SD VISta

SDVM002

NATURE FRAMEWORK

DRAFT

VERRA

In partnership with

THE BIODIVERSITY CONSULTANCY

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ABOUT VERRA

Verra sets the world's leading standards for climate action and sustainable development. We build standards for activities as diverse as reducing deforestation, to improving agricultural practices, to addressing plastic waste, and to achieving gender equality. We manage programs to certify that these activities achieve measurable high-integrity outcomes. And we work with governments, businesses, and civil society to advance the use of these standards, including through the development of markets. Everything we do is in service of increasingly ambitious climate and sustainable development goals – and an accelerated transition to a sustainable future.

Verra's certification programs include the Verified Carbon Standard (VCS) Program and its Jurisdictional and Nested REDD+ (JNR) framework, the Climate, Community & Biodiversity Standards (CCBS) Program, the Sustainable Development Verified Impact Standard (SD VISta) Program, and the Plastic Waste Reduction Program.

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1 NATURE FRAMEWORK INTRODUCTION

This section introduces stakeholders to Verra's Sustainable Development Verified Impact Standard (SD VISta) Nature Framework.

1.1 Goal

The goal of the Nature Framework is to certify and incentivize widespread investment in measurable positive biodiversity outcomes benefiting nature and people. A positive biodiversity outcome is an increase in the amount or quality of biodiversity relative to a baseline resulting from the effective management of conservation and restoration projects.

Nature Credits generated under the Nature Framework represent positive investments in nature and may not be used for offsetting (Box 1).

Box 1. Difference between Nature Credits and Biodiversity Offsets[1]

Biodiversity offsets are measurable conservation outcomes from actions designed to compensate for significant residual negative biodiversity impacts identified after appropriate avoidance, minimization, and on-site rehabilitation measures have occurred in the mitigation hierarchy.[2]

Offsets typically need to generate equivalent biodiversity values to those that are lost. Since biodiversity is place-specific and not fungible globally, offsetting schemes are almost always local and often regulatory-based.

In contrast, Nature Credits are an economic instrument for financing positive biodiversity outcomes. They are generated independently and likely spatially or temporally distant from the negative impacts of companies' value chains. Therefore, use of Nature Credits to offset new, attributable negative business impacts on biodiversity is inappropriate because they are unlikely to generate ecologically equivalent values to those damaged by business activity.

1.2 Guiding Principles for Nature Framework Development

The guiding principles below provide the basis on which Verra is developing the Nature Framework to certify Nature Credits representing real, measurable, and verified positive biodiversity outcomes; and are not to be confused with safeguards for project design and implementation.

[1] The Biodiversity Consultancy (TBC). "Exploring design principles for high integrity and scalable voluntary biodiversity credits." 2022. https://www.thebiodiversityconsultancy.com/fileadmin/uploads/tbc/Documents/Resources/Exploring_design_principles_for_high_integrity_and_scalable_voluntary_biodiversity_credits_The_Biodiversity_Consultancy__1_.pdf

[2] Business and Biodiversity Offsets Programme (BBOP). "Standard on Biodiversity Offsets." 2012. https://www.forest-trends.org/wp-content/uploads/imported/BBOP_Standard_on_Biodiversity_Offsets_1_Feb_2013.pdf

Integrity

Develop robust requirements that:

- Deliver positive biodiversity outcomes benefiting nature and people;
- Drive finance to nature conservation and restoration activities that can help meet the Kunming-Montreal Global Biodiversity Framework (GBF)[3] goals and targets;
- Are the foundation for robust claims about positive investments in nature; and
- Can be independently verified by third parties.

Equity

Respect and safeguard the rights of local land or rights holders and stakeholders, especially Indigenous Peoples and local communities, and take into account their cultural values of nature.

Quality

Credit activities resulting in positive, measurable biodiversity outcomes supported by scientific evidence, based on conservative calculations.

Scalability

Design the framework to be applicable across geographies, ecosystems, and activity types, and able to adapt to a changing climate baseline. A globally applicable framework will broaden the potential market and finance flows to nature-positive activities.

Practicality

Ensure project activities result in positive outcomes within their respective timeframes while avoiding unnecessary entry barriers for project proponents, particularly Indigenous Peoples and local communities.

Participation and collaboration

Motivate and integrate meaningful, and informed engagement with customary rightsholders and stakeholders throughout the development process, including:

- Indigenous Peoples and local communities, stewards of nature and biodiversity;
- Market participants, such as project proponents, potential buyers, intermediaries, academics, and international organizations; and
- Related global initiatives seeking to ensure a nature-positive future.

Consistency

Enable standardization and meaningful comparisons across biodiversity outcomes while recognizing relevant differences in biodiversity across ecosystems and geographies.

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[3] Kunming-Montreal Global Biodiversity Framework (GBF). 15th Conference of the Parties of the Convention on Biological Diversity (2022). https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf

1.3 Key Nature Framework Design Objectives

The section summarizes the overarching design elements and decisions underpinning the Nature Framework.

Biodiversity and how people relate to and interact with it are both highly complex and variable between realms and geographies. This means there are inherent trade-offs in the design of a nature crediting framework and methodology, and design choices will have implications for both nature outcomes and practicality of implementation. For transparency and to help inform the consultation, Figure 1 summarizes the key design objectives and how they are implemented in this draft Framework, with links to relevant sections which provide further details.

Figure 1. Summary of key Nature Framework design objectives and their implementation

1. Nature Credits should be applicable across different types of biodiversity, and for terrestrial, marine, and freshwater realms.

Design considerations	Design decision in the Nature Framework
The ecosystem concept provides a scientific basis for identifying important characteristics to measure in each context, while encompassing a broad range of biodiversity.	Use of ecosystem Extent and Condition as the standard biodiversity metric underpinning Nature Credits (section 1.7). The draft Nature Framework is more developed for the terrestrial realm. Details for the marine and freshwater realms will be added in the next draft.

2. Establish a balance between standardization, to allow for comparability across projects, and flexibility, to account for project's local ecological and social context.

Design considerations	Design decision in the Nature Framework
Measurement of ecosystem Condition provides a recognized science-based framework that balances standardization and flexibility to local context, including local understanding of nature.	Require measurement of standard components of ecosystem Condition but allow flexible selection of locally appropriate indicators within each component. Provide a robust process for Condition indicator selection based on local context.

3. Establish a balance between rigor, to ensure high integrity credits, and accessibility, to promote broad participation, including by Indigenous Peoples and local communities.

Design considerations	Design decision in the Nature Framework
There is a trade-off between accuracy of biodiversity monitoring and technical complexity, cost, and accessibility.	Provide clear guidance on monitoring design and require a minimum standard of rigor. Measurement can include both biodiversity outcomes (the state of nature) and less costly measurement of pressures. Crediting baselines are set by third parties to reduce the technical burden on project proponents. Provide a flexible approach to financial additionality as an entry requirement to minimize the burden on project developers and provide access to essential credit finance.

4. Promote confidence and integrity in Nature Credits.

Design considerations	Design decision in the Nature Framework
Buyers can have confidence in Nature Credits if they represent tangible, on-the-ground outcomes that clearly align with societal goals. Linking Condition measures to a desired ecosystem state allows alignment with societal goals to be demonstrated and measured. Using reference Condition values is technically more demanding but also more rigorous than measuring only a project's change compared to its starting Condition. It allows clear interpretation of outcomes and avoids distortions in credit estimates that may arise from varying baselines.	Nature Credits are based on measured evidence of achieved outcomes, not on projections. The Framework requires clearly defined end goals, using reference values.

5. Support conservation of ecosystems at high risk of biodiversity loss.

Design considerations	Design decision in the Nature Framework
Effectively 'bending the curve' of biodiversity loss requires preventing future biodiversity loss as well as restoring biodiversity that has already been degraded. For conservation to be effective, existing threats must be addressed before restoration and improvement can take place. Therefore, preventing future loss is often the highest priority.	Avoided loss is eligible for crediting. Restoration gains and averted loss are incorporated in a single accounting method with equal weighting.

6. Build on the lessons of voluntary carbon markets.

Design considerations	Design decision in the Nature Framework
Experience has shown that project-by-project baselines may not always be robust. Emerging jurisdictional baseline approaches are an alternative model that can promote integrity and reduce the burden on project developers.	Adapt recent advances from Verra's consolidated Reduced Emissions from Deforestation and Forest Degradation (REDD) methodology. Nature Credits generated by a project are relative to the broader trend of change in ecosystem Condition across the corresponding ecoregion. These ecoregional baselines are analogous to jurisdictional REDD baselines and will be developed by third parties rather than individual project developers (section 3.4.1.3 and Technical Annex, section 8.2).

