is enclosed in a dark rounded rectangle, and the entire formula is centered within a light blue circle.</p>
<p><b>Credit issuance/s</b></p>	<p>Several of the reviewed schemes adopt a multiple credit issuance approach for achievement of implementation milestones / verification of outcomes.</p>
<p><b>Crediting period</b></p>	<p>Several of the reviewed schemes adopt a defined crediting period.</p>

### 1.2.2 ANTICIPATED MARKET DEVELOPMENTS

Pollination has identified six characteristics of voluntary biodiversity credit schemes that need significant development over the coming years:

**Coastal, freshwater and marine ecosystem coverage:** the majority of reviewed schemes do not provide clarity on ecosystem coverage, or appear to be focused on terrestrial ecosystems. Biodiversity credits are an opportunity to drive private sector finance into coastal, freshwater and marine ecosystems, including coral reefs, which have been unable to access carbon finance in the past. In addition, Targets 2 and 3 of the Kunming-Montreal Global Biodiversity Framework call for 30% of the world's coastal, inland water, and marine ecosystems to be protected and restored by 2030, alongside 30% of terrestrial ecosystems. As a result, Pollination anticipates that over the next five years existing and emerging biodiversity credit schemes will explicitly target coastal, freshwater and marine ecosystems.

**Indigenous-led and/or owned projects and engagement:** Importantly, Indigenous peoples' lands and waters cover around 25% of the world's land surface and contain over 80% of its remaining biodiversity.<sup>2</sup> This means that recognising the important role that Indigenous peoples and local communities (**IPs and LCs**) will be required to play in realising the opportunity that biodiversity credit markets represent is critical for the transition to a nature-positive future. However, none of the reviewed schemes were developed by Indigenous persons or communities, and the majority of schemes do not establish comprehensive requirements for obtaining free, prior and informed consent (**FPIC**) and do not require co-ownership, partnership or benefit-sharing models with IPs and LCs.

Where projects carried out under a scheme could impact on lands and waters under the stewardship of IPs and LCs, the desires of those IPs and LCs will shape the FPIC process and co-ownership, partnership, and benefit-sharing arrangements for the project. It is important that schemes set expectations for engagement with IPs and LCs on these issues by establishing comprehensive and transparent processes.

As voluntary biodiversity credit markets mature, Pollination anticipates that there will be significant scrutiny on engagement with IPs and LCs and increased demand for biodiversity credits issued under Indigenous-led biodiversity credit schemes and Indigenous-owned projects. Where IPs and LCs are motivated by ownership projects are likely to be de-risked and benefits based on mutual capability uplift may be provided.

**Indefinite crediting for long-term finance:** The majority of the reviewed schemes adopt a fixed crediting period. However, in most locations, if landscapes are not actively managed, and those activities are not financed on an indefinite basis, biodiversity will decline. Voluntary biodiversity credit markets represent an opportunity to provide long-term finance for the ongoing stewardship of biodiversity. Indefinite crediting approaches can allow for funding of ongoing activities required to maintain biodiversity outcomes. Pollination anticipates that the markets will move towards this approach as part of the nature-positive transition.

**Finance for protected areas and High Forest Cover, Low Deforestation (HFLD) countries:** The majority of the reviewed schemes take a high-level approach to additionality, requiring that the biodiversity benefits delivered by a project would not have occurred in the absence of the project. In this context, voluntary biodiversity credit markets create an opportunity for finance to flow to protected areas and HFLD countries, where there is insufficient finance available to fund ongoing management activities to maintain biodiversity. Pollination anticipates that voluntary biodiversity markets will take a more flexible approach to additionality than voluntary carbon markets and will not adopt a strict regulatory additionality approach that would exclude areas from being eligible to participate in a scheme based on a pre-existing legal mechanism of protection (only), if the project will deliver additional regeneration, stewardship or adaptation outcomes.

**Independent administration of schemes:** The majority of the reviewed schemes are currently administered by the entity that has designed the scheme and is also acting as a project proponent. This speaks to the nascency of voluntary biodiversity credit markets. Independent administration of schemes will be needed to satisfy integrity considerations as the markets mature. Pollination anticipates that the developers of voluntary biodiversity credit schemes will appoint independent bodies to administer those schemes over the next few years.

**Transparency and claims guidance:** Most schemes lack clear information on governance arrangements and review processes. Most schemes also do not provide guidance on appropriate use cases and claims for their credits. As demand for biodiversity credits builds, Pollination anticipates that there will be significant scrutiny of governance processes and the use of credits from all market stakeholders.

---

<sup>2</sup> WWF (2020), ['Working with Indigenous Peoples for a fairer, greener future'](#).

---

## 2. Global Context & Landscape





## 2.1 Global context & frameworks

### 2.1.1 GLOBAL POLITICAL DEVELOPMENTS

Voluntary biodiversity credit markets have evolved from an exploratory initiative identified by the World Economic Forum (WEF) a year ago to a potentially powerful mechanism and solution to funding biodiversity initiatives worldwide.<sup>3</sup>

Countries are now mobilising to create the international legal framework for biodiversity credits in the same way as the United Nations Framework Convention on Climate Change (UNFCCC) and Paris Agreement did for carbon credits. This will ultimately influence the ‘rules’ for the operation of voluntary biodiversity credit schemes (see Figure 1).

Target 19 of the Kunming-Montreal Global Biodiversity Framework (GBF), as agreed at COP15 in December 2022, recognises biodiversity credits (distinct from offsets) as an innovative mechanism for driving private sector finance into biodiversity.<sup>4</sup>

Support from governments has continued to build in 2023. At the One Forest Summit held jointly by France and Gabon in March 2023, agreement was reached for biodiversity credits to be used as one mechanism to

provide a financial incentive for countries to protect their most vital carbon and biodiversity reserves through the establishment of a €100 million Positive Conservation Partnerships Fund.<sup>5</sup>

Building on this, in June 2023, the governments of France and the United Kingdom launched a ‘Global Roadmap’ intent on “crowding in new partners and innovation, and increasing commitments from key public and private actors to co-develop equitable, impactful biodiversity credit markets at scale in the coming months and years”.<sup>6</sup> The Global Roadmap was prepared by NatureFinance in association with Carbone 4 and in collaboration with the Global Environment Facility (GEF) at the request of the French Government. A high-level, multi-stakeholder advisory panel initiated jointly by France and the United Kingdom will be established to deliver findings and recommendations to a coalition of countries committed to the use of biodiversity credits as a way to accelerate financing for biodiversity.<sup>7</sup>

FIGURE 1: RECENT DEVELOPMENTS TOWARDS CREATING THE INTERNATIONAL LEGAL FRAMEWORK FOR BIODIVERSITY CREDITS



3 World Economic Forum (2022), [Biodiversity Credits: Unlocking Financial Markets for Nature-Positive Outcomes](#).

4 CBD (2022), [Kunming-Montreal Post-2020 Global Biodiversity Framework](#), CBD/COP/DEC/15/4.

5 Elysee (2023), [The Libreville Plan](#).

6 NatureFinance et al. (2023), [Harnessing Biodiversity Credits for People and the Planet](#), ‘About the paper’

7 NatureFinance et al. (2023), [Harnessing Biodiversity Credits for People and the Planet](#), ‘Pathways and Milestones’.

### 2.1.2 GLOBAL FRAMEWORKS

Since 2020, there has been a substantial increase in global attention on the biodiversity loss crisis and its implications for the global economy, and the transition to a nature-positive economy by 2030 is already underway.

There are three key global frameworks and standards that will drive the nature-positive transition and shape the global context for biodiversity credit markets:

- Kunming-Montreal Post-2020 Global Biodiversity Framework: framework adopted by the parties to the UN Convention on Biological Diversity (CBD),<sup>8</sup>
- Taskforce on Nature-Related Financial Disclosures (TNFD): a voluntary framework for nature-related disclosures,<sup>9</sup> and
- Science Based Targets Network (SBTN): guidance for corporates on setting voluntary nature targets.<sup>10</sup>

#### A. KUNMING-MONTREAL POST-2020 GLOBAL BIODIVERSITY FRAMEWORK

There are three key targets under the GBF that investment by companies in biodiversity credits can help to meet:

- Target 2: Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration.
- Target 3: Ensure and enable that by 2030 at least 30 per cent of terrestrial and inland water areas, and of marine and coastal areas are effectively conserved and managed.
- Target 19(d): Increase the level of financial resources, including private resources, to implement national biodiversity strategies and action plans, mobilising at least \$200 billion per year by 2030, including by stimulating innovative schemes such as biodiversity offsets and credits.

Some countries have adopted Targets 2 and 3 at a national level, and it is likely they will form part of their commitments under national biodiversity strategies and action plans to be submitted under the CBD (Target 16(a)).

#### B. TASKFORCE ON NATURE-RELATED FINANCIAL DISCLOSURES

The TNFD framework is a voluntary framework for the disclosure of nature-related financial risks. The release of working versions of the TNFD framework has heightened investor expectations in relation to nature-related disclosures by private sector entities. Some jurisdictions have also signalled their intent to legislate for mandatory TNFD disclosures.

Relevant to the use of biodiversity credits, the TNFD contains a concept of double materiality which requires companies to disclose both:

- Nature-related risks: the nature-related physical, transition and systemic risks on a company; and
- Impacts on nature: material nature-related impacts of a company on nature, regardless of whether those impacts pose nature-related risks to the company.

This second limb provides scope for companies to disclose their positive impacts on nature, alongside their negative impacts on nature. This will be important for companies to be able to show how they are mitigating their exposure to nature-related risks and creating value. Investing in biodiversity credits is one mechanism companies can use to achieve this.

#### C. SCIENCE-BASED TARGETS NETWORK

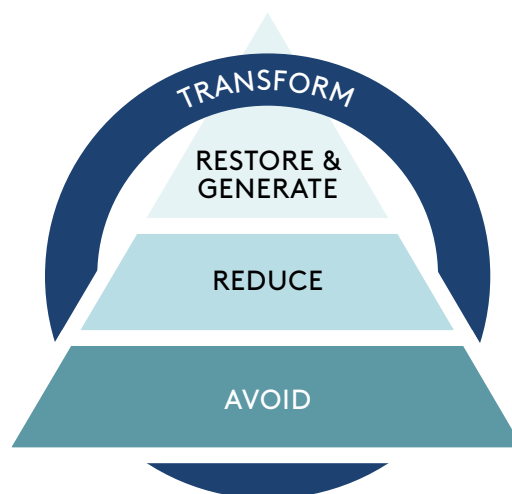
SBTN has released guidance on setting science-based targets (SBTs) for nature. The SBTN guidance is voluntary but will set the standard for nature-related target setting.

The SBTN guidance is clear that for a company to demonstrate that it is contributing to the nature-positive transition, it must address the mitigation hierarchy in full.

Investing in biodiversity credits is one mechanism companies can use to address the last two steps of the SBTN mitigation hierarchy (see **Figure 2**):<sup>11</sup>

- Restore & Regenerate: Take actions to increase the biophysical function and/or ecological productivity of an ecosystem or its components; initiate or accelerate the recovery of an ecosystem.
- Transform: Take actions contributing to system-wide change, notably to alter the drivers of nature loss.

FIGURE 2: SBTN NATURE MITIGATION HIERARCHY



8 CBD (2022), [Kunming-Montreal Post-2020 Global Biodiversity Framework](#), CBD/COP/DEC/15/4.

9 TNFD (2023), [Nature-related Risk and Opportunity Management and Disclosure Framework – Version v0.4 Beta Release](#).

10 SBTN (2023), [Target-setting guidance for companies](#).

11 Science Based Targets Network (2020), [Science-Based Targets for Nature: Initial Guidance for Business](#), p.41.

## 2.2 Landscape of demand

---

### 2.2.1 THE BUSINESS CASE FOR INVESTING IN NATURE

It is a strategic imperative for companies to demonstrate alignment with the transition to a nature-positive economy by 2030.

Companies are facing escalating pressure from all stakeholders to disclose their impacts and dependencies on nature, and associated nature-related risks, and to set targets that will enable them to demonstrate their contribution to global and national targets for nature.

The business case for investing in biodiversity on a voluntary basis is therefore to enable companies to demonstrate:

1. Risk mitigation and value creation: mitigating their exposure to nature-related risks and creating value in accordance with the TNFD framework; and
2. Contribution to nature targets: contributing to the nature-positive transition in line with the SBTN's mitigation hierarchy and/or global and national targets under the GBF.

### 2.2.2 BIODIVERSITY CREDITS AS AN AVENUE FOR NATURE FINANCE

Designing a fit-for-purpose biodiversity investment approach will be an important part of any company's nature strategy. Due to the complexity of defining and measuring biodiversity, this can be a difficult process. To achieve biodiversity outcomes at the scale required to address the nature-loss crisis, this needs to move beyond project-specific funding, to support adaptive and responsive management and to integrate biodiversity uplift into productive systems.

Voluntary biodiversity credit markets are increasingly being recognised as one mechanism that can drive financing into the protection, regeneration, and stewardship of biodiversity<sup>12</sup>. 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 outcomes over time. This means that the complexity and uncertainty of what to invest in and what outcomes to measure and track will no longer be barriers to financial investment for companies.

---

<sup>12</sup> Pollination and NatureFinance (2022), [Biodiversity Credit Markets: The role of law, regulation and policy](#), p.11.

## 2.3 Overview of emerging schemes

### 2.3.1 GLOBAL BIODIVERSITY CREDIT SCHEMES AND INITIATIVES

As represented in **Figure 3**, globally there has been a substantial number of initiatives to create, support and regulate biodiversity credit markets. Whilst there has been a proliferation of schemes and initiatives emerging globally, there are also areas of clear concentration (in particular, Australia and Europe).

There is a significant number of private sector programs emerging globally, at different stages of development. Many of the private sector programs are opting for an area-based approach to unitisation (i.e. adopting a specific area metric as a means to unitise positive biodiversity activities/outcomes). The private sector programs are generally targeted at corporates for uptake, with fewer schemes also directly targeted at individuals.

Currently, the only governments to have taken substantive steps to establish a national voluntary biodiversity market are the Australian and New Zealand Governments. The Government of Niue's Ocean Credit

Scheme<sup>13</sup> and the Government of Gabon's foreshadowed biodiversity credit market,<sup>14</sup> are at the very early stages of development and publicly available information on these intended schemes is currently limited. India has also indicated an intention to launch its 'Green Credit Programme', to complement its newly-launched domestic Carbon Market.<sup>15</sup> In August 2023, the Scottish Government engaged CreditNature, a scheme developer based in the United Kingdom, to develop a voluntary biodiversity credit market in Scotland.<sup>16</sup>

Several entities are also seeking to provide market guidance on the appropriate use by buyers, and integrity characteristics of voluntary biodiversity credits. These initiatives include papers and working groups that are being led or published by (but not limited to) the following: The World Economic Forum;<sup>17</sup> The Biodiversity Consultancy;<sup>18</sup> the Biodiversity Credits Alliance;<sup>19</sup> Plan Vivo;<sup>20</sup> NatureFinance;<sup>21</sup> Verra who, with a consortium of advisors, is developing a whitepaper on biodiversity credits;<sup>22</sup> and the International Union for the Conservation of Nature.<sup>23</sup>

13 Government of Niue (2022), [Making Conservation Pay – Now Monetising The True Value Of Ocean Protection](#).

14 Afrik21 (2022), [GABON: The government wants to collect 'biodiversity credits'](#).

15 CarbonPulse (2023), [India to launch Green Credit Programme to meet broad environmental goals](#).

16 CarbonPulse (2023), [UK company wins government backing to kickstart biodiversity credits in Scotland](#).

17 World Economic Forum (2022), [Biodiversity Credits: Unlocking Financial Markets for Nature-Positive Outcomes](#); World Economic Forum (2022), [High-level governance and integrity principles for emerging voluntary biodiversity credit market – consultation paper](#).

18 The Biodiversity Consultancy (2022), [Exploring design principles for high-integrity and scalable voluntary biodiversity credits](#).

19 Biodiversity Credit Alliance (2023), [BCA's Mission](#).

20 Plan Vivo Foundation (2023), [High-level integrity principles developed to steer emerging biodiversity credits market](#).

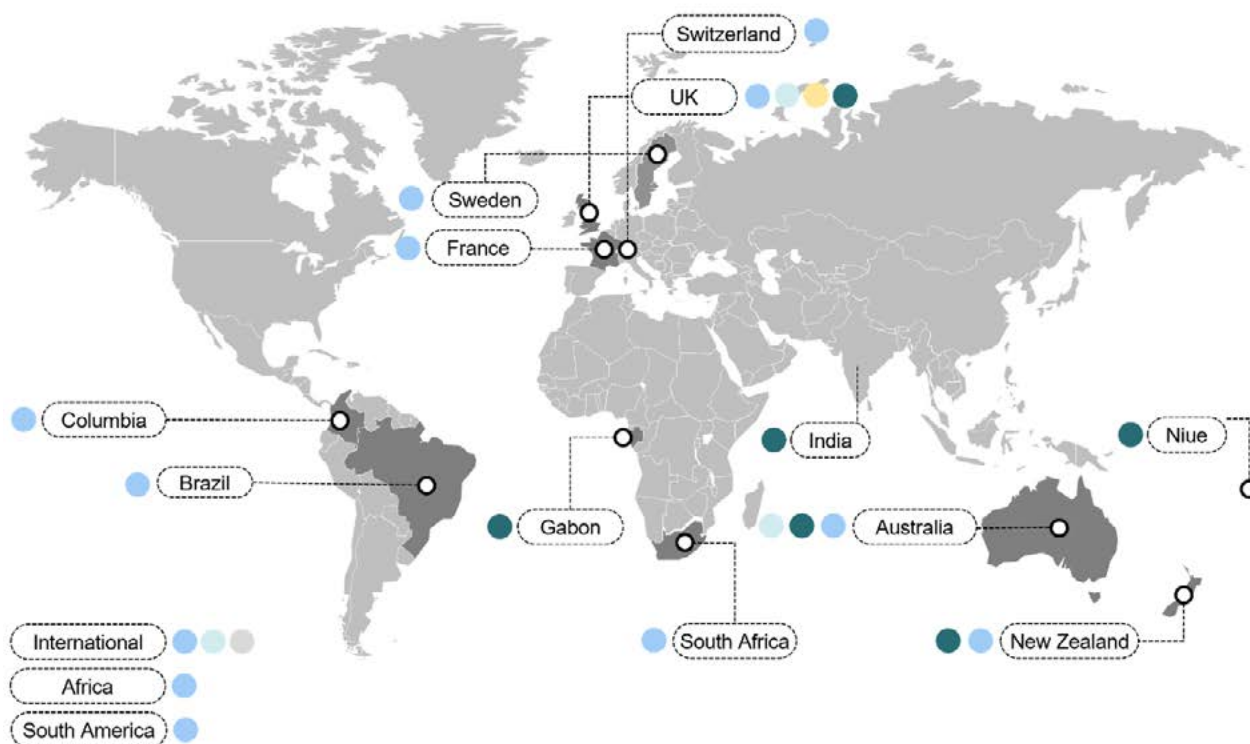
21 NatureFinance et al. (2023), [Harnessing Biodiversity Credits for People and the Planet](#).

22 Coalition for Private Investment in Conservation (2022), [Blog Part 2. Biodiversity credits: a turning point for nature](#).

23 International Union for the Conservation of Nature (2020), [IUCN Global Standard for Nature-based Solutions](#).



FIGURE 3: SCAN OF VOLUNTARY BIODIVERSITY CREDIT SCHEMES AND INITIATIVES GLOBALLY<sup>24</sup>



● Private sector-led programs

- GreenCollar, NaturePlus™ Credits (*Australia*)
- Terrain NRM, Cassowary Credits (*Australia*)
- South Pole, EcoAustralia™ (*Australia*)
- Wilderlands, Biological Diversity Units (*Australia*)
- Ekos, Sustainable Development Units (*New Zealand*)
- Plan Vivo, PV Nature Biodiversity Certificates (*International*)
- Wallacea Trust, Biodiversity Credits (*International*)
- VERRA, Verified Impact Standard (SD VISTa) (*International*)
- Climate Trade/Terrasos, Biodiversity Credits (*Colombia*)
- Ecosulis CreditNature (*United Kingdom*)
- ValueNature Biodiversity Credits (*South Africa*)
- OpenEarth, Marine Ecosystem Credits (*International*)
- Organisation for Biodiversity Certificates (*France*)
- Recelio, Dynamic Biodiversity Tokens (*Switzerland*)
- Orsa Besparingskog (*Sweden*)
- BioCarbon Registry (*Colombia*)
- CarbonZ (*New Zealand*)
- Credit Nature (*Scotland*)
- InvestConservation (*International*)
- Single Earth (*International*)
- South Pole (*Colombia*)
- Botanic Gardens Conservation (*International*)
- ERA Brazil (*Brazil*)
- New Atlantis Labs (*International*)
- Rebalance Earth (*Africa*)
- Savimbo (*Colombia*)

● Government-led programs

- Proposed Nature Repair Market (*Australia*)
- Ocean Conservation Credits (*Niue*)
- Biodiversity credit system (*Gabon*)
- Green Credit Programme (draft rules introduced) (*India*)
- Biodiversity Credit System (under consultation) (*New Zealand*)

● Governance/integrity initiatives

- World Economic Forum Biodiversity Credits Working Group (*International*)
- Biodiversity Credits Alliance (*International*)
- Taskforce for Nature Markets (*International*)
- IUCN Global Standard for Nature Based Solutions (*International*)

● University-led programs

- Queen Mary University (*United Kingdom*)

● Independent standards

- VERRA (*International*)
- Plan Vivo Foundation (*United Kingdom*)

<sup>24</sup> This figure is based on desktop research by Pollination (as at September 2023).

### 2.3.2 BIODIVERSITY CREDIT ARCHETYPES

Amongst emerging biodiversity credit schemes globally there is significant diversity in the biodiversity outcomes they support (see **Table 2**), and the approach taken to metrics (see **Table 3**)

**TABLE 2: DIFFERENT OUTCOMES TARGETED BY BIODIVERSITY CREDIT SCHEMES**

OUTCOME FOCUS	
<b>Protection<sup>25</sup></b>	<p>Projects require a verified designation of protected-area status (e.g. through a conservation easement, conservation covenant, Indigenous Protected and Conserved Area, Marine Protected Area instrument).</p> <p>This category can apply to degraded or intact ecosystems and the initial protection action may be supported by the subsequent implementation of management actions intended to achieve 'Regeneration', 'Stewardship' or 'Adaptation' outcomes.</p>
<b>Regeneration<sup>26</sup></b>	<p>Projects are intended to achieve an improvement in ecological value over time from: (1) a measured baseline; or, (2) a modelled baseline that accounts for projected background loss.</p> <p>This category can apply to degraded ecosystems.</p>
<b>Stewardship<sup>27</sup></b>	<p>Projects are intended to achieve the maintenance of ecological value over time based on: (1) a measured baseline; or, (2) a modelled baseline that accounts for projected background loss.</p> <p>This category can apply to intact ecosystems or ecosystems that have been restored to an intact level.</p>
<b>Adaptation<sup>28</sup></b>	<p>This category may be considered a subset of the 'Stewardship' category where climate change impacts are taken into consideration based on projected background loss (e.g. a project may implement management actions to enhance the resilience of coral reef ecosystems to warming temperatures).</p>

These categories are not mutually exclusive and can be targeted in different ways by a scheme that allows for different project types or even potentially 'stacking' so that one project achieves multiple outcomes simultaneously or at different points in time.