7. Reward long-term stewardship of nature, even where there is no imminent threat.

Design considerations	Design decision in the Nature Framework
Large parts of the world support and effectively steward important biodiversity that while not under imminent threat, could become threatened if stewardship is undermined. Neither restoration nor avoided loss outcomes adequately reflect the long-term benefits of stewardship, so a different approach is required and the resulting units should differ.	Propose the inclusion of nature stewardship credits as a separate asset type generated under the Nature Framework, with clear criteria for demonstrating active and effective stewardship using a different measurement approach (section 1.8).

8. Projects transparently report their contribution(s) to global conservation priorities so buyers can make informed investments in nature.

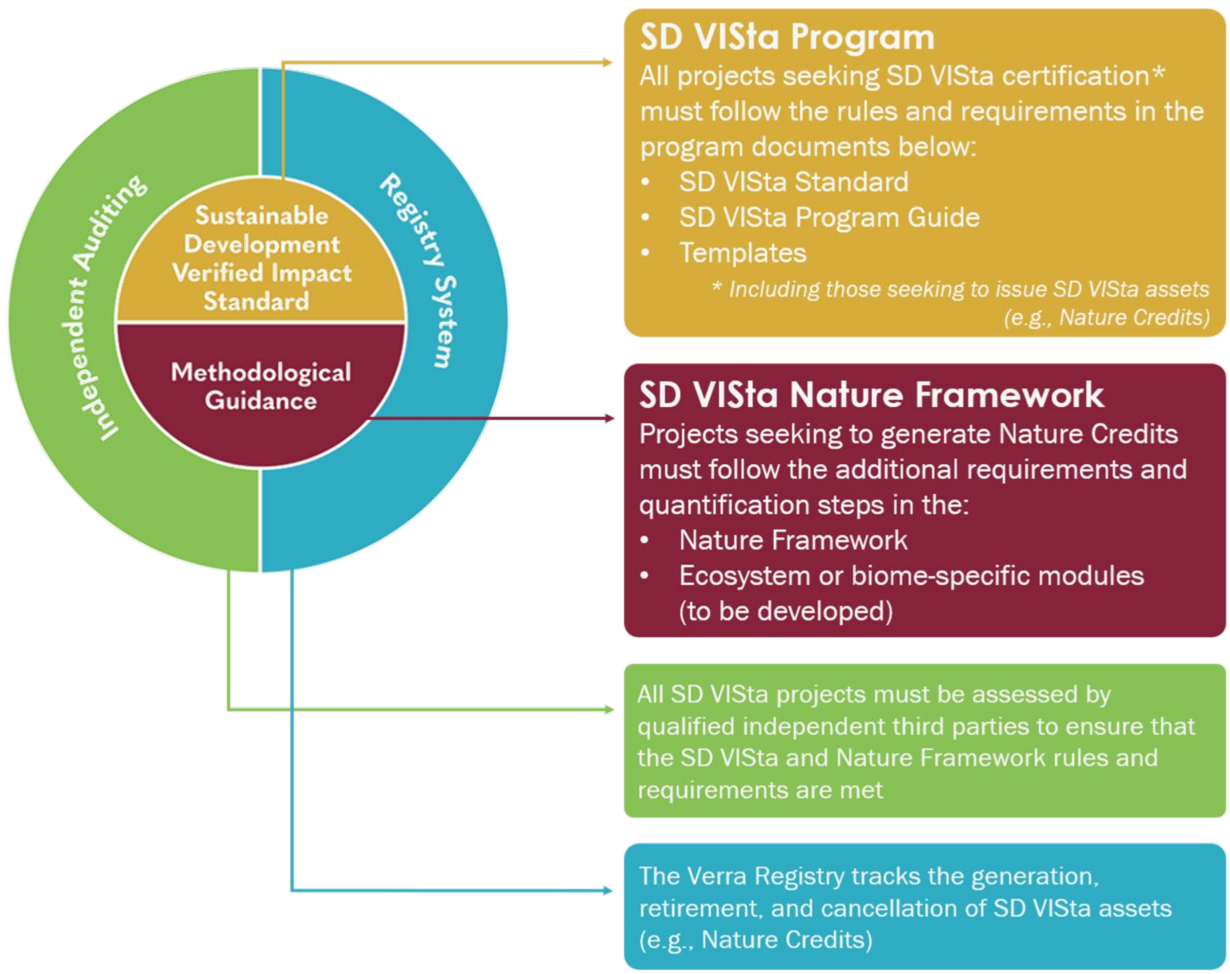
Design considerations	Design decision in the Nature Framework
The GBF has broad cross-sector endorsement for setting global priorities for nature conservation. It has multiple targets, reflecting the multiple aspects of biodiversity. Investors are likely to have preferences for different targets.	Projects can report multiple attributes of biodiversity Significance indicating the project's relevance to different GBF targets (section 3.5). Significance attributes are assigned based on project location. These attributes do not impact the number of Nature Credits generated. Rather, they are information points to help buyers make informed decisions aligned with their nature-positive goals and desired contribution to global goals for nature (Figure 10).

1.4 Relationship between SD VISta and the Nature Framework

Verra's Nature Framework is an SD VISta asset methodology with complementary requirements, particularly on safeguards. Therefore, projects seeking to issue Nature Credits must comply with SD VISta rules and requirements,[4] and the Nature Framework criteria (Figure 2).

This SD VISta Program Overview summarizes SD VISta's general approach and outlines the overall process for certifying the benefits of social and environmental projects. Verra strongly encourages stakeholders to read the overview before reviewing the Draft Nature Framework.

Figure 2. Relationship between SD VISta and the Nature Framework



[4] SD VISta Program Rules and Requirements can be reviewed in detail in the following documents: SD VISta Standard v1.0, and SD VISta Program Guide v1.0.

1.5 Scope

The Nature Framework provides the basis for project design and the quantification of positive biodiversity outcomes. The scope of the Nature Framework covers all activities related to conservation, restoration, and sustainable management of biodiversity. The scope does not include greenhouse gas emission reductions or removals quantification.

Participation is voluntary and based on objective criteria. The Nature Framework is not discriminatory to project proponents, jurisdictional proponents, validation/verification bodies (VVBs), or nature credit buyers, sellers, or brokers that comply with SD VISta and the Nature Framework rules and requirements.

1.6 Architecture

The Nature Framework is structured as follows:

- **Nature Framework**

  Encompasses concepts, requirements, safeguards, and a methodology for monitoring and quantifying biodiversity outcomes for all projects.

- **Ecosystem or biome-specific modules (to be developed)**

  Contain additional requirements and methods for specific ecosystems or biomes (e.g., selection of relevant indicators and impacts). The piloting process will inform prioritization of modules, to be developed by technical experts and coordinated by Verra.

Box 2. Architecture – Rationale

The architecture provides:

- Flexibility for diverse ecosystem types and characteristics worldwide;
- A minimum global standard to ensure integrity and promote scalability; and
- Ecosystem- or biome-specific modules with detailed quantification methods to reduce the burden on projects and incentivize standardization.

1.7 Nature Credit – Asset Description

Table 1: Asset Description

Nature Credits	
Asset Description	A Nature Credit represents one quality hectare (Qha) equivalent of biodiversity uplift from a baseline as a result of the project intervention
Unit	Quality hectares (Qha)
Sustainable Development Goal(s)	SDG 14, SDG 15
Assets can be used for offsetting	No
Comments	

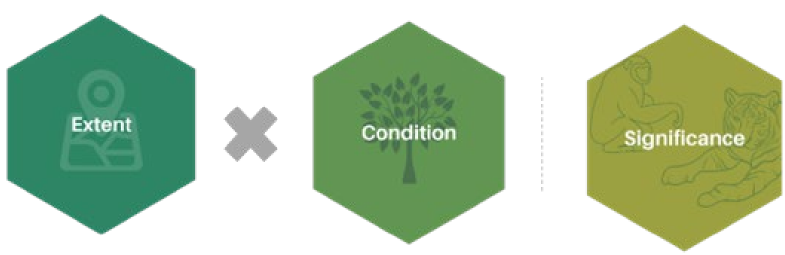
Nature Credits generated under the Nature Framework reflect three dimensions of the state of nature: Biodiversity Extent, Condition, and Significance (BECS) (Figure 2).

- **Extent**: The area (in ha) of each ecosystem type within the project boundary
- **Condition**: The amount or quality of biodiversity present
- **Significance**: The importance of the biodiversity present for achieving defined conservation aims (e.g., contribution to the GBF goals and targets)

The three dimensions are reflected in the unit as follows:

- **Extent x Condition** combined to produce a weighted unit equivalent to quality hectares (Qha). Changes in Qha will determine the number of Nature Credits generated.
- **Significance** as separate attributes for differentiation among units, but not incorporated into the calculation of the number of Nature Credits generated.