25 The International Institute for Environment and Development (IIED) classifies different biodiversity credit schemes into: (1.) preserving or avoiding loss, (2.) restoration, (3.) supporting existing efforts (IIED (2022), [Biocredits to finance nature and people – emerging lessons](#)). For this category, the most closely aligned IIED classification is 'preserving or avoiding loss'.

26 The IIED classifies different biodiversity credit schemes into: (1.) preserving or avoiding loss, (2.) restoration, (3.) supporting existing efforts (IIED (2022), [Biocredits to finance nature and people – emerging lessons](#)). For this category, the most closely aligned IIED classification is 'restoration'.

27 The IIED classifies different biodiversity credit schemes into: (1.) preserving or avoiding loss, (2.) restoration, (3.) supporting existing efforts (IIED (2022), [Biocredits to finance nature and people – emerging lessons](#)). For this category, the most closely aligned IIED classifications are 'supporting existing efforts' and potentially 'preserving or avoiding loss'.

28 There are currently no credits that exist with the intended outcome of adaptation, however it is likely credits with this intended outcome will emerge in the future.

TABLE 3: DIFFERENT APPROACHES TO APPLICABLE METRICS

METRICS APPROACH	
<b>Ecosystem</b>	Enables the tracking of a ‘basket-of-metrics’ across all aspects of the relevant ecosystem type (terrestrial, marine, or aquatic). This approach allows for flexibility to adopt the most appropriate metrics for the relevant ecosystem type.
<b>Habitat</b>	Requires the tracking of a set of biodiversity metrics across critical aspects of habitat for a specific fauna species. This approach includes metrics that are critical to the optimal habitat conditions for the relevant fauna species, but does not require the tracking of biodiversity metrics across all aspects of the relevant ecosystem type (terrestrial, marine, or aquatic).
<b>Vegetation</b>	Requires the tracking of a set of biodiversity metrics relevant to vegetation condition as a proxy for the overall condition of terrestrial ecosystems. This approach includes metrics that are relevant to the condition of terrestrial ecosystems, but does not require the tracking of metrics across all aspects of terrestrial ecosystems.



### 2.3.3 CONSIDERATIONS FOR MARKET DEVELOPMENT

#### A. INTEGRITY & TECHNICAL ROBUSTNESS

The integrity of biodiversity credit markets will be integral to their success. Globally, there is clear intent that biodiversity credit schemes should build upon the lessons learned from carbon markets to ensure they achieve high-integrity outcomes. There is a tension in relation to ensuring that the pursuit of high-integrity and technically-robust approaches do not lead to a misalignment with the buyer's willingness to pay and, therefore, the scalability of a scheme.

In outcomes-based crediting approaches, it is also noteworthy that the time period between project start and the receipt of initial revenues from the sale of the first issuance of biodiversity credits (which may be several years) is likely to be a barrier to supply-side participation, particularly where projects cannot access development finance.

As shown in **Figure 4** below, a scheme's integrity and technical robustness are likely to be correlated with the cost of implementation and, arguably, emphasis on outcomes-based crediting approaches. There are some design elements of biodiversity credit schemes which, although they may be ideal from an integrity perspective, have the potential to hamper the growth of biodiversity credit markets.

#### B. SUPPLY-SIDE INCLUSIVENESS

The scaling of scheme coverage is contingent on the geographic and ecosystem reach of methodologies and the diversity of project proponents. As biodiversity markets mature, it will be important for schemes to expand available methodologies to apply to ecosystem types where there are currently fewer options (e.g., freshwater, coastal and marine ecosystems). This will enable private sector finance to flow to all ecosystem types.

In addition, where projects carried out under a scheme could impact on lands and waters under the stewardship of IPs and LCs, it will be important for schemes to be

designed to bring forward Indigenous-led and / or owned projects. For example, a key consideration is that outcomes-based crediting approaches may be a particular barrier to carrying out projects in remote locations which are likely to be stewarded by IPs, and where there is insufficient scientific or satellite data to enable the tracking of multiple metrics against a scientific baseline to evidence outcomes. In those circumstances, in particular, schemes should be designed to recognise the strengths of traditional ecological expertise as a strong foundation for understanding and tracking ecosystem health in partnership with Indigenous communities.

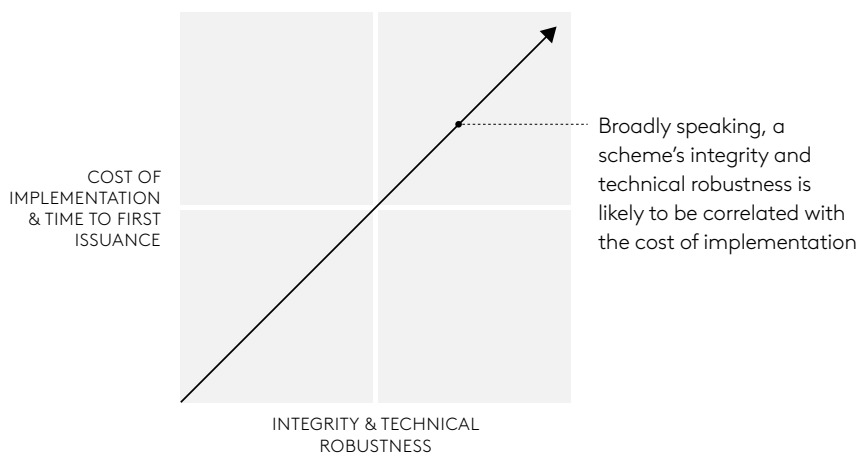
#### C. ACHIEVING DEMAND-SIDE SCALE

Demand-side scaling depends on building purchaser awareness and confidence. Securing partnerships with high-profile private sector purchasers would encourage broader demand-side confidence in biodiversity credits as a desirable product for investment. This would be supported by clear and well-considered claims guidance that provides credit purchasers with:

- clarity on how the purchase of credits is aligned with existing and emerging best practice frameworks such as the TNFD and SBTN;
- clarity on how the purchase of credits is aligned with, and/or contributes to, global and national targets, including those contained in the GBF; and
- confidence in the claims made publicly about the nature of a credit purchase and the benefits it delivers.

In developing claims guidance, it is recommended that schemes engage with national governments for clarity in the allocation of claims where private-sector actors are financing biodiversity outcomes that the government may also seek to account for in the achievement of its own targets under the GBF. This allocation of claims is akin to the issues being worked through in voluntary carbon markets with the implementation of corresponding adjustments under Article 6 of the Paris Agreement, and the counter approach of 'contribution claims'. Ideally, these issues can be resolved for voluntary biodiversity credit markets from the outset.

**FIGURE 4: COST OF IMPLEMENTATION, AND INTEGRITY AND TECHNICAL ROBUSTNESS**





---

# 3. Review framework & insights



### 3.1 Development of review frameworks

In developing the review frameworks, Pollination considered principles in existing global frameworks, schemes and standards pertaining to voluntary biodiversity credits and nature-based solutions schemes and projects. A list of sources relied upon in the development of the review frameworks is provided below in **Appendix B**.

The **Design Review Framework** was developed to compare the design features of the reviewed schemes. A rating system was not employed for this framework.

The **Integrity Review Framework** was developed to assess the degree to which the reviewed schemes align with emerging expectations for best practice integrity approaches for voluntary biodiversity credit schemes. The Integrity Review Framework was informed by expert considerations and criteria developed by the World Economic Forum, the Biodiversity Consultancy and the International Union for Conservation of Nature.<sup>29</sup>

The **Technical Review Framework** was developed to assess the scientific quality and rigour of the reviewed

schemes. The objective was to determine whether the reviewed schemes have the foundations necessary to deliver high-quality outcomes over time for both species and habitats. The Technical Review Framework was developed having regard to a number of existing frameworks, guidelines, and methodologies contained in open-source publications from academic, non-profit, and multilateral institutions (see **Appendix B**).

Where appropriate, Pollination has chosen to re-formulate existing principles to ensure the considerations and indicators in the review frameworks are fit for purpose, sufficiently detailed and specific, and incorporate Pollination’s internal best-practice expertise. Pollination has also chosen to exclude some principles where appropriate.

The considerations and indicators outlined in the review frameworks represent a non-exhaustive list of considerations/indicators that were used to inform the integrity and technical assessments.

### 3.2 Scheme selections

The reviewed schemes were selected in May 2023 based on the considerations outlined in **Table 4** below.

TABLE 4: SCHEME SELECTION CONSIDERATIONS

SCHEME SELECTION CONSIDERATIONS	
<b>Creation of tradeable product</b>	Only schemes that intend to issue biodiversity credits were considered. Other biodiversity programs, such a monitoring standards, that do not include an approach to the issuance of biodiversity credits were excluded.
<b>Geographic/biome 'flexibility'</b>	Schemes with potential applicability to a wide variety of geographies and biome conditions (i.e. those that can apply to both heavily-degraded and pristine landscapes) and terrestrial ecosystems, or all ecosystem systems, were included. Schemes covering only aquatic ecosystems were excluded from the review.
<b>Scheme maturity/information</b>	Schemes with a publicly available standard and/or technical methodology were prioritised. Where a standard and/or technical methodology was not publicly available, schemes that provided more detailed public information were prioritised for inclusion over schemes with very limited public information.

<sup>29</sup> World Economic Forum (2022), [High-level Governance and Integrity Principles for Emerging Voluntary Biodiversity Credit Markets](#); the Biodiversity Consultancy (2022), [Exploring Design Principles for High Integrity and Scalable Voluntary Biodiversity Credits](#); the International Union for Conservation of Nature (2020), [IUCN Global Standard for Nature-based Solutions \(first edition\)](#).

### 3.3 Approach to reievew & interpretation

The review was carried out on the following basis:

- the review was undertaken at the scheme and methodology level and did not take into consideration specific project-level outcomes.
- only documentation that was prepared by the entity responsible for developing the reviewed scheme in relation to the administration of the relevant scheme, including on their website (**Scheme Documentation**) was considered, and not ancillary documentation.
- only publicly available Scheme Documentation (including information published on reviewed schemes’ websites) was considered.

The rating system utilised for the Integrity and Technical Reviews is provided at **Section A.2** in **Appendix A**.

### 3.4 Scheme design review findings

The below table summarises Pollination’s findings for the reviewed schemes against the Design Review Framework. The Design Review Framework can be found at **Appendix A** of this report. The results of the Design Review can be found at **Section A.1** in **Appendix A** of this report.

TABLE 5: SCHEME DESIGN REVIEW FINDINGS

SCHEME DESIGN REVIEW FINDINGS	
<p><b>1. SCHEME COVERAGE</b></p> <p>What country(ies) does the scheme apply to or intend to apply to?</p> <p>Does the scheme intend to apply to terrestrial, freshwater and/or marine/ coastal ecosystems?</p>	<p>There are no clear trends or similarities in the approaches adopted by the reviewed schemes to geographical and ecosystem coverage.</p> <p>For some schemes, the intended coverage of the scheme is not clear from publicly available information.</p>
<p><b>2. SCHEME ADMINISTRATION/ DEVELOPER</b></p> <p>Is the scheme administered/ developed by a not-for-profit entity, commercial entity or a government body?</p>	<p>The majority of the reviewed schemes are currently administered by commercial entities.</p>
<p><b>3. UNITISATION APPROACH</b></p> <p>What is the applicable metric/unit of measurement?</p>	<p>The majority of the reviewed schemes adopt a standardised area as well as a standardised time period for credit unitisation.</p> <p>However, the specific unit utilised for measuring area and the relevant time period differ. In relation to measuring area, several schemes adopt 1 hectare.</p>
<p><b>4. CREDIT ISSUANCE/S APPROACH</b></p> <p>Are credits issued on an ex-ante or ex-post basis?</p> <p>Are there multiple (periodic) credit issuances or a single issuance of credits?</p> <p>Is there a defined crediting period or is crediting indefinite?</p>	<p>Half of the reviewed schemes allow for multiple credit issuances. For the majority of schemes, the issuance of credits is triggered by project milestones / outcomes being achieved and verified.</p> <p>For several schemes, it is unclear whether the crediting period is indefinite or not based on publicly available information. Of the schemes with sufficient information publicly available, most adopt a defined crediting period.</p>

### 3.5 Integrity considerations

The below table (Table 6) summarises Pollination’s findings for the reviewed schemes against the Integrity Review Framework. The results of the Integrity Review can be found at Section A.3 in Appendix A of this report.

TABLE 6: INTEGRITY REVIEW FINDINGS

INTEGRITY REVIEW FINDINGS	
<p><b>1. GOVERNANCE &amp; SCHEME DESIGN</b></p> <p><b>Transparent and sound governance, with information sharing on biodiversity-credit design, measurement and issuance.</b></p> <p>Does the scheme require project proponents to have the legal right to carry out the project?</p> <p>Does the scheme have appropriate governance arrangements in place to support the overall integrity of the scheme?</p> <p>Do the scheme governance arrangements provide comprehensive and transparent information on credit design and issuance, and project reporting and project documentation/ data?</p> <p>Are the scheme governance arrangements (including in relation to governing and advisory bodies, governing rules, standards and methodologies) regularly and independently reviewed, and the outcomes of those reviews made public?</p> <p>Does the scheme have or require that systems are in place at the project level to ensure clear documentation of who will have legal ownership of the credits generated by the project?</p> <p>Does the scheme provide clear guidance on the appropriate use case and claims to be made on the basis of a biodiversity credit purchase and whether the biodiversity credits can be stacked?<sup>30</sup></p>	<p><i>Legal right and third-party auditing</i></p> <p>The majority of reviewed schemes provide clarity on requirements regarding legal rights to carry out projects and require third-party auditing.</p> <p><i>Independence of schemes</i></p> <p>The majority of reviewed schemes do not provide clarity on whether the scheme will be administered by an entity independent of the project proponents.</p> <p>Several reviewed schemes appear to intend – at least for the near term – to operate as both scheme administrator and project proponent.</p> <p><i>Project proponent capability</i></p> <p>The majority of the reviewed schemes do not require project proponents to demonstrate that they have the necessary skills, capability and competency to fulfil their role.</p> <p><i>Transparency on credit design, issuance and project reporting/documentation</i></p> <p>The reviewed schemes vary substantially in the public transparency they provide on credit design, issuance and project reporting / documentation. Whilst a minority of the reviewed schemes provide detailed information, the majority provide limited to no information on this in the public domain.</p> <p><i>Reviews of governance arrangements</i></p> <p>The majority of the reviewed schemes do not require scheme governance arrangements to be regularly and independently reviewed, and for the outcome of these reviews to be made public. Similarly, the majority of the reviewed schemes do not require the identification of stakeholders and their involvement in scheme review processes.</p> <p><i>Legal ownership of credits generated</i></p> <p>A minority of the reviewed schemes clearly address legal ownership of credits generated by projects.</p> <p><i>Guidance on use case and claims</i></p> <p>The majority of reviewed schemes have not published publicly detailed claims guidance.</p>

<sup>30</sup> **Stacked products** involve various ecosystem services provided by nature-based projects within a project area being sold as a range of different credit types or units of trade that together form a stack (e.g., separate carbon credit and biodiversity credits). The components of the stack can then be sold individually to different buyers and separate payments received for each set of services. (See Global Environment Facility (2023), [Innovative Finance for Nature and People: Opportunities and Challenges for Biodiversity-Positive Carbon Credits and Nature Certificates](#), p.6). Biodiversity products may also form part of a stapled product, whereby various benefits achieved through different projects are sold together as a single unit. Pollination has not addressed stapled units in this Review.



**2. INDIGENOUS PEOPLES & LOCAL COMMUNITIES**

**No harm to people; generation of positive, equitable benefits; respecting the rights of IPs and LCs and ensuring IPs' and LCs' leadership in biodiversity credit markets and ownership of projects on lands and waters under the stewardship of IPs and LCs.**

Does the scheme ensure that projects do not infringe on human rights and require projects to demonstrate an understanding of their context?

Is the scheme designed in a way that recognises and respects IPs and LCs, their claims to territories and their methods of self-governance?

Is the scheme designed to respect the right of IPs and LCs to free, prior and informed consent (FPIC) and ensure best practice social safeguards are in place?

Is the scheme designed to ensure equitable benefit-sharing arrangements are implemented at every stage of the project and transparency of benefit-sharing arrangements?

These considerations are relevant where projects carried out under a scheme could impact on lands and waters under the stewardship of IPs and LCs.

Where projects carried out under a scheme could impact on lands and waters under the stewardship of IPs and LCs, the desires of IPs and LCs will shape the FPIC process and co-ownership, partnership, and benefit-sharing arrangements for the project. However, it is important that schemes set expectations for engagement with IPs and LCs on these issues by establishing comprehensive and transparent processes.

*Human rights requirements including stakeholder identification and consultation*

The majority of the reviewed schemes do not specify comprehensive stakeholder identification and / or engagement processes.

*Recognition and respect for IPs & LCs*

The majority of the reviewed schemes do not require the incorporation of IP and LC knowledge or co-design of projects, or for project proponents to offer to partner with IPs and LCs or involve IPs and LCs, where possible, to provide relevant local knowledge and skills in MRV.

*FPIC and social safeguards*

The majority of the reviewed schemes do not include FPIC requirements or require the provision of transparent access to project information for IPs and LCs.

*Equitable benefit-sharing*

A minority of the reviewed schemes expressly require equitable benefit-sharing arrangements to be implemented. Only one scheme establishes a mechanism that requires a proportion of the revenue from secondary market sales of biodiversity credits to flow back to IPs and LCs.

**3. SCHEME ARCHITECTURE**

**Scheme-design decisions that ensure credits achieve high-integrity positive biodiversity outcomes.**

Is the scheme supported by a registry that records the registration and status of projects and the issuance, transfer and cancellation/retirement of credits?

Is the scheme designed to ensure long-term, additional and robust positive biodiversity outcomes (i.e. enables sustained conservation actions and addresses leakage, risk of reversal events etc.)?

Does the scheme address whether credits can be sold on a secondary market?

*Registry*

The majority of the reviewed schemes are supported by a registry or other digital solution for tracking the issuance of credits.

*Permanence*

Whilst several reviewed schemes do not address permanence in the publicly available information, the majority of reviewed schemes adopt two different mechanisms to ensuring long-term positive biodiversity outcomes: (1) a legal requirement in relation to a permanence period beyond the crediting period; and/or, (2) an indefinite crediting period, or funding model that extends beyond the crediting period. The majority of the assessed schemes that do address permanence, clearly establish one mechanism, but not the other. Only one scheme establishes both mechanisms (but only to a partial extent). See Section 3.5.1 of this report for a detailed discussion on permanence.

*Additionality*

The majority of the reviewed schemes have taken a high-level approach to additionality, requiring that the biodiversity benefits delivered by a project would not have occurred in the absence of the project. One scheme has also adopted a regulatory additionality test. The majority of reviewed schemes do not address the risk of deliberate degradation of biodiversity in order to make a later case for additionality (i.e. the risk of 'moral hazard') or address it in a less robust manner. See Section 3.5.1 of this report for a detailed discussion on additionality.

*Leakage*

Half of the reviewed schemes do not address leakage, or the publicly available information was limited on this point.

*Risk of reversal*

The majority of reviewed schemes address the risk of reversal, with risk buffers being the most common approach.

*Access to secondary markets*

Half of the reviewed schemes specify whether credits generated under the scheme can be sold on a secondary market.

### 3.5.1 RETHINKING PERMANENCE AND ADDITIONALITY REQUIREMENTS FOR BIODIVERSITY CREDIT MARKETS

Permanence and additionality requirements are well established in carbon markets. These requirements have helped to provide market confidence that carbon credits generated are of high integrity. Yet, these concepts have sometimes prevented finance from flowing to countries, areas and people that are most in need. The emergence of voluntary biodiversity credit markets represent a vital opportunity to address this financing gap.

Almost three quarters of terrestrial ecosystems have been shaped by human involvement for at least 12,000 years, meaning that if landscapes are not actively managed, and those activities are not financed on an indefinite basis, biodiversity will decline. In this context, “empowering the environmental stewardship of Indigenous peoples and local communities will be critical to conserving biodiversity across the planet”.<sup>31</sup> This is especially true in the context of the pressures being placed on biodiversity by climate change and invasive species, and biodiversity credit markets should be designed to provide the ongoing finance required to facilitate this.

#### A. DEEP DIVE: APPROACHES TO MAINTAINING LONG-TERM BIODIVERSITY OUTCOMES

Under existing schemes in voluntary carbon markets, once the crediting period for a nature-based solutions carbon credit project has ended (typically after 25-30 years), there is no longer a financial incentive for landholders to continue protecting the project area. Carbon credit schemes aim to manage the risk of future loss of carbon from those project areas because of land use change (including deforestation) in different ways. This can include putting in place legal protections over the land for a period after the crediting period has ended. These timeframes of legal protection are known as “permanence periods” and are typically between 25 and 100 years.

However, even if permanence periods are effectively enforced:

- securing the ongoing legal protection of a project area beyond the crediting period alone will not ensure the maintenance of biodiversity in the area; and
- project areas will be in danger of being cleared within a generation after the expiration of permanence periods in the absence of a financial incentive not to do so.

Other considerations for whether permanence periods are a useful mechanism for biodiversity credit markets include:

- landholders are more likely to participate in a biodiversity credit scheme in the absence of legal permanence obligations; and
- in some countries, there may not be clear tenure laws and legal mechanisms to support legal permanence obligations via on-title protection.

For these reasons, a more sustainable revenue stream is required to ensure the protection of areas that are critical for carbon and biodiversity into the future. Indefinite crediting approaches can allow for funding of ongoing activities required to maintain biodiversity outcomes.

---

<sup>31</sup> Ellis, C et al (2021), [People have shaped most of terrestrial nature for at least 12,000 years](#).

**B. DEEP DIVE: APPROACHES TO ADDITIONALITY IN BIODIVERSITY CREDIT SCHEMES**

Under current additionality requirements in voluntary carbon markets, countries with HFLD (i.e. high forest cover and low historical rates of deforestation) and protected areas face significant challenges in accessing carbon finance.

Gabon is a prominent HFLD country in this predicament. By putting in place strong environmental protections since 2014, Gabon has been prevented from following the same trajectory towards high rates of deforestation as other tropical forest countries. As a result, Gabon has difficulty accessing significant revenue under REDD+ rules designed to reward countries with higher rates of deforestation for curbing that trend.<sup>32</sup> Professor Mark Maslin, professor of earth systems science at University College London, has observed that “[u]nfortunately, [the Gabonese] are going to be penalised for being good citizens ...”<sup>33</sup>

Protected areas are also generally excluded from carbon markets on additionality grounds because the protected area designation legally prevents deforestation. Yet, a significant proportion of protected areas are underfunded and not managed effectively.<sup>34</sup> This issue is also relevant to areas under long-term permanence obligations under a carbon credit scheme. As discussed in **Section 3.5.1** above, the legal protection of a project area during a permanence period alone will not ensure the maintenance of biodiversity in the area.