Figure 3. Dimensions of biodiversity



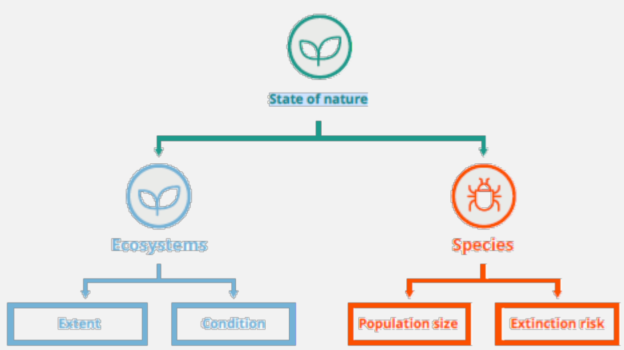
Section 3 explains the relevant concepts and requirements for measuring and reporting each dimension.

Box 3. Nature Credit Unit Framework – Rationale

The proposal considers the following:

- An area-based measure is fundamental to quantifying the biodiversity outcomes and number of Nature Credits a project generates. Extent is a simple area-based measure that can be easily communicated, with clear links to global goals for nature (e.g., 30x30) and other GBF targets, and correlated with the level of biodiversity impact a project can have. However, Extent alone is a crude measure and may not reflect real biodiversity gains.
- Condition measurement:
    - Provides a framework for connecting biodiversity measurement and reporting across scales.
    - Allows projects to connect local measurement to global goals.
    - Can be adapted to the project context and supports a balance of rigor and practicality in the framework.
- A credit unit based on Extent x Condition facilitates the quantification of the change in nature states, helps differentiate project contexts, and aligns with many existing and emerging accounting frameworks such as the Taskforce on Nature-related Financial Disclosures (TNFD) (Figure 4). The "Aligning accounting approaches for nature" project's report recommends that ecosystem Extent and Condition metrics form the core of assessments of impact and dependencies, with species metrics used where appropriate for more comprehensive assessment.[5]

Figure 4. Metrics framework for the state of nature, from TNFD, 2022



- Significance as a separate attribute:
    - Enables identification of the various aspects of biodiversity that may be relevant for a project, depending on the biodiversity context, project focus, and buyer or investor priorities.
    - Will help promote transparency of credit calculation, while signaling relevant conservation and investor priorities.

1.8 Nature Stewardship Credits

Successful conservation requires long-term commitment. Indigenous Peoples, local communities, and other stewards have effectively conserved nature for decades but risk exclusion or restricted financial opportunities from biodiversity frameworks crediting uplift from a baseline.

Verra is exploring a credit type that includes or increases the financial viability of areas that have historically been well-managed. This potential credit type, referred to as a nature stewardship credit, would reward successful, verified nature conservation and management outcomes based on stability and resilience of ecosystems without using counterfactuals (i.e., degrading baselines) or demonstrating increases in ecosystem Condition.

Nature stewardship credits reflect investment in the successful continued conservation of largely intact nature by traditional stewards. They are distinct from Nature Credits that reflect investment in successful ecosystem restoration and/or protection against anticipated loss, through a wide possible range of interventions, which mostly apply to ecosystems under threat. In both cases, local and global benefits are expected to result for people and planet.

The Nature Framework could be expanded to include a pathway for generating units distinct from Nature Credits and focused on nature stewardship. Nature stewardship credits could be designed to represent stewardship that maintains both the Extent and existing high Condition of a specific ecosystem type.

Nature stewardship credits would be issued on a per hectare basis upon verification of Condition requirements (e.g., at least 90% of the ecosystem Condition at the end of the previous five-year period).

Measurement, reporting, and verification would follow the Nature Framework approach to Extent and Condition. Significance attributes would also be reported. Nature stewardship credits present the opportunity for community-led monitoring of Condition indicators that are also culturally and/or economically important, promoting engagement and potentially reducing cost and technical burden.

Verra proposes that projects seeking nature stewardship credits would need to demonstrate:

- Conservation of high-quality hectares, by maintaining at least 95% (assessed in five-year increments) of the original condition-adjusted area of an ecosystem that has a starting Condition value of at least 0.75, measured across at least five Condition indicators.
- Effective and active management of the project area, which could include concepts such as:
    - Governance (e.g., recognized management authority, and equitable management of funds)

[5] UNEP-WCMC, Capitals Coalition, Arcadis, ICF, WCMC Europe. "Recommendations for a standard on corporate biodiversity measurement and valuation, Aligning accounting approaches for nature," 2022, https://capitalscoalition.org/wp-content/uploads/2021/03/330300786-Align-Report_v4-301122.pdf

  - Management planning and implementation (e.g., completion of milestones in forward-looking management plan, use of the Management Effectiveness Tracking Tool (METT) or similar)
  - Meeting the criteria for being recognized as an Other Effective area-based Conservation Measure (OECM)[6,7]
- Significance attributes as minimum thresholds, which could include:
  - Viable populations of species assessed as globally Threatened on the IUCN Red List
  - Meeting the criteria for global Key Biodiversity Areas
  - Being internationally recognized areas (e.g., Ramsar, natural/mixed World Heritage sites, or UNESCO Man and the Biosphere Reserves)
  - Demonstrating alignment with country priorities (e.g., National Parks, Wilderness Areas, or other IUCN Protected Areas)

Box 4. Nature Stewardship Credits – Rationale and Requested Feedback

Studies show that Indigenous-led conservation is the most effective and equitable way to safeguard habitat and reverse wildlife loss, with Indigenous-managed lands boasting higher levels of biodiversity due to their ancestral stewardship experience. Recognizing nature's stewards and their contributions may require a separate unit from Nature Credits and a different approach than outlined in the Nature Framework. Further scoping would be required before expanding the Nature Framework to include nature stewardship credits.

Verra seeks input on the proposed approach for nature stewardship credits, including the following questions:

1. Are you supportive of Verra further developing a pathway for nature stewardship credits and why?
2. How could this proposal be strengthened to ensure Indigenous Peoples and local communities are adequately considered?
3. Are there any elements of the draft Nature Framework, besides the unit quantification, that would require a different approach to generate nature stewardship credits?

[6] IUCN-WCPA Task Force on OECMs, (2019). Recognising and reporting other effective area-based conservation measures. Gland, Switzerland: IUCN. ISBN: 978-2-8317-2025-8 (PDF) DOI: https://doi.org/10.2305/IUCN.CH.2019.PATRS.3.en
[7] Jonas, H. D., MacKinnon, K., Marnewick, D. and Wood, P. (2023). Site-level tool for identifying other effective area-based conservation measures (OECMs). First edition. IUCN WCPA Technical Report Series No. 6. Gland, Switzerland: IUCN. ISBN: 978-2-8317-2246-7 (PDF) DOI: https://doi.org/10.2305/WZJH1425

2 NATURE FRAMEWORK PROJECT RULES AND REQUIREMENTS

2.1 Project Start Date

Concept

The project start date is when the project began implementing activities to generate biodiversity outcomes.[8]

Requirements

The project start date must be on or after January 1, 2019.

Projects must complete validation within five years of the project start date.

Box 5. Project Start Date – Rationale and Requested Feedback

With this proposal, Verra seeks to:

- Allow the project start date to be up to five years before validation, recognizing the time and effort required for project design and startup.
- Reward early actors that did not have access to credit finance when their project activities began but could benefit from credit finance.

Verra is requesting feedback on the following:

4. Would the proposed start date requirements pose any unintended risks to credit integrity and why?
5. If so, how would you modify the proposal to ensure early actors are recognized?

2.2 Project Crediting Period

Concept

The project crediting period is the time period during which the project's biodiversity outcomes are eligible for issuance as Nature Credits. Project crediting periods must be renewed periodically to ensure that changes to project's baseline scenario and regulatory surplus are taken into consideration throughout the project lifetime.

Nature Credits represent the biodiversity outcomes corresponding to a specific monitoring period.

[8] All references to biodiversity outcomes in the Nature Framework consider the definition of this draft Nature Framework section 1.1 Goal.

Requirements

- The project crediting period must be at least 20 years up to a maximum of 100 years, which may be renewed at most four times, without the total exceeding the maximum.
- Projects must have a credible and robust plan for managing and implementing the project over the project crediting period.
- Project proponents must verify their project's biodiversity outcomes at least every five years during the crediting period. Project verification may occur more frequently if desired.