In this context, the approach taken to additionality in the development of biodiversity credit schemes warrants careful consideration. In Pollination’s view, the following additionality considerations may be relevant depending on the “outcome focus” (see **Table 2 above**) of a biodiversity credit scheme:

**TABLE 7: ADDITIONALITY CONSIDERATIONS DEPENDING ON OUTCOME FOCUS**

OUTCOME FOCUS	ADDITIONALITY CONSIDERATION
Protection	Financial additionality: the biodiversity protection outcome delivered by the project would not occur in the absence of the incentive created by biodiversity credit revenues; and  Regulatory additionality: the biodiversity protection outcome delivered by the project is not required under any existing legal mechanism applicable to the project area.
Regeneration, Stewardship and Adaptation	Financial additionality: biodiversity regeneration / stewardship / adaptation outcomes delivered by the project would not occur (either partially or entirely) in the absence of the incentive created by biodiversity credit revenues; and  Regulatory additionality: the biodiversity regeneration / stewardship / adaptation outcomes delivered by the project are not required under any existing legal mechanism applicable to the project area, or the financial additionality test is met. Regeneration / stewardship / adaptation outcomes delivered by a project should be considered ‘additional’ where there is an existing legal mechanism of protection (only) that is applicable to the project area and does not require the delivery of the relevant regeneration / stewardship / adaptation outcomes.
Regeneration	Moral hazard: the project area must not have been subject to deliberate degradation to make a later case for additionality to access biodiversity credit revenues.

<sup>32</sup> Note that some carbon credit programs enable HFLD countries to participate in REDD+ schemes by applying an HFLD ‘uplift’. However, this approach arguably still undervalues the contribution of HFLD countries to mitigating climate change.

<sup>33</sup> Financial Times (2021), [Africa’s green superpower: why Gabon wants markets to help tackle climate change](#).

<sup>34</sup> United Nations (2020), [Urgent solutions for boosting protected area effectiveness revealed](#); African Wildlife Foundation (n.d.), [90 percent of Africa’s protected areas lack critical funding for lions](#).

## 3.6 Technical considerations

The below table (Table 8) summarises Pollination’s findings for the reviewed schemes against the Technical Review Framework. The results of the Technical Review can be found at section A.4 in Appendix A of this report.

TABLE 8: TECHNICAL REVIEW FINDINGS

TECHNICAL REVIEW FINDINGS	
<p><b>1. RELEVANCE</b></p> <p><b>Use of data, methods, criteria, and assumptions that are appropriate for the project. Quantification and reporting should include only information relevant to internal and external stakeholders. Data, methods, criteria, and assumptions that are misleading or that do not conform to best practice are not relevant and should not be included.</b></p> <p>Does the scheme require and/or include the appropriate data, methods, criteria, and assumptions for targeted outcomes?</p> <p>Does the scheme have an approach to monitoring, reporting, and verification (MRV) methodology that adequately measures change in biome over time? Does this include tracking changes to individual species over time? Does this include tracking changes to habitat cover over time?</p>	<p>Half of the reviewed schemes do not provide public information about their approach to relevance considerations. Two of the reviewed schemes set out robust approaches to establish clearly-defined spatial and temporal conditions for projects to track improvements over time – particularly through utilisation of open-source, peer-reviewed accounting/valuation methodologies, and benchmark data, and transparent auditing intervals/requirements.</p>
<p><b>2. COMPLETENESS</b></p> <p><b>Consider all relevant information that may affect the quantification of biodiversity impacts. All relevant information should be included in the quantification of biodiversity impacts, including: all the effects of a biodiversity project should be considered and reviewed, all relevant technologies or practices should be considered to measure baselines. The biodiversity project’s monitoring plan should also specify how all relevant data will be collected.</b></p> <p>Does the scheme’s framework protect against negative incentives, and ensure long-term biodiversity outcomes?</p> <p>Does the scheme require an initial baselining of ecosystem health for the project, and are these measurements taken before restoration activities take place?</p>	<p>Several of the schemes adopt a ‘basket-of-metrics’ approach, which enables the tracking of all aspects of the relevant ecosystem type (terrestrial, marine, or aquatic) (see Table 3). This approach allows for flexibility to adopt the most appropriate metrics for the relevant ecosystem type.</p> <p>However, the flexible approach to metric selection may allow project developers interested in saving time and money on a project to select metrics that are least effort, rather than best fit. Given the potential breadth of metrics, there is also a challenge in balancing cost and practicality in relation to data collection (i.e. individual species vs. taxonomic groups).</p> <p>Some schemes focus on one aspect of an ecosystem, such as habitat or vegetation (see Table 3). These approaches do not require the tracking of metrics across all aspects of the relevant ecosystem type (terrestrial, marine, or aquatic), which creates a degree of uncertainty in relation to the overall biodiversity outcomes achieved in the project area. This could, in some cases, result in perverse outcomes for other aspects of the relevant ecosystem type if management activities are intended to optimise outcomes for one aspect of an ecosystem.</p> <p>Introducing compulsory minimum indicators / baseline requirements for tracking metrics across all aspects of the relevant ecosystem type could address these concerns. Effective risk mitigation processes to address potential perverse outcomes are another way to address these concerns.</p>

### 3. CONSISTENCY

**Use of data, methods, criteria, and assumptions that allow meaningful and valid comparisons. The credible quantification of biodiversity impacts requires that methods and procedures be always applied to a project and its components in the same manner, that the same criteria and assumptions are used to evaluate significance and relevance, and that any data collected and reported will be compatible enough to allow meaningful comparisons over time.**

Does the scheme have the capacity to measure the change in species/habitat presence and health over time?

Does the scheme align with net-positive biodiversity goals set forth by the Convention of Biological Diversity in ways most appropriate for the project(s)' biome?

Several of the reviewed schemes have clear definitions of spatial and temporal project requirements and establish clear auditing/reporting requirements for data being tracked.

However, the majority of the reviewed schemes lack clarity on the specific indicators that should be used to quantify biodiversity uplift.

### 4. TRANSPARENCY

**Provide clear and sufficient information for reviewers to assess the credibility and reliability of biodiversity claims. Project information should be compiled, analysed, and documented clearly and coherently so that reviewers may evaluate its credibility. Specific exclusions or inclusions should be clearly identified, assumptions should be explained, and appropriate references should be provided for both data and assumptions. Information relating to the project boundary and the identification of baseline scenarios should be sufficient to enable reviewers to understand how all conclusions were reached. This should be supported by comprehensive documentation of any underlying evidence to confirm and substantiate the data, methods, criteria, and assumptions used.**

Does the scheme require projects and their respective progress to be independently verified?

Half of the reviewed schemes require verified third-party auditing. However, some schemes lack clarity on the exact auditing approach and would benefit from providing more granular public information on this.

Only one of the reviewed schemes takes a robust approach to the types of indicators audited across species (richness, abundance, evenness, vulnerability, significance) and for habitat (extent, condition, vulnerability, significance).



**5. ACCURACY**

**Reduce uncertainties as much as is practical. Uncertainties with respect to biodiversity measurements, estimates, or calculations should be reduced as much as is practical, and measurement and estimation methods should avoid bias. Acceptable levels of uncertainty will depend on the objectives for implementing a project and the intended use of quantified biodiversity impacts.**

Does the scheme implement a rigorous scientific methodology that uses tested, peer-reviewed processes and technologies?

What are the defined market principles (e.g. leakage, uncertainty, additionality) the scheme uses for sale and delivery of credits?

Half of the reviewed schemes do not provide public information about their approach to accuracy considerations.

Several of the reviewed schemes apply peer-reviewed, open-source methodologies.

One of the reviewed schemes includes robust requirements to address and monitor leakage concerns and provide for an appropriate buffer zone.

**6. CONSERVATISM**

**Where accuracy is sacrificed and/or uncertainty is high, data and estimates used to quantify biodiversity impacts should be conservative.**

How does the methodology address uncertainty? Does the methodology support a conservative approach to quantification?

A minority of the reviewed schemes adopt a robust approach to the utilisation of proxy information when sufficiently accurate data is unavailable.

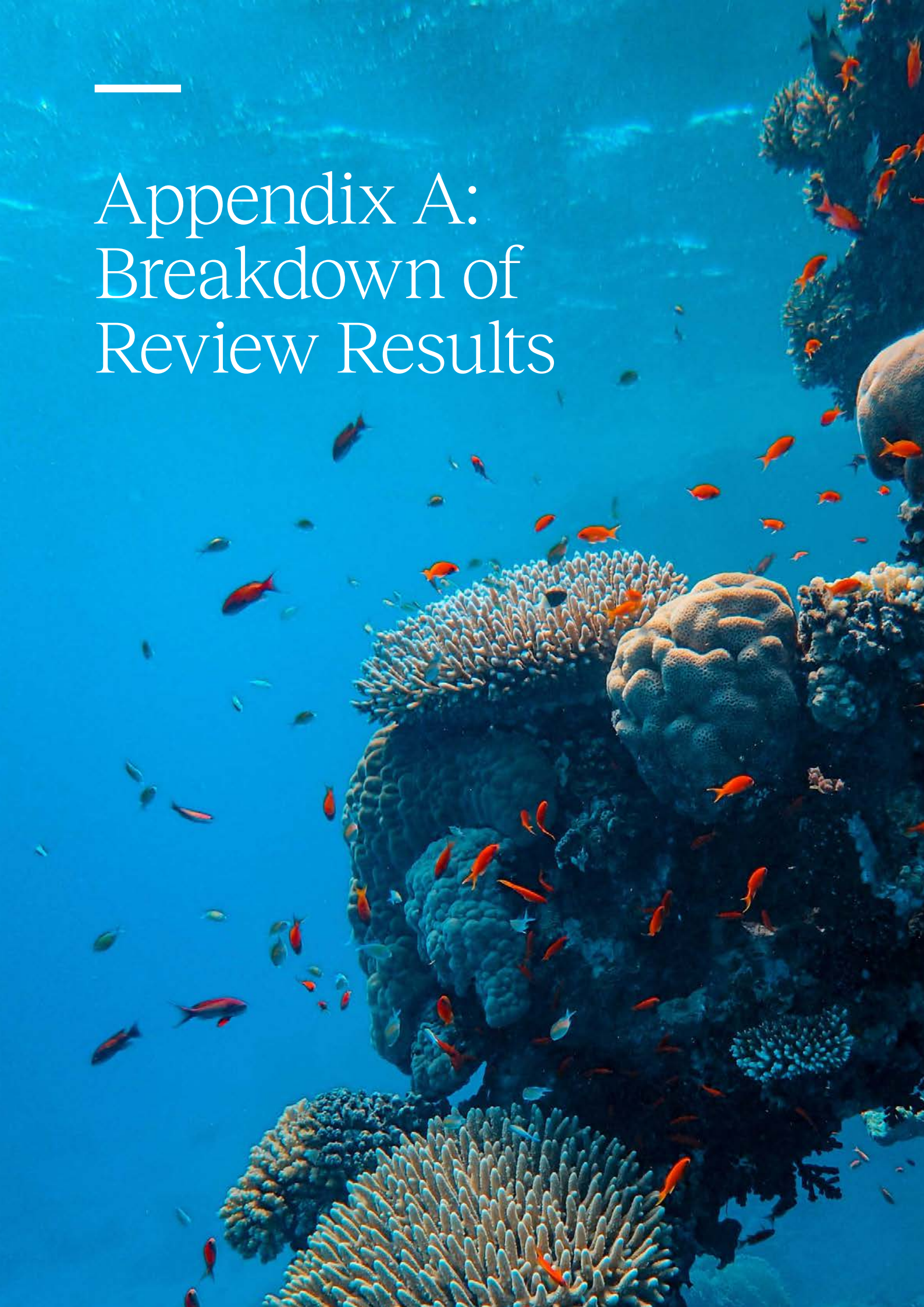
The majority of the reviewed schemes do not adequately address confidence intervals or require the disclosure of risk and uncertainty considerations.





---

# Appendix A: Breakdown of Review Results

The background of the page is a vibrant underwater photograph of a coral reef. The water is a clear, deep blue. In the foreground and middle ground, there are large, complex coral structures, including a prominent brain coral and several branching corals. Numerous small, bright orange fish, likely damselfishes, are scattered throughout the scene, swimming in various directions. The lighting is bright, suggesting a shallow depth, and the overall atmosphere is serene and natural.

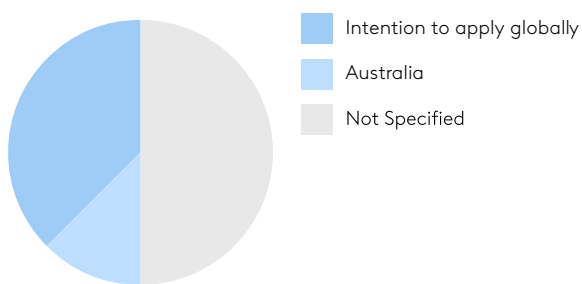
# A.1 Scheme Design Review Results

As noted above in **Section 3.3** of this report, the Scheme Design Review Framework was developed to compare the design features of the selected schemes. It does not employ a ratings system.

## 1. SCHEME COVERAGE

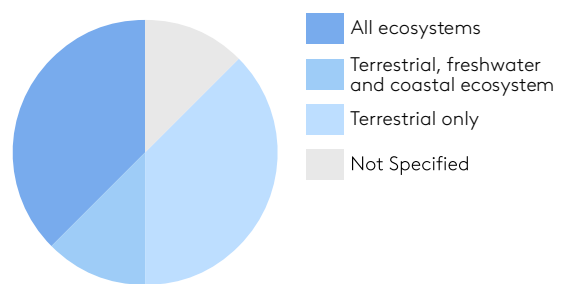
### 1.1 JURISDICTIONAL COVERAGE

What country(ies) does the scheme apply to or intend to apply to?



### 1.2 ECOSYSTEM COVERAGE

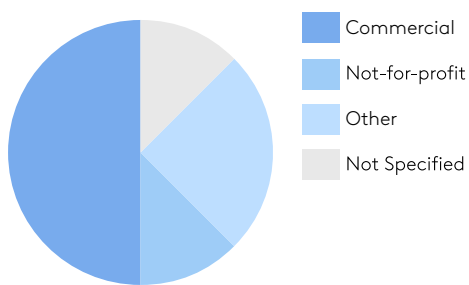
Does the scheme intend to apply to terrestrial, freshwater and/or marine/coastal ecosystems?



## 2. SCHEME ADMINISTRATION

### 2.1 ENTITY TYPE

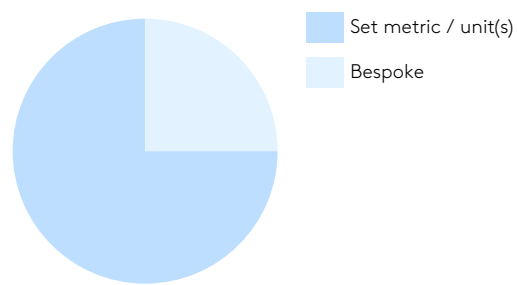
Is the scheme administered by a not-for-profit entity, commercial entity or a government body?



## 3. UNITISATION APPROACH

### 3.1 METRIC/UNIT

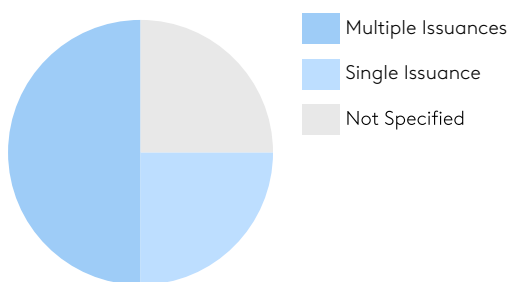
What is the applicable metric/unit of measurement?



## 4. ISSUANCE APPROACH

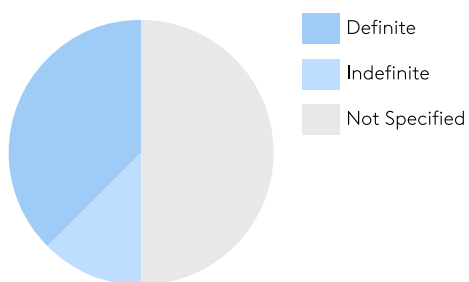
### 4.1 ISSUANCE APPROACH

Are there multiple (periodic) credit issuances or a single issuance of credits?



### 4.2 CREDITING PERIOD

Is there a defined crediting period or is crediting indefinite?



## A.2 Rating system for integrity & technical reviews

RATING LEVELS	INTEGRITY REVIEW MEANING	TECHNICAL REVIEW MEANING
<b>ROBUST</b>	The scheme addresses the consideration/relevant indicators in line with best practice	The scheme's approach to this consideration is exhaustive, and includes an extensive number of high-quality indicators that provide credible outputs on habitat, species (flora and fauna), and social implications; requires regular monitoring/reporting on indicators based on biome requirements rather than standard minimums
<b>SOMEWHAT ROBUST</b>	The scheme addresses the consideration/relevant indicators, but the approach is less robust than best practice	The scheme addresses the consideration/relevant indicators and is transparent regarding the approach to data collection and interpretation. The scheme would likely produce credible outputs on biodiversity based on existing standards, but utilises bare-minimum requirements for monitoring/auditing to produce biodiversity improvement outputs
<b>LESS ROBUST</b>	The scheme addresses the consideration/relevant indicators, but is a bare minimum approach	The scheme addresses the consideration/relevant indicators, but the approach is non-exhaustive and/or would likely not produce a transparent/rigorous data output (e.g., includes a minimal number of indicators, requires only irregular monitoring/auditing; poor alignment of data to be collected with intended output/s)
<b>TO BE ADDRESSED</b>	The scheme does not currently address the consideration/relevant indicators, but has indicated its intention to do so in the future	The scheme does not currently address the consideration/relevant indicators, but has indicated its intention to do so in the future
<b>NOT ADDRESSED IN SCHEME DOCUMENTATION</b>	The scheme documentation is publicly available, but does not address the consideration/relevant indicators or an intention to do so in the future	The scheme documentation is publicly available, however, the documentation does not address the consideration/relevant indicators or indicate an intention to do so in the future
<b>NOT ADDRESSED IN LIMITED PUBLICLY- AVAILABLE INFORMATION</b>	Only high-level scheme information is publicly available and does not address the consideration/relevant indicators or indicate an intention to do so in the future	Only high-level information is publicly available for the scheme and this information is not adequate to assess the consideration/relevant indicators

## A.3 Integrity review results



### 1. GOVERNANCE & SCHEME DESIGN

Transparent and sound governance, with information sharing on biodiversity credit design, measurement and issuance.

#### INTEGRITY CONSIDERATION 1.1

Does the scheme require project proponents to have the legal right to carry out the project?

##### INTEGRITY INDICATOR 1.1.1

What country(ies) does the scheme apply to or intend to apply to?



#### INTEGRITY CONSIDERATION 1.2

Does the scheme have appropriate governance arrangements in place to support the overall integrity of the scheme?

##### INTEGRITY INDICATOR 1.2.1

Scheme establishes a governance body or bodies with decision-making powers that support the overall integrity of the scheme (e.g. a technical advisory body).



##### INTEGRITY INDICATOR 1.2.2

Scheme is administered by an entity that is independent from the project proponents.



##### INTEGRITY INDICATOR 1.2.3

Scheme requires projects to be audited by third parties with the requisite expertise and that are independent from the project proponents at periodic intervals.



##### INTEGRITY INDICATOR 1.2.4

Scheme requires project proponents to have the necessary skills, capability and competency, business practices and good character that would reasonably be expected to fulfil that role.



#### INTEGRITY CONSIDERATION 1.3

Do the scheme governance arrangements provide comprehensive and transparent information on data, credit design and issuance and project reporting and project documentation/data?

##### INTEGRITY INDICATOR 1.3.1

Information on credit design and issuance as well as project reporting and project documentation/ data is publicly available in an accessible, electronic format.<sup>35</sup>



#### INTEGRITY CONSIDERATION 1.4

Are the scheme governance arrangements (including in relation to governing and advisory bodies, governing rules, standards and methodologies) regularly and independently reviewed, and the outcomes of those reviews made public?

##### INTEGRITY INDICATOR 1.4.1

Scheme provides for periodic, independent review of its governance arrangements.



<sup>35</sup> Pollination recognises that many reviewed schemes may have intentions to publish further detail in the future. For this indicator, unless that intention was explicitly stated, schemes with limited publicly available information received the 'Less robust' score.



# APPENDIX A



## 1. GOVERNANCE & SCHEME DESIGN

Transparent and sound governance, with information sharing on biodiversity credit design, measurement and issuance.

**INTEGRITY INDICATOR 1.4.2**  
Outcomes of governance reviews are made publicly available.

**INTEGRITY INDICATOR 1.4.3**  
Recommendations arising from reviews are implemented in a timely manner and disclosed.

**INTEGRITY INDICATOR 1.4.4**  
Scheme provides for the identification of stakeholders and their involvement in review processes, including incorporating independent Indigenous People and local community (IP and LC) advisors in the review process where projects carried out under the scheme could impact on lands and waters under the stewardship of IPs and LCs.

### INTEGRITY CONSIDERATION 1.5

Does the scheme have or require that systems are in place at the project level to ensure clear documentation of who will have legal ownership of the credits generated by the project?

**INTEGRITY INDICATOR 1.5.1**  
Scheme requires project proponents to have arrangements in place that give them the legal rights in the biodiversity outcomes from the project and document who the (initial) owner of credits generated will be.

### INTEGRITY CONSIDERATION 1.6

Does the scheme provide clear guidance on the appropriate use case and claims to be made on the basis of a biodiversity credit purchase and whether the biodiversity credits can be stacked?<sup>36</sup>

**INTEGRITY INDICATOR 1.6.1**  
Scheme provides clear guidance on the appropriate use case and claims to be made on the basis of a biodiversity credit purchase.<sup>37</sup>

**INTEGRITY INDICATOR 1.6.2**  
Scheme provides clear guidance on whether biodiversity credits can be stacked with carbon credit-generating methodologies within the same project area and the allocation of claims where the two units generated are sold separately.

<sup>36</sup> 'Stacked' products involve different ecosystem services provided by nature-based projects within a project area being sold as a range of different credit types or units of trade that together form a 'stack' (e.g., separate carbon credit and biodiversity credits). The 'stack' of credits can then be sold to different buyers. (See Global Environment Facility (2023), *Innovative Finance for Nature and People: Opportunities and Challenges for Biodiversity-Positive Carbon Credits and Nature Certificates*, p.6). Biodiversity products may also form part of a 'stapled' product, whereby various benefits achieved through different projects are sold together as a single unit. Pollination has not addressed stapled units in this report.

<sup>37</sup> Given market nascency, this report does not seek to assess the integrity of the biodiversity credit use case specified, but rather reviewed whether clarity is provided for purchasers.

## APPENDIX A



### 2. INDIGENOUS PEOPLES & LOCAL COMMUNITIES

No harm to people; generation of positive, equitable benefits; respecting the rights of IPs and LCs and ensuring IPs' and LCs' leadership in biodiversity credit markets and ownership of projects on lands and waters under the stewardship of IPs and LCs.

#### INTEGRITY CONSIDERATION 2.1

Does the scheme ensure that projects do not infringe on human rights and require projects to demonstrate an understanding of their context?

##### INTEGRITY INDICATOR 2.1.1

Scheme requires project proponents to engage with stakeholders who are identified as directly or indirectly impacted by the project.



##### INTEGRITY INDICATOR 2.1.2

Scheme requires projects to document and respond to the rights and interests of all participating and affected stakeholders, including by determining the appropriate approach to human rights considerations and land rights.



##### INTEGRITY INDICATOR 2.1.3

Scheme provides for clear conflict resolution/ grievance mechanisms available to all stakeholders, including IPs and LCs.



#### INTEGRITY CONSIDERATION 2.2

Is the scheme designed in a way that recognises and respects IPs and LCs, their claims to territories and their methods of self-governance?