Box 6. Project Crediting Period – Rationale and Requested Feedback

With this proposal, Verra seeks to:

- Incentivize and finance long-term action while acknowledging that biodiversity outcomes are rarely permanent.
- Credit ex-post, verified biodiversity outcomes while recognizing the time it can take for biodiversity outcomes to be generated and measurable.
- Require verification at a cost-effective frequency. Project proponents have the flexibility to verify more frequently if desired.
- Align Nature Framework requirements with those for Agriculture, Forestry and Other Land Use (AFOLU) projects under the VCS Program to the extent possible.

Verra is requesting feedback on the following:

6. Does the proposed crediting period timeframe pose challenges regarding land tenure restrictions or local legislation in your jurisdiction? How?
7. If yes, how could those challenges be addressed in the Nature Framework?

2.3 Project Boundary

Concept

The project boundary is the spheres of influence (both primary and secondary, intended and unintended) where project activities must be assessed to identify and determine benefits for people, their prosperity, and the planet,[9] including the biodiversity outcomes.

[9] As defined in *SD VISta Program Definitions*.

The project boundary includes:

- **Project area:** the physical, geographical site where the planned project activities will occur, and the biodiversity outcomes will be measured.
- **Project impacts**, which refers to all entities affected by the project activities that must be monitored in parallel to the biodiversity outcomes. For the Nature Framework purposes, biodiversity impacts are documented in the causal chain required by SD VISta (see SD VISta Program Overview, section 3.2).

The project's boundary and impacts may contain more than one discrete area.

Requirements

For the project area, the project proponent must:

- Define the spatial boundaries at the project start.
- Provide the geographic coordinates included in the project area.
- Provide a unique geographical identification for each area.
- Provide the following information for each discrete area:
  - Name of the project area (including compartment numbers, local name (if any))
  - Unique identifier for each discrete area
  - Map(s) of the area (preferably in digital format)
  - Total area
  - Details of the customary rights holder(s) and user rights

The project impacts included in the project boundary are shown in Table 2. Ecosystem- or biome-specific modules (to be developed) may include additional impacts to be monitored by projects.

Table 2. Impacts included in the Nature Framework project boundary

Impact	Primary or Secondary Impact	Intended or Unintended	Required or Optional	Justification
Biodiversity outcomes	Primary	Intended	Required	The primary impact related to asset quantification

Box 7. Project Boundary – Rationale and Requested Feedback

With this proposal, Verra seeks to:

- Identify all impacts that need to be monitored to quantify biodiversity outcomes and the corresponding Nature Credits.

- Acknowledge all project activities will impact one or multiple entities in positive, negative, direct, or indirect ways (e.g., a stakeholder group, species, ecosystem service, ecosystem characteristic).

Verra is requesting feedback on the following:

8. Are there additional impacts relevant to all Nature Framework projects that should be included in Table 2?

2.4 Baseline Scenario

Concept

The baseline scenario is a description of the events or conditions most likely to occur in the absence of the project activity.[10] All SD VISta projects must document the baseline scenario for impacts on people, their prosperity, and the planet (see SD VISta Program Overview, section 3.2).

The baseline scenario is complementary to the development of a crediting baseline (see section 3.4.1.3).

Requirements

In addition to documenting the baseline scenario for impacts on people, their prosperity, and the planet, project proponents must:

- Document and describe the baseline scenario for biodiversity outcomes in the project description, including:
  - Status of and possible threats to biodiversity;
  - Implementation barriers for the project's activities linked to biodiversity outcomes; and
  - Justification for it being the most likely scenario in the absence of the project activity.
- Consider:[11]
  - All project areas included in the project boundary (see section 2.3);
  - Existing and alternative project types, activities and technologies providing equivalent type and level of activity of products or services to a project;
  - Data availability, reliability, and limitations; and
  - Other relevant information concerning present or future conditions, such as legislative, technical, economic, socio-cultural, environmental, geographic, site-specific, and temporal assumptions or projections.

[10] *SD VISta Standard* Appendix 3, and *SD VISta Program Definitions*.
[11] *SD VISta Standard* Appendix 3, section AM2.1.

- Reassess the baseline scenario every ten years.

Box 8. Baseline Scenario – Rationale and Requested Feedback

With this proposal, Verra seeks to ensure that the baseline scenario is appropriate for the current development context and any impending changes to same given the effects of new, relevant national and/or sectoral policies, circumstances and activities are documented.

Verra is requesting feedback on the following:

9. Is there other information that should be documented as part of the baseline scenario?

2.5 Additionality

Concept

Project proponents must demonstrate their project activities are additional to be eligible to issue Nature Credits. Additionality does not impact the number of credits or the quantification of biodiversity outcomes.

A project activity is additional if it can be demonstrated that the activity would not have occurred in the absence of credit finance. Nature Credits generated under this methodology may not be used for offsetting (Box 1). However, additionality is an important characteristic of Nature Credits because it indicates that they represent a real biodiversity outcome compared to what would have occurred in the absence of the nature crediting project. Demonstrating additionality is also important to avoid cost-shifting of conservation investment by governments or other funders.

Requirements

Project proponents must follow each of the steps below for the project to be considered additional:

1. Demonstrate that regulatory surplus exists at validation. Regulatory surplus means that project activities are not mandated by any law, statute, or other regulatory framework, or any systematically enforced law, statute, or other regulatory framework.
2. Demonstrate that the activities generating biodiversity outcomes depend on credit finance or that there are barriers to accessing other sources of finance.

   Where supplementary existing or prospective funding sources (e.g., philanthropy or carbon credits) are in place for project activities, the project proponent must demonstrate that implementation barriers exist to the long-term activities and the achievement of desired outcomes.
3. Demonstrate that the same biodiversity outcomes are not credited by another biodiversity or nature crediting program (whatever its denomination) to prevent double counting.

Box 9. Additionality – Rationale and Requested Feedback

With this proposal, Verra seeks to provide flexibility, minimize burden on project proponents, and recognize that:

- Many high-quality conservation projects in need of funding and under threat, particularly those led by Indigenous Peoples and local communities, do not meet the additionality criteria in GHG programs since they maintain relatively intact biodiversity.
- Nature Credits represent positive investments in nature and are not meant to be used as offsets, which impacts the claims that companies can make about Nature Credits (see Box 1 and section 4).
- Projects may have supplementary existing or prospective funding sources (e.g., philanthropy or carbon credits).
- Project proponents are likely to frontload project costs with other funding sources until credits are generated.
- Some projects will transition from traditional funding sources (e.g., grants, philanthropy) to credit finance over time.

Verra is requesting feedback on the following:

10. Is this additionality approach rigorous enough for Nature Credits, which are not meant to be used as offsets?
11. Should a discount factor be applied for projects with combined finance sources? If so, how could that be done in practice?

2.6 Benefit Sharing

Concept

Benefit-sharing mechanisms ensure that customary rights holders[12] and stakeholders, including Indigenous Peoples and local communities, are recognized and rewarded for their role as nature stewards. Benefits may be monetary or in kind, as long as they are agreed through participatory and good faith negotiation processes with impacted communities and improve community livelihoods.

Requirements

Project proponents must establish a benefit-sharing mechanism, reviewed for appropriateness at validation and effectiveness at each verification.

[12] Customary rights holders are holders of a legitimate customary right to lands, territories, and resource usage. See section 7 Definitions.

The benefit sharing mechanism must be:

- Appropriate to the local context.
- Consistent with applicable national rules and regulations, and international human rights laws and standards.
- Consistent with customary rights, to the maximum extent feasible.
- Shared with the affected communities in a culturally appropriate manner, at first and final draft stages.

The benefit sharing mechanism must demonstrate:

- Full and effective decision-making participation from, and agreement by, Indigenous Peoples, smallholders, or local community members in the conditions and amount of the benefit-sharing mechanism, including a plan for revenue investing that will be reported upon in each monitoring report.
- Transparency, including on project funding and costs as well as on benefit distribution.
- Publicly available outcomes, considering data privacy rights and local contexts where disclosure of public financial information could be dangerous to the communities.

Box 10. Benefit Sharing – Rationale and Requested Feedback

Verra's priority is to establish verifiable requirements to ensure that Indigenous Peoples and local communities are active participants in the design and implementation of benefit sharing mechanisms that ensure appropriate use and allocation of benefits.

Verra is requesting feedback on the following:

12. How could the benefit sharing requirements be strengthened in a way that is auditable, adaptable to local context, and ensures Indigenous Peoples and local communities actively participate in the design, use, and allocation of benefits?

2.7 Safeguards for Biodiversity Outcomes

Concept

The project must deliver net positive biodiversity outcomes (compared to the without-project scenario, see section 2.4) within the project area over its lifetime.

The project longevity is the number of years, beginning from the project start date, that project activities will be maintained.

Requirements

To safeguard biodiversity outcomes, projects must:

- Have a minimum of a 40-year project longevity, during which the permanence of biodiversity outcomes must be monitored and reversals accounted for.
- Assess drivers of biodiversity loss in the project design and implementation, and monitor them over the project's lifetime.
- Deposit 20% of the Nature Credits generated in each monitoring period into a shared buffer pool to account for potential reversals.

  Buffer credits are canceled to cover biodiversity known, or believed, to be lost. As such, the Nature Credits already issued to projects that subsequently experience losses are not canceled and do not have to be "paid back."

Box 11. Safeguards for Biodiversity Outcomes – Rationale and Requested Feedback

This proposal is a simple, straightforward approach to account for potential reversals under a global climate change scenario.

Verra is requesting feedback on the following:

13. Should the Nature Framework require a longer project longevity? Why?
14. Should the buffer allocation be based on project-specific design risk, similarly to how non-permanence risk and buffer contributions are determined using the VCS AFOLU Non-Permanence Risk Tool?[13]
15. If so, what elements of project design are most likely to affect the likelihood of biodiversity outcome reversal?

2.8 Safeguards for Sustainable Development Benefits

This section consolidates a summary of existing SD VISta and new Nature Framework-specific safeguards. The summarized existing SD VISta safeguards include references to the program document and section where they can be reviewed in detail.

Concept

Project activities must have net positive impacts on people, their prosperity, and the planet. Project proponents must identify and address any negative environmental and socio-economic impacts of project activities.

[13] See *VCS AFOLU Non-Permanence Risk Tool v4.1*.

Safeguards for sustainable development benefits are grouped in five broad categories:

- Risk management for customary rights holders and local stakeholders, with a focus on risk mitigation projects and their sustainable development benefits
- Respect for and protection of Human Rights and equity
- Ecosystem Health
- Property Rights, customary rights holders and other stakeholders' rights to land or sea, resources, and property they use, occupy, and depend on, including Free, Prior, and Informed Consent.
- Customary rights holders and other stakeholders' engagement, detailing communication and information access procedures during project design, implementation, and monitoring.

Requirements

2.8.1 Risk Management for Customary Rights Holders and Local Stakeholders

To ensure adequate risk management for customary rights holders[14] and local stakeholders,[15] project proponents must, during project design and implementation:

- Include Indigenous Peoples and local communities' traditional knowledge and cultural heritage. For traditional knowledge, project proponents must demonstrate a framework is in place to address intellectual property of Indigenous Peoples and local communities.
- Identify and take measures to mitigate natural and human-induced threats to the project's sustainable development benefits. Threats may be within the project's lifetime and beyond or related to continued stakeholder willingness to participate in the project.[16] Some examples include:
    - Waste production and management
    - Energy supply disturbance and energy efficiency
    - Noise production
- Ensure the existence of sufficient financial, human, and organizational resources to deliver the sustainable development benefits without engaging in any form of corruption.[17] [18]

[14] Customary rights holders are holders of a legitimate customary right to lands, territories, and resource usage. See section 7 Definitions.
[15] Stakeholder definition in *SD VISta Standard*, section 2.2.2, Box 2.
[16] *SD VISta Standard*, section 2.1.6.
[17] *SD VISta Standard*, section 2.3.
[18] Including all the offences (e.g., bribery of national and foreign public officials, embezzlement by a public official) and acts carried out in support of corruption (e.g., illicit enrichment, obstruction of justice, trading in influence and concealment, money laundering, and bribery in the private sector) included in the United Nations Convention against Corruption (UNCAC).

- Identify and mitigate negative impacts on livelihoods.
- Comply or exceed all applicable laws or regulations including but not limited to worker rights.[19]
- Give equal and fair work opportunities for local communities and stakeholders to fill all work positions (including management) with special attention to vulnerable or marginalized people.[20]
- Pay fair living wages and recognize legal working hours.
- Identify and minimize health and safety risks to workers and other stakeholders in line with their culture and customary practices.[21]
- Promote gender equality and women's empowerment in decision-making; for instance, in matters related to land or marine tenure and acknowledgment of women's relevant biodiversity-related roles.
- Reduce inequality in the project area.

2.8.2 Respect for Human Rights and Equity

Project proponents must demonstrate during project design and implementation that their project activities:

- Uphold and respect human rights under the International Bill of Human Rights and universal instruments[22] relating to human rights.
- Identify local communities and Indigenous Peoples (see section 2.8.5) and uphold, recognize, respect, and promote the protection of the rights of Indigenous Peoples and local communities in line with applicable international human rights law, and the United Nations Declaration on the Rights of Indigenous People and International Labor Organization (ILO) Convention 169 on Indigenous and Tribal Peoples.
- Preserve and protect cultural heritage consistent with Indigenous Peoples and local communities' practices or United Nations Educational, Scientific and Cultural Organization (UNESCO) Cultural Heritage conventions.
- Ensure no entity implicated in the project design or implementation is involved in any form of discrimination, bullying, intimidation, or harassment, including sexual, with special attention to vulnerable or marginalized people, women, and children.
- Provide equal opportunities in the context of gender for employment, and equal pay for equal work.
- Prohibit forced labor, child labor, modern slavery, or trafficked persons.

[19] *SD VISta Standard*, section 2.2.12.
[20] *SD VISta Standard*, section 2.2.11.
[21] *SD VISta Standard*, section 2.2.13.
[22] https://www.ohchr.org/en/instruments-listings

2.8.3 Ecosystem Health

The project must not negatively impact terrestrial, freshwater or marine biodiversity and ecosystems. Project proponents must, during project design and implementation:

- Identify any risks to ecosystems and species and implement measures to ensure no negative impacts, such as habitat loss, degradation and fragmentation, and overexploitation. Projects in or adjacent to habitat for rare, threatened, or endangered species must demonstrate that they will not adversely impact these areas.
- Identify all species involved in the project and demonstrate that:
  - Native species are used unless otherwise justified by peer-reviewed literature or expert judgment.
  - No known invasive species are introduced into or allowed to increase in population in any area affected by the project. In order of priority, invasive species must be identified using local, regional, or global invasive species registries. Where no local or regional registries exist, the project proponent must provide the registry used in the project documents.
- Not use any species that affect the existence of threatened species. Threats to endangered species in the project area must be identified using the IUCN Red List of Threatened Species.
- Not introduce non-native monocultures for restoration.
- Not drain native ecosystems or degrade hydrological functions.
- Provide evidence that the project area was not cleared of existing ecosystems (e.g., evidence indicating that clearing occurred due to natural disasters such as hurricanes or floods), except if:
  - The clearing happened at least 10 years prior to the project start date.
  - The dominant area cover is an invasive species and threatening ecosystem health, as demonstrated using the Global Invasive Species Database.23
  - The area is considered degraded. In this case, it must be demonstrated that the project activity will not convert[24] the ecosystem type that existed at least ten years prior.
- Reduce water use, water stress and soil degradation.
- Minimize pollution, including land and water contamination, air pollution, hazardous materials, chemical pesticides, biocides, and fertilizers.

Activities that convert native ecosystems are not eligible under the SD VISta Nature Framework.

[23] https://www.gbif.org/species/search
[24] Ecosystem conversion is defined as the altering of an ecosystem through clearing, planting or seeding, or negative changes to native species, soil, or hydrology as a result of species introduced as part of project activities, or other project activities which impact the ecosystem.

2.8.4 Property Rights[25]

Project design and implementation must recognize, respect, and support all stakeholders' customary and statutory rights to resources and tenure, including stakeholders' rights to participate in and consent to consultation. Project proponents must, during project design and implementation:

- Describe and map statutory and customary tenure, use, access, and/or management rights to lands, territories, and resources directly affected by project activities (including individual and collective rights and overlapping or conflicting rights).
- Not encroach on private, stakeholder, or government property.
- Ensure no involuntary removal or relocation of customary rights holders from their lands or territories, nor customary rights holders forced to relocate activities important to their culture or livelihood.
- Obtain and maintain free, prior, and informed consent (FPIC)[26] of stakeholders whose property rights are affected through a transparent, agreed process, and document the FPIC agreement. Prior to establishing such an agreement, the project proponent must disclose, at a minimum, the following information:
    - The nature, size, pace, reversibility, and scope of any proposed project or activity;
    - The reason(s) or purpose of the project and/or activity;
    - The duration of the project activities;
    - The locations that will be affected;
    - A preliminary assessment of the likely economic, social, cultural and environmental impact, including potential risks and fair and equitable benefit sharing (see section 2.6) in a context that respects the precautionary principle;
    - Personnel likely to be involved in the execution of the proposed project (including Indigenous Peoples, private sector staff, research institutions, government employees and others).
- Where FPIC is granted, obtain all necessary approvals from appropriate authorities to claim ownership of the project's benefits.
- Where FPIC is granted for loss of land, marine, or freshwater access or resources, through a process of good-faith negotiation:

[25] *SD VISta Standard*, section 2.4. Property Rights are defined in ***SD VISta Program Definitions*** as statutory and customary tenure/use/access/management rights to lands, territories and resources.
[26] FPIC definition in *SD VISta Standard*, section 2.4.3, Box 4.