##### INTEGRITY INDICATOR 2.2.1

Where projects carried out under the scheme could impact on lands and waters under the stewardship of IPs and LCs, scheme includes indicators incorporating IP and LC Knowledge.



##### INTEGRITY INDICATOR 2.2.2

Where projects carried out under the scheme could impact on lands and waters under the stewardship of IPs and LCs, scheme requires co-design of projects with IPs and LCs through a rights-based approach for projects proposed to be undertaken in areas or territories of IPs and LCs (formal and or customary).



##### INTEGRITY INDICATOR 2.2.3

Where projects carried out under the scheme could impact on lands and waters under the stewardship of IPs and LCs, scheme requires project proponents to offer to partner with IPs and LCs before submitting project proposals and that where IPs and LCs have governance rights over biodiversity, they should, wherever possible, be the project proponents and/or entity receiving benefits from biodiversity credits.



##### INTEGRITY INDICATOR 2.2.4

Where projects carried out under the scheme could impact on lands and waters under the stewardship of IPs and LCs, scheme requires involvement of IPs and LCs where possible to provide local knowledge and skills in MRV.



## APPENDIX A



### INTEGRITY CONSIDERATION 2.3

Is the scheme designed to respect the right of IPs and LCs to free, prior and informed consent (FPIC) and ensure best practice social safeguards are in place (see also Integrity Consideration 2.2 above)?

#### INTEGRITY INDICATOR 2.3.1

Where projects carried out under the scheme could impact on lands and waters under the stewardship of IPs and LCs, scheme requires project proponents to secure FPIC of IP and LC rights-holders prior to any project development (including at the project application stage).



#### INTEGRITY INDICATOR 2.3.2

Scheme requires project proponents to consider adverse social impacts and safeguard against them.



#### INTEGRITY INDICATOR 2.3.3

Scheme is designed to facilitate access to transparent data and information at every stage of the project.



### INTEGRITY CONSIDERATION 2.4

Is the scheme designed to ensure equitable benefit-sharing arrangements are implemented at every stage of the project and transparency of benefit-sharing arrangements?

#### INTEGRITY INDICATOR 2.4.1

Where projects carried out under the scheme could impact on lands and waters under the stewardship of IPs and LCs, scheme requires equitable benefit-sharing arrangements to be implemented.



#### INTEGRITY INDICATOR 2.4.2

Where projects carried out under the scheme could impact on lands and waters under the stewardship of IPs and LCs, scheme requires transparent documentation of benefit-sharing arrangements with IPs and LCs.



#### INTEGRITY INDICATOR 2.4.3

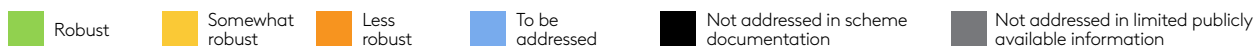
Where projects carried out under the scheme could impact on lands and waters under the stewardship of IPs and LCs, scheme requires benefit-sharing measures to be structured to support IPs and LCs to benefit from increases to credit prices and secondary market activity.



#### INTEGRITY INDICATOR 2.4.4

Where projects carried out under the scheme could impact on lands and waters under the stewardship of IPs and LCs, scheme requires transparent documentation of benefit-/revenue-sharing arrangements with governments to avoid corruption and diversion of funds from activities that benefit nature and IPs and LCs.





### 3. SCHEME ARCHITECTURE

Scheme design decisions that ensure credits achieve high-integrity positive biodiversity outcomes.

#### INTEGRITY CONSIDERATION 3.1

Is the scheme supported by a registry that records the registration and status of projects and the issuance, transfer and cancellation/retirement of credits?

##### INTEGRITY INDICATOR 3.1.1

Registry clearly identifies all registered projects and project status.



##### INTEGRITY INDICATOR 3.1.2

Registry uniquely identifies credits upon issuance, tracks transfers and cancellation/retirement of credits.



#### INTEGRITY CONSIDERATION 3.2

Is the scheme designed in a way that recognises and respects IPs and LCs, their claims to territories and their methods of self-governance?

##### INTEGRITY INDICATOR 3.2.1<sup>38</sup>

Scheme aims to achieve sustainable conservation outcomes through one or more of the following:

- adopting an indefinite crediting period or funding model that extends beyond the crediting period,
- establishing a requirement in relation to a permanence period beyond the crediting period.



##### INTEGRITY INDICATOR 3.2.2<sup>39</sup>

Scheme establishes requirements for project additionality that address, amongst other things, the risk of deliberate degradation of biodiversity in order to make a later case for additionality (i.e. the risk of 'moral hazard').



##### INTEGRITY INDICATOR 3.2.3

Scheme has a mechanism which addresses the displacement of activities in the project area to areas outside the project (i.e. leakage), resulting in negative impacts on biodiversity elsewhere that negate some or all of the positive biodiversity outcomes achieved by a project.



##### INTEGRITY INDICATOR 3.2.4

Scheme has a mechanism which addresses reversal events.



<sup>38</sup> Ideally, and subject to the discussion in section 3.5.1, biodiversity credit schemes would implement mechanisms to achieve long-term biodiversity outcomes that address both elements of this criteria. For the purposes of this review, schemes that addressed only one of these elements received a maximum rating of 'Somewhat robust'. However, we note that in some jurisdictions there may not be legal mechanisms to support on-title protection and that there may be tradeoffs to be considered between robust approaches to permanence and uptake.

<sup>39</sup> Schemes that did not address the risk of deliberate degradation of biodiversity in order to make a later case for additionality, but included otherwise robust additionality requirements received a maximum rating of 'Somewhat robust'.



### 3. SCHEME ARCHITECTURE

Scheme design decisions that ensure credits achieve high-integrity positive biodiversity outcomes.

#### INTEGRITY CONSIDERATION 3.3

Does the scheme address whether credits are able to be sold on a secondary market?

##### INTEGRITY INDICATOR 3.3.1

Scheme addresses whether credits are able to be sold on a secondary market.



## A4 Technical review results

### 1. RELEVANCE

Use of data, methods, criteria, and assumptions that are appropriate for the project. Quantification and reporting should include only information relevant to internal and external stakeholders. Data, methods, criteria, and assumptions that are misleading or that do not conform to best practice are not relevant and should not be included

#### TECHNICAL CONSIDERATION 1.1

Does the scheme require and/or include the appropriate data, methods, criteria and assumptions for targeted outcomes? Does the scheme have an approach to MRV that adequately measures change in biome over time?

Does this include tracking changes to individual species over time? Does this include tracking changes to habitat cover over time?

##### TECHNICAL INDICATOR 1.1.1

Use of different monitoring methods (on-the-ground surveys, remote data collection, continuous monitoring, etc.)



##### TECHNICAL INDICATOR 1.1.2

Frequency of data collection appropriate for the biome (surveys per year, per season, etc.)



##### TECHNICAL INDICATOR 1.1.3

Requirement of intermittent project surveys tracking indicators identified



##### TECHNICAL INDICATOR 1.1.4

Use of methodologies and technologies that are based on peer-reviewed, best-in-class science and techniques



##### TECHNICAL INDICATOR 1.1.5

Both remote and on-the-ground monitoring strategies are utilised through the scheme





## APPENDIX A



### 2. COMPLETENESS

Consider all relevant information that may affect the quantification of biodiversity impacts. All relevant information should be included in the quantification of biodiversity impacts, including: all of the effects of a biodiversity project should be considered and reviewed, all relevant technologies or practices should be considered to measure baselines. The biodiversity project’s monitoring plan should also specify how all relevant data will be collected.

#### TECHNICAL CONSIDERATION 2.1

Does the scheme require and/or include the appropriate data, methods, criteria and assumptions for targeted outcomes? Does the scheme have an approach to MRV that adequately measures change in biome over time?

##### TECHNICAL INDICATOR 2.1.1

Methodology ensures project can deliver and track biodiversity improvements across an ecosystem over time



##### TECHNICAL INDICATOR 2.1.2

Framework requires a permanence period and articulates the process of an assurance guarantee



##### TECHNICAL INDICATOR 2.1.3

Process included for protecting against unanticipated biodiversity loss



#### TECHNICAL CONSIDERATION 2.2

Does the scheme require an initial baselining of ecosystem health for the project, and are these measurements taken before restoration activities take place?

##### TECHNICAL INDICATOR 2.2.1

The occurrence of different species/habitat across the project land/seascape



##### TECHNICAL INDICATOR 2.2.2

The abundance of individuals within a given species’ population



##### TECHNICAL INDICATOR 2.2.3

The even distribution of individuals across the project land/seascape



##### TECHNICAL INDICATOR 2.2.4

The size, extent and condition of different habitat types across the project area<sup>40</sup>



##### TECHNICAL INDICATOR 2.2.5

The occurrence of different species with local and/or international significance (i.e. IUCN Red List)



##### TECHNICAL INDICATOR 2.2.6

The occurrence/extent of any national and/or internationally significant habitat types (i.e. RAMSAR areas)



##### TECHNICAL INDICATOR 2.2.7

The occurrence of species with particular degrees of vulnerability/sensitivity (e.g. functional grazing territory, puma range habitat, etc.) or dependency on habitat type/availability



<sup>40</sup> Note for one of the reviewed schemes several methodologies were reviewed. For this indicator, ratings ranged from ‘To be addressed’ to ‘Robust’. The highest rating has been reflected here.

## APPENDIX A



### 2. COMPLETENESS

Consider all relevant information that may affect the quantification of biodiversity impacts. All relevant information should be included in the quantification of biodiversity impacts, including: all of the effects of a biodiversity project should be considered and reviewed, all relevant technologies or practices should be considered to measure baselines. The biodiversity project's monitoring plan should also specify how all relevant data will be collected.

#### TECHNICAL INDICATOR 2.2.8

The historic documentation of species across the project land/seascape, and identification of any impact drivers that could be influenced by the project



#### TECHNICAL INDICATOR 2.2.9

Identification of the occurrence/extent of existing anthropogenic activities (agriculture, timber, mining, etc.)



#### TECHNICAL INDICATOR 2.2.10

The extent of habitat conversion that has occurred across the project area (roads, real estate development, etc.)



### 3. CONSISTENCY

Use of data, methods, criteria, and assumptions that allow meaningful and valid comparisons. The credible quantification of biodiversity impacts requires that methods and procedures are always applied to a project and its components in the same manner, that the same criteria and assumptions are used to evaluate significance and relevance, and that any data collected and reported will be compatible enough to allow meaningful comparisons over time.

#### TECHNICAL CONSIDERATION 3.1

Does the scheme have the capacity to measure the change in species/habitat presence and health over time?

##### TECHNICAL INDICATOR 3.1.1

Use of reference site to define restoration potential/timeline and benchmark measured uplift



##### TECHNICAL INDICATOR 3.1.2

Interim and final survey comparison of change in project's species/habitat presence and health to anticipated uplift



#### TECHNICAL CONSIDERATION 3.2

Does the scheme align with net-positive biodiversity goals set forth by the Convention of Biological Diversity in ways most appropriate for the project(s) biome?

##### TECHNICAL INDICATOR 3.2.1

Prioritisation of the conservation of biological diversity



##### TECHNICAL INDICATOR 3.2.2

Sustainable use and management of the land/seascape in line with global biodiversity targets



##### TECHNICAL INDICATOR 3.2.3

Integration of fair, equitable sharing of benefits arising from the land/seascape<sup>41</sup>



<sup>41</sup> Note for one of the reviewed schemes several methodologies were reviewed. For this indicator, ratings ranged from 'To be addressed' to 'Robust'. The highest rating has been reflected here.

## APPENDIX A



### 4. TRANSPARENCY

Provide clear and sufficient information for reviewers to assess the credibility and reliability of biodiversity claims. Project information should be compiled, analysed, and documented clearly and coherently so that reviewers may evaluate its credibility. Specific exclusions or inclusions should be clearly identified, assumptions should be explained, and appropriate references should be provided for both data and assumptions. Information relating to the project boundary and the identification of baseline scenarios should be sufficient to enable reviewers to understand how all conclusions were reached. This should be supported by comprehensive documentation of any underlying evidence to confirm and substantiate the data, methods, criteria, and assumptions used.