  - Determine appropriate restitution or compensation for financial and non-financial costs to those whose loss of access or resources have been or will be negatively affected by the project.
  - Include provisions for just and fair compensation if relocation of habitation or activities important to customary rights holders' culture or livelihood is undertaken.
- Where appropriate, help secure statutory rights for traditional communities.
- Monitor and take measures to mitigate or reduce risks of illegal activities.
- Document ongoing or unresolved conflicts or disputes over rights to lands, territories, and resources for up to 20 years (if records exist) and no less than 10 years.
- Comply with all relevant local, regional, and national laws, statutes, and regulatory frameworks.
- Establish project ownership accorded to project proponent(s).

2.8.5 Customary Rights Holders and Other Stakeholder Engagement[27]

Project proponents must involve customary rights holders[28] and stakeholders[29] in the project on an ongoing basis. Customary rights holders and other stakeholders must have culturally and locally appropriate open communication channels and access to timely and adequate information with project proponents.

Project proponents must comply with the following key criteria under this requirement:

- Identify and update all customary rights holders and other stakeholders potentially affected by the project, considering locally appropriate methods, and focusing on those with rights to resources or land.
- Engage customary rights holders and other stakeholders via:
  - Culturally appropriate notification of the intent to undertake the project development process; and
  - Effective participation to influence project design and implementation with respect for local customs, values, and institutions, gender and inter-generational sensitivity, as well as the opportunity for self-identification of groups in vulnerable and/or marginalized situations.
- Obtain and maintain FPIC[30] of Indigenous Peoples, local communities and other stakeholders identified as directly affected by the project through a transparent, agreed process.

[27] *SD VISta Standard*, section 2.2.
[28] Customary rights holders are holders of a legitimate customary right to lands, territories, and resource usage. See section 7 Definitions.
[29] Stakeholder definition in *SD VISta Standard*, section 2.2.2, Box 2.
[30] FPIC definition in *SD VISta Standard*, section 2.4.3, Box 4.

- Ensure stakeholders have the opportunity to provide input, evaluate impacts and raise concerns during project design and implementation.
- Share information in a timely, culturally appropriate, easily understood, and transparent manner, directly or through stakeholders' legitimate representatives.
- Emphasize optimizing benefits for stakeholders in vulnerable situations.
- Document stakeholder input particularly from marginalized and/or vulnerable groups and revise the project design/implementation accordingly.
- Develop and document an engagement plan with stakeholders throughout the project, that includes providing regular updates to stakeholders.
- Build local skills and knowledge to increase participation in project implementation. Provide support to enable effective participation by Indigenous Peoples, local communities and other stakeholders in project design and implementation.
- Establish and demonstrate accessibility to feedback and a Grievance and Redress Procedure to address disputes that may arise during project planning and implementation that:
    - Includes processes for receiving, hearing, maintaining confidentiality, responding and attempting to resolve grievances within a reasonable time period considering stakeholders' traditional and culturally appropriate conflict-resolution methods
    - Makes publicly available and accessible to all project stakeholders the procedure and documentation of disputes resolved
    - Has three stages:
        1. Attempt to resolve all grievances amicably, providing a written response to them in a culturally appropriate manner.
        2. Refers any unresolved grievances by amicable negotiations to mediation by a neutral third party.
        3. Refers unresolved grievances by mediation to 1) arbitration, to the extent allowed by the laws in the relevant jurisdiction, or 2) competent courts in the relevant jurisdiction, without prejudice to a party's ability to submit the grievance to a competent supranational adjudicatory body, if any.
    - Is reported upon in the following project description or monitoring report
- Provide access to information, including: 1) full project description and monitoring reports, particularly to vulnerable stakeholders, and 2) for VVB site visits, timely information before it occurs and facilitate direct and independent communication between stakeholders and VVBs.

Box 12. Safeguards for Sustainable Development Benefits – Requested Feedback

Verra is requesting feedback on the following:

16. Is the section's structure coherent for project development? How could it be improved?
17. Are there any project types that will not be able to meet the requirements above and why?
18. Are there any safeguards that should be strengthened and how?
19. Could these safeguards pose unintended barriers to entry for projects led by Indigenous Peoples and local communities?
20. Are there challenges for auditing any of the safeguards included above?
21. What resources or guidance could Verra provide to project proponents and/or VVBs trying to meet or assess the above requirements?
22. On risk management for customary rights holders and other stakeholders, what additional safeguards are needed for Indigenous Peoples Intellectual Property for traditional knowledge?
23. On ecosystem health, will the requirements around land conversion or clearing prevent the development of a specific project type? Is the 10-year interval too long or short?

3 QUANTIFICATION OF BIODIVERSITY OUTCOMES

3.1 Summary of Quantification Steps

Figure 5. Summary figure of quantification steps (steps are indicated by numbered circles)