#### TECHNICAL CONSIDERATION 4.1

Does the scheme require projects and their respective progress to be independently verified?

##### TECHNICAL INDICATOR 4.1.1

Requirement of third-party audits of scheme projects



##### TECHNICAL INDICATOR 4.1.2

Audits conducted by verified parties



##### TECHNICAL INDICATOR 4.1.3

Audits are conducted at regular predetermined intervals appropriate for monitoring biome changes over time



##### TECHNICAL INDICATOR 4.1.4

Audits monitor key indicators for species (richness, abundance, evenness, vulnerability, significance) and habitat (extent, condition, vulnerability, significance)



##### TECHNICAL INDICATOR 4.1.5

Associated project credits should be independently issued by verified third parties



### 5. ACCURACY

Reduce uncertainties as much as is practical. Uncertainties with respect to biodiversity measurements, estimates, or calculations should be reduced as much as is practical, and measurement and estimation methods should avoid bias. Acceptable levels of uncertainty will depend on the objectives for implementing a project and the intended use of quantified biodiversity impacts.

#### TECHNICAL CONSIDERATION 5.1

Does the scheme implement a rigorous scientific methodology that utilises tested, peer-reviewed processes and technologies?

##### TECHNICAL INDICATOR 5.1.1

Use of peer-reviewed methodologies that are documented within published, open-source scientific literature

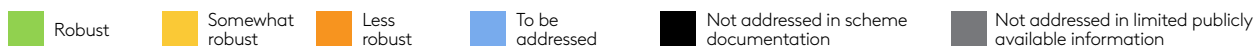


##### TECHNICAL INDICATOR 5.1.2

Scientific methods, metrics, indicators, and any associated MRV processes are documented and open-source



## APPENDIX A



### 5. ACCURACY

Reduce uncertainties as much as is practical. Uncertainties with respect to biodiversity measurements, estimates, or calculations should be reduced as much as is practical, and measurement and estimation methods should avoid bias. Acceptable levels of uncertainty will depend on the objectives for implementing a project and the intended use of quantified biodiversity impacts.

#### TECHNICAL INDICATOR 5.1.3

Technologies (software or hardware) and databases utilised should be documented and available for public audit. Any innovative applications should be coupled with approved methodologies and efficacy surveys<sup>42</sup>



#### TECHNICAL CONSIDERATION 5.2

What are the defined market principles (e.g. leakage, buffer, additionality) the scheme uses for sale and delivery of credits?

#### TECHNICAL INDICATOR 5.2.1

Inclusion and monitoring of the leakage effect (any externalities that may be inflicted in the surrounding environment due to project activities)<sup>43</sup>



#### TECHNICAL INDICATOR 5.2.2

Inclusion of a buffer zone appropriate for the project area/risk (either to monitor/hedge against leakage, or to use as a credit buffer)<sup>44</sup>



### 6. CONSERVATISM

Where accuracy is sacrificed and/or uncertainty is High, data and estimates used to quantify biodiversity impacts should be conservative.

#### TECHNICAL CONSIDERATION 6.1

How does the methodology address uncertainty? Does the methodology support a conservative approach to quantification?

#### TECHNICAL INDICATOR 6.1.1

Usage of relevant estimates or proxies that can sufficiently correlate biodiversity outcomes when sufficient accuracy data are unavailable



#### TECHNICAL INDICATOR 6.1.2

Use of error bars or confidence intervals



#### TECHNICAL INDICATOR 6.1.3

Requirements for reporting/disclosing uncertainty



42 Note for one of the reviewed schemes several methodologies were reviewed. For this indicator, ratings ranged from 'Somewhat Robust' to 'Robust'. The highest rating has been reflected here.

43 Note for one of the reviewed schemes several methodologies were reviewed. For this indicator, ratings ranged from 'Not addressed' to 'Robust'. The highest rating has been reflected here.

44 Note for one of the reviewed schemes several methodologies were reviewed. For this indicator, ratings ranged from 'Not addressed' to 'Robust'. The highest rating has been reflected here.

---

# Appendix B: Review Framework Source List





## Review Framework Source List

- Accounting for Nature. Guidelines for Developing Methods to Assess the Condition of Native Vegetation. <https://static1.squarespace.com/static/5dc38cde1d028031235ca3cf/t/62a6bea0d4b1e221293a3ac8/1655094954228/AfN+Guidelines+for+Developing+Methods+to+Assess+the+Condition+of+Native+Vegetation.pdf> (2020).
- ART TREES. Standard & Templates. ART Architecture for REDD+ Transactions <https://www.artredd.org/trees/standard-and-templates/>.
- ART TREES. TREES. ART Architecture for REDD+ Transactions <https://www.artredd.org/trees/>.
- ART TREES. Architecture for REDD+ Transactions (ART) Program. (2021).
- Blumetto, O. et al. Ecosystem Integrity Index, an innovative environmental evaluation tool for agricultural production systems. *Ecological Indicators* 101, 725–733 (2019).
- Forest Carbon Partnership Facility. Buffer Guidelines. [https://www.forestcarbonpartnership.org/sites/fcp/files/2020/April/FCPF%20Buffer%20Guidelines\\_2020\\_1\\_Final\\_Posted.pdf](https://www.forestcarbonpartnership.org/sites/fcp/files/2020/April/FCPF%20Buffer%20Guidelines_2020_1_Final_Posted.pdf) (2020).
- Forest Carbon Partnership Facility. FCPF Carbon Fund Methodological Framework. [https://www.forestcarbonpartnership.org/sites/fcp/files/2020/April/FCPF%20Carbon%20Fund%20Methodological%20Framework%20revised\\_%202020\\_Final\\_Posted.pdf](https://www.forestcarbonpartnership.org/sites/fcp/files/2020/April/FCPF%20Carbon%20Fund%20Methodological%20Framework%20revised_%202020_Final_Posted.pdf) (2020).
- Forest Carbon Partnership Facility. FCPF Process Guidelines. [https://www.forestcarbonpartnership.org/sites/fcp/files/2020/April/FCPF%20Process%20Guidelines\\_2020\\_Final\\_Posted.pdf](https://www.forestcarbonpartnership.org/sites/fcp/files/2020/April/FCPF%20Process%20Guidelines_2020_Final_Posted.pdf) (2020).
- Forest Carbon Partnership Facility. FCPF Validation and Verification Guidelines. [https://www.forestcarbonpartnership.org/sites/fcp/files/FCPF%20Validation%20and%20Verification%20Guidelines\\_2021\\_Ver2.3.pdf](https://www.forestcarbonpartnership.org/sites/fcp/files/FCPF%20Validation%20and%20Verification%20Guidelines_2021_Ver2.3.pdf) (2020).
- GHG Protocol. Corporate Standard | GHG Protocol. <https://ghgprotocol.org/corporate-standard>.
- Grantham, H. S. et al. Anthropogenic modification of forests means only 40% of remaining forests have high ecosystem integrity. *Nat Commun* 11, 5978 (2020).
- Greenhalgh, S. et al. The GHG Protocol for Project Accounting. (2005).
- Hill, S. L. L. et al. The Ecosystem Integrity Index: a novel measure of terrestrial ecosystem integrity with global coverage. 2022.08.21.504707 Preprint at <https://doi.org/10.1101/2022.08.21.504707> (2022).
- IIED. Biocredits to finance nature and people. <https://www.iied.org/sites/default/files/pdfs/2022-11/21216IIED.pdf> (2022).
- IUCN. IUCN Global Standard for Nature-based Solutions. <https://portals.iucn.org/library/sites/library/files/documents/2020-020-En.pdf> (2020).
- Olson, D. M. et al. Terrestrial Ecoregions of the World: A New Map of Life on Earth. *BioScience* 51, 933 (2001).
- PCAF. The Global GHG Accounting and Reporting Standard for the Financial Industry | GHG Protocol. <https://ghgprotocol.org/global-ghg-accounting-and-reporting-standard-financial-industry>.
- Plan Vivo Foundation. Biodiversity Standard Public Consultation. Plan Vivo Foundation <https://www.planvivo.org/biodiversity-standard-public-consultation> (2023).
- Ranganathan, J. GHG Protocol Initiative Team.
- Rossberg, A. G., O’Sullivan, J. D., Malysheva, S. & Shnerb, N. M. A metric for tradable biodiversity credits linked to the Living Planet Index and global species conservation. Preprint at <https://doi.org/10.48550/arXiv.2111.03867> (2023).
- ScienceDirect. Biodiversity Indicator – an overview | ScienceDirect Topics. <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/biodiversity-indicator>.
- The Biodiversity Consultancy. Exploring design principles for high integrity and scalable voluntary biodiversity credits. (2022).
- Verra. AFOLU Project Market Leakage. Verra <https://verra.org/methodologies/afolu-project-market-leakage/>.
- Verra. Methodologies. Verra <https://verra.org/methodologies-main/>.

## APPENDIX B

---

- Verra. Who We Are. Verra <https://verra.org/about/overview/>.
- Verra. JNR Leakage Tool. <https://verra.org/wp-content/uploads/2016/05/JNR-Leakage-Tool-v1.0-04-FEB-2014.pdf> (2014).
- Verra. Factsheet: Climate, Community & Biodiversity Program. <https://verra.org/wp-content/uploads/2016/05/CCB-Factsheet-3.1.pdf> (2016).
- Verra. Proposal for Scaling Voluntary Carbon Markets and Avoiding Double Counting post-2020. [https://verra.org/wp-content/uploads/2020/08/Proposal-for-Scaling-Voluntary-Carbon-Markets-and-Avoiding-Double-Counting.pdf\(2020\)](https://verra.org/wp-content/uploads/2020/08/Proposal-for-Scaling-Voluntary-Carbon-Markets-and-Avoiding-Double-Counting.pdf(2020)).
- Wildlife Conservation Society. Ecosystem Integrity. <https://www.wcs.org/our-work/ecosystem-integrity> (2021).
- World Economic Forum. High-level governance and integrity principles for emerging voluntary biodiversity credit markets: Consultation paper. [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) (2022).



For further information please visit  
[pollinationgroup.com](http://pollinationgroup.com)

---

#### DISCLAIMER

Pollination acknowledges the Traditional Owners of the land on which we work and live, and recognises their continuing connection to land, water and culture. We pay respect to Elders past and present.

This material has been prepared by Pollination Global Holdings Limited and its related entities (Pollination Group, or we) and is for general information purposes only and is not an offer, inducement, solicitation or invitation of any kind for the purchase or sale of any financial product or service and under no circumstances is it to be construed as a prospectus or an advertisement. The material has been prepared for wholesale, institutional and professional clients and is not intended to provide you with financial or tax advice and does not take into account your objectives, financial situation or needs. Although we believe that the material is correct, no warranty of accuracy, reliability or completeness is given, except for liability under statute which cannot be excluded and no reliance may, nor should, be placed upon the contents of this material by any person for any purposes whatsoever. Please note that past performance is not indicative of future performance and that no guarantee of performance, the return of capital or a particular rate of return, is given. Pollination Group may hold positions in investments described in this material. This material is proprietary to Pollination Group. The recipient of this material agrees not to reproduce or distribute this material in whole or in part and not to disclose any of its contents to any other person.

If you are subject to Australian law, this material is issued by Pollination Financial Services Pty Limited (ACN 639 669 533) (AFSL No. 539 352) (Pollination Australia). Pollination Australia is part of the Pollination Group.

This material is not intended for use by any U.S. Person (as defined under the U.S. Securities Act 1933) and is not for distribution and does not constitute an offer to or solicitation to buy any securities in the USA.

Please consider the environment before printing.