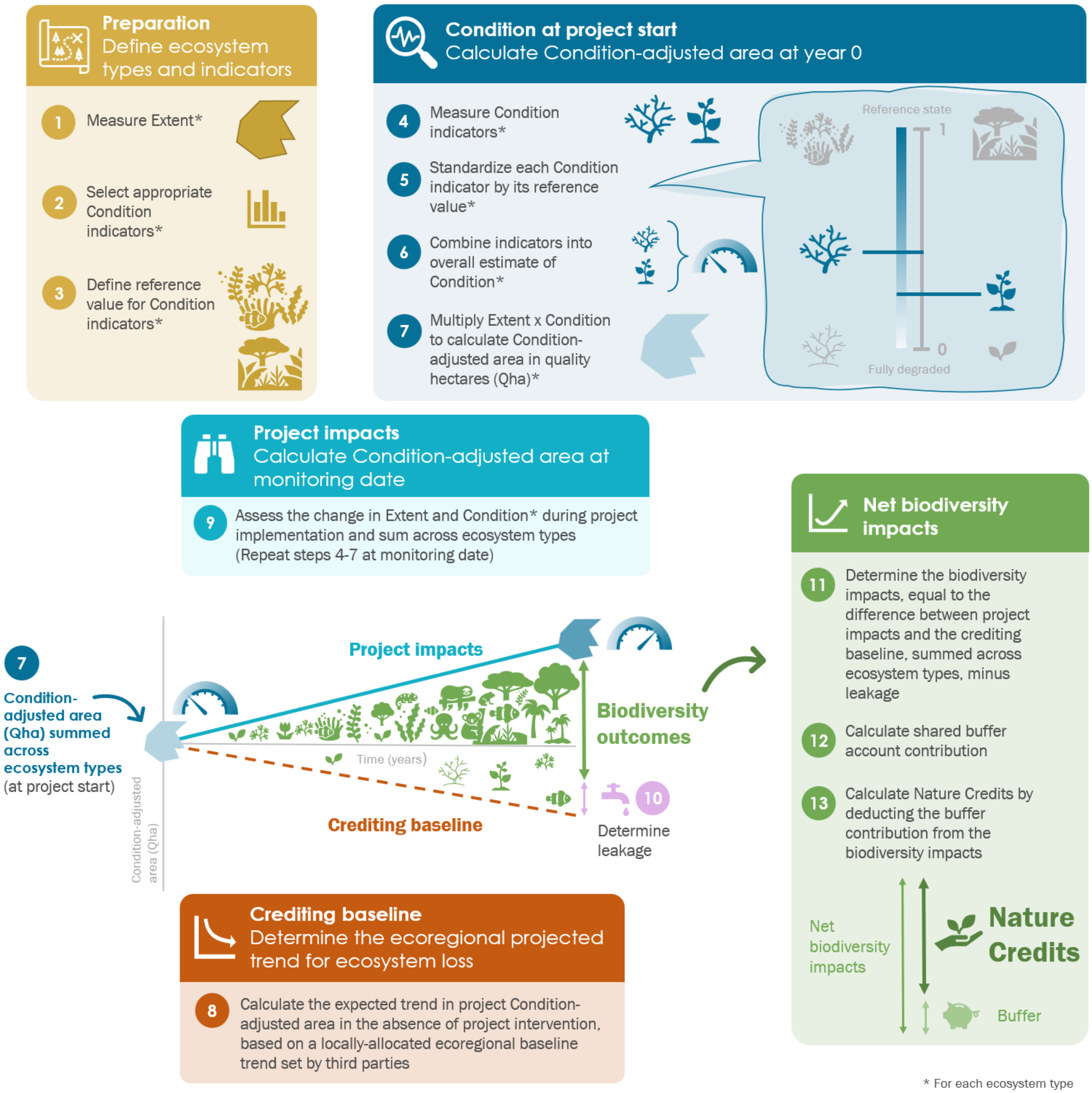


Table 3. Summary of the steps required to quantify net biodiversity impacts

Quantification of:	Step	Action	Document section	Detail
Extent	1	Define ecosystem types in the project area and measure their Extent at project start	3.2	• Extent is the ecosystem area in hectares (ha), measured by ecosystem type
Condition	2	Select ecosystem Condition indicators for each ecosystem type included in the project area	3.3.1	• Condition is the quality of an ecosystem within a defined spatial unit measured in terms of its abiotic and biotic characteristics • Condition has four simplified components: composition, structure, function, and pressures • Indicators must be linked to the project's causal chain • A minimum number of indicators is required for ecosystem structure and composition • Biome-specific modules may include pressure indicators if demonstrated to be appropriate proxies • Guidance on indicator selection for different biomes to be developed
	3	Define reference values for selected Condition indicators		• Ecosystem Condition reference state is where its structure, composition and function are dominated by natural ecological and evolutionary processes • Guidance on defining reference state to be developed
Impacts – Baseline setting Measure Condition indicators at project start	4	Measure Condition indicators at project start	3.4.1.1	• Through appropriately stratified sampling
	5	Standardize Condition indicators by reference values		• Selected Condition indicators (Step 2) are standardized from a 0 (fully degraded) to 1 (reference value – Step 3)
	6	Combine indicators into overall estimate of ecosystem Condition at project start (year 0)		• Structure and composition indicators are averaged separately using arithmetic mean, then combined using arithmetic mean
Impacts – Baseline setting Calculate Condition-adjusted area of ecosystems at project start	7	Calculate Condition-adjusted area for each ecosystem type at project start	3.4.1.2	• Condition-adjusted area is the ecosystem Extent (ha) multiplied by its average Condition value; it has units of 'quality hectares' (Qha)

Quantification of:	Step	Action	Document section	Detail
Impacts – Baseline setting Crediting baseline	8	Determine the project crediting baseline	3.4.1.3	• The crediting baseline trend reflects the likelihood of ecosystem intactness loss (Extent, Condition or both) in the absence of the project intervention • A standardized ecoregional approach is proposed to set the crediting baseline • The annual trend is estimated for an entire Country Ecoregion Component (CEC) and allocated to grid cells within it based on relative risk of loss to ecosystem intactness • *Third party process:* Methodology (using historic trend and predicted future pressures) to be refined and tested • The project crediting baseline is calculated as an area-weighted average of the values for grid cells overlapped by the project
Project Impacts	9	Monitor project impacts (i.e., change in project Extent and Condition after project implementation)	3.4.2	• Repeat Step 4 to Step 7 measurements at the monitoring date for each ecosystem type • Standardized and appropriately stratified monitoring must take place at least every five years • Guidance on monitoring to be developed
Determine Leakage	10	Determine any negative impacts on biodiversity outside the project area resulting from project activities	3.4.3	• Identify and take measures to mitigate potential leakage • Determine unmitigated negative impacts to be deducted from the project's biodiversity outcomes
Net Biodiversity Impacts Biodiversity outcomes	11	Calculate net biodiversity impacts as the difference between project outcomes, crediting baseline, and leakage	3.4.4	• Calculated for each ecosystem type and summed
Net Biodiversity Impacts Buffer contribution	12	Calculate buffer contribution	3.4.4	• Calculate buffer credits, equivalent to 20% of the biodiversity impacts generated
Net Biodiversity Impacts Nature Credits	13	Quantify Nature Credits	3.4.4	• Nature Credits are quantified by deducting the buffer contribution from biodiversity impacts (not including leakage)

3.2 Extent

Concept

Extent is the project area over which biodiversity outcomes are measured. Extent is measured in hectares, for each ecosystem type within the project boundary (see section 2.3).

For freshwater and marine projects, Extent refers to the planar surface area, not volume.

Requirements

Step 1. Define ecosystem types in the project area and measure their Extent at project start

The project proponent must:

- Measure and report the project area in hectares (ha) by ecosystem type and in total.
- Report Extent by ecosystem type, using the most precise available ecosystem typology for that area. Where data is unavailable for ecosystem type, Extent may be reported by biome.

Ecosystem- or biome-specific modules (to be developed) may require reporting using more detailed ecosystem classification.

Box 13. Extent – Rationale

Defining the Extent facilitates accurate quantification of biodiversity outcomes throughout the project lifetime. Furthermore, the Extent dimension is:

- Intuitive and a core component of corporate biodiversity accounting frameworks such as TNFD, the Science-based Targets for Nature (SBTN), and the recommendations of the Aligning Accounting Approaches for Nature project.[31]
- Reported separately by ecosystem type, following the United Nations System of Environmental-Economic Accounting (UN SEEA) guidelines, because the Condition component must be multiplied by the Extent of each ecosystem.
- Framed around ecosystem area, because it is more practical to implement than at the species level of biodiversity (e.g., species range or population size).

[31] United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), Capitals Coalition, Arcadis. “Recommendations for a standard on corporate biodiversity measurement and valuation, Aligning accounting approaches for nature,” 2022, https://capitalscoalition.org/wp-content/uploads/2021/03/330300786-Align-Report_v4-301122.pdf

3.3 Ecosystem Condition

Concept

Ecosystem Condition (from here on referred to as Condition) is the quality of an ecosystem within a defined spatial unit (i.e., the project area) measured in terms of its abiotic and biotic characteristics. Condition includes the four main components in Table 4.

Table 4. Components of Condition summarized and simplified from UN SEEA 2021[32]

Component	Description	Example indicators
Composition	The variety, identity, and abundance of organisms	Species richness of characteristic biota, abundance of keystone species subject to hunting
Structure	Biotic or physical size and form, physical and chemical characteristics	Total biomass, canopy cover, water chemistry
Function	Ecological processes and fluxes	Net Primary Productivity, rate of leaf litter decomposition
Pressures	Scale and severity of threatening processes	Invasive species, fishing or hunting pressure, land-use change

3.3.1 Selecting the Project's Condition Indicators and Reference Values

The steps below detail how projects must select their Condition indicators and reference values.

Step 2. Select Condition indicators

Project proponents must measure composition and structure components of Condition through appropriate indicators for each ecosystem type within the project.

The project proponent must:

- Define and document the ecosystem type(s) within the project boundary (see section 2.3) that the project activities aim to restore or conserve.
- Select appropriate Condition indicators for each ecosystem type and explain why they are suitable for the project and ecosystem context.

The minimum number of Condition indicators required to be monitored by the project proponent for each ecosystem type is outlined in Table 5.

[32] United Nations Committee of Experts on Environmental-Economic Accounting (UN CEEA). "System of Environmental-Economic Accounting—Ecosystem Accounting (SEEA): Final Draft". Department of Economic and Social Affairs, Statistics Division, United Nations, 2021. https://unstats.un.org/unsd/statcom/52nd-session/documents/BG-3f-SEEA-EA_Final_draft-E.pdf

Table 5. Minimum number of Condition indicators measured per component

Condition Component	Requirement for measurement	Minimum number of indicators required
Composition	Required	2
Structure	Required	3
Function	Not required	-
Pressure	May be substituted for a composition or structure indicator if used as a demonstrated proxy. To be specified in biome-specific modules (to be developed).	-

The appropriateness of the type and quantity of indicators will be assessed during validation. The Technical Annex (section 8.1) provides additional information on selecting Condition indicators.

This proposal will be further developed based on:

- Testing the number of indicators required to ensure adequate rigor in the piloting process.
- Exploring the use of pressure indicators and providing more detailed guidance on suitable Condition indicators and measurement approaches in biome-specific modules.

Principles for Selection of Appropriate Condition Indicators

Selected Condition indicators must be:

- Relevant to the integrity of the ecosystem and the project activities in accordance with the project's causal chain[33]
- Responsive to change within the monitoring period, and consistently responsive over the project duration
- Robustly measurable using acceptable methods (evidenced by similar measurement approaches being published in scientific literature or national biodiversity monitoring schemes)
- Independently verifiable by a VVB

Appropriate sources of information for selecting Condition indicators are:

- Published records relating to the relevant ecoregion from peer-reviewed scientific journals
- Assessments in the IUCN Red List of Ecosystems (e.g., for identifying characteristic native biota)
- National government biodiversity datasets[34]

[33] See *SD VISta Standard v1.0*, section 2.1. The project's causal chain maps the cause-and-effect relationships resulting from a project's activities, to describe a project's outputs, outcomes and impacts (positive and negative, intended and unintended) for people, their prosperity and the planet.
[34] For example, the Queensland Herbarium.

- Project proponent-selected indicator with an explanation of justification

The project proponent must clearly state the information source(s) justifying the indicator selection in the project description. Indicator selection requires VVB review at project validation.

Box 14. Selection of Condition Indicators – Rationale and Requested Feedback

In this proposal, Verra considers that:

- The Condition measurement approach should be grounded in ecosystem science, and consistent with UN SEEA.
- Condition indicators often show natural fluctuations, and different indicators may show different rates of biodiversity uplift. Assuming indicators are relevant, well-chosen, and well-measured, measuring more than one indicator reduces uncertainty.
- For biodiversity-rich and/or threatened ecosystems, biome-specific modules may require measurement of additional indicators to reduce uncertainty and help minimize the risk of adverse outcomes.
- Beyond specifying a minimum number of relevant indicators, the proposed approach gives substantial flexibility to projects. This allows the selection of locally appropriate biodiversity indicators and promotes opportunities for local engagement and co-design. However, it reduces the comparability of outcomes between projects.
- Projects may access credit finance in the early stages of project implementation by selecting some Condition indicators that respond relatively quickly to changes in biodiversity outcomes (see section 2.2).
- This risk-based approach balances standardization, rigor, flexibility, and cost-effectiveness (as biodiversity monitoring is costly).

Verra seeks input on the proposed approach, including the following questions:

24. How prescriptive should the Nature Framework be in the number and selection of Condition indicators in general and within biomes?
25. To what extent should additional requirements for sampling intensity and frequency be included?
26. How detailed should guidance on sampling methods be – at the Nature Framework level or for specific biomes?

Step 3. Define reference state values for the selected Condition indicators

The Condition reference state is where natural ecological and evolutionary processes dominate the structure, composition, and function of the ecosystem.[35]

Reference state values (from here on referred to as reference values) for the Condition indicators selected in Step 1 must be identified by the project proponent and reviewed for appropriateness during project validation. Reference values should be assigned based on estimates from within the same ecoregion to ensure comparability with the biophysical characteristics of the project area. The value and source of each reference value (including details of any reference sites) must be clearly stated and justified in the project description.

If no records are available for undisturbed reference values, project proponents may use the 'best on offer' (BOO) approach.[36] BOO provides a pragmatic approach for identifying reference values, given that few contemporary ecosystems are totally free of threatening impacts.

Condition reference values can be estimated from a range of sources, which may include:

1. Direct observation from one or more reference sites (physical locations) where primary data are collected to define the reference value[37]
2. Historical data (observational or reconstructed)
3. Modelled ecological data
4. Published records from a peer-reviewed scientific journal
5. Information in assessments for the IUCN Red List of Ecosystems
6. Published records informed by expert consultation,[38] including the name and contact details of the expert who provided the refined estimate
7. National government biodiversity datasets

Where measurement methods have developed and improved in accuracy over time, estimates of reference values should be based on data collected using the latest accepted methods.

Biome-specific modules will provide more detailed guidance for estimating appropriate Condition reference values.

[35] UN CEEA (2021).
[36] Eyre, T.J., Kelly, A.L., and Neldner, V.J. 2017. "Method for the Establishment and Survey of Reference Sites for BioCondition." Version 3. Queensland Herbarium, Department of Science, Information Technology, and Innovation, Brisbane. [Online] Available at: https://www.qld.gov.au/__data/assets/pdf_file/0027/68571/reference-sites-biocondition.pdf
[37] Reference areas should be ecologically comparable and preferably geographically close to the project area. Collecting data from multiple sites, when possible, will provide a more representative estimate.
[38] Good practice consultation should involve a panel of experts with diverse experience, who are provided with available data beforehand, and use of expert elicitation processes.

Box 15. Selection of Condition Reference Values – Rationale and Requested Feedback

In this proposal, Verra considers that:

- Setting reference values project-by-project is flexible and allows local context and data to be considered. However, the technical requirements of this approach could create barriers to entry, and proposed reference values will need careful validation. As a future step, standardized reference values for relevant indicators could be defined by third parties, at the scale of ecosystem types within ecoregions. These standardized values could apply to multiple projects, to improve consistency and promote scaling by reducing potential technical barriers.
- Reference values relate to the current or historical state of intact ecosystems. Conservation efforts have, up to now, been focused on maintaining and restoring the ecosystems that are currently present. In the future, intensifying global environmental change will cause ecological transformations, with changing distributions of species and altered ecosystem types. Depending on the context, the appropriate conservation response may be to accept, direct, or resist these changes.[39] Where the approach is to accept or direct change it will be necessary to consider forward-looking reference values appropriate for the ecosystems predicted to be present in the future.

Verra seeks input on the proposed approach, including the following question:

27. Should the development of standard reference values applicable to multiple projects at ecoregion/ecosystem scale be considered a priority?

3.4 Quantifying Biodiversity Impacts

3.4.1 Baseline Setting

3.4.1.1. Measuring Condition at Project Start

This section details the steps project proponents must take to measure Condition in the project area at project start.

Step 4. Measure Condition indicators at project start (year 0)

The project proponent must include the following in the project description:

- A description of how each Condition indicator will be measured.

[39] Schuurman, Gregor W, David N Cole, Amanda E Cravens, Scott Covington, Shelley D Crausbay, Cat Hawkins Hoffman, David J Lawrence, et al. "Navigating Ecological Transformation: Resist–Accept–Direct as a Path to a New Resource Management Paradigm." BioScience 72, no. 1 (2021): 16–29. https://doi.org/10.1093/biosci/biab067.

- The measurement of each indicator for each ecosystem type at project start, including an assessment of statistical uncertainty. See the Technical Annex (section 8.1) for additional information on measuring Condition indicators.
- A monitoring plan, including appropriate information to ensure a representative sample of the project area is sampled, stratified by ecosystem type, preferably using a stratified random sampling design.

The Nature Framework will provide general good practice principles of appropriate sampling designs that are robust yet flexible to different project contexts.

Step 5. Standardize Condition indicators by Condition reference value at project start (year 0)

Under the Nature Framework, Condition is measured on a scale from 0 to 1 for each indicator. The value of 1 represents the Condition reference value and 0 represents an entirely degraded ecosystem.

Each measured project Condition indicator (Step 4) must be standardized by its respective Condition reference value (Step 3) to provide a value between 0 and 1, as follows:

- For indicators that decrease with degradation (e.g., biomass, species abundance, richness of ecosystem specialist species) to a zero value with complete ecosystem conversion, standardization is calculated by dividing the measured project Condition value (Step 4) by the reference Condition value (Step 3):

$$SI_0 = \frac{I_0}{Rv}$$

  Where:

  SI_0 Standardized Condition indicator value at project start (year 0)

  I_0 Condition indicator value at project start (year 0) (Step 4)

  Rv Reference value of Condition indicator (Step 3)

  Note: this calculation must be repeated for each selected Condition indicator.

- For indicators that *increase* with degradation without an obvious maximum (e.g., number of invasive species, or phosphorous levels in freshwater ecosystems), standardization requires defining an additional threshold reference level for the indicator, at which the Condition value is defined to be 0. If thresholds are uncertain, they should be set precautionarily low to avoid overestimating Condition gains.

  Pressure indicators typically increase with degradation and they may be useful and appropriate for some biomes. Still, they should be used with care because of this additional requirement. Where such an indicator is used, measured project Condition is standardized using the following formula:

$$SI_0 = \frac{T - I_0}{T - Rv}$$

Where:

SI_0 Standardized Condition indicator value at project start (year 0)

T Threshold value for indicator (equating to Condition value of 0)

I_0 Condition indicator value at project start (year 0) (Step 4)

Rv Reference value of Condition indicator (Step 3)

Note: this calculation must be repeated for each selected Condition indicator.

Further guidance on use of pressure indicators will be provided in the full methodology.

Step 6. Estimate Condition at project start (year 0)

The Condition at project start is calculated by determining the arithmetic mean of the standardized composition or structure Condition indicators (Step 5) so that each indicator is weighted equally in a Condition value from 0 to 1.

Condition at project start is calculated as follows:

$$C_0 = \frac{\left(\frac{St_1 + St_2 + \cdots St_n}{n}\right) + \left(\frac{Cm_1 + Cm_2 + \cdots Cm_n}{n}\right)}{2}$$

Where:

C_0 Condition at project start (year 0)

St Standardized structure indicators at project start (year 0) (Step 5)

Cm Standardized composition indicators at project start (year 0) (Step 5)

n Number of structure or composition indicators

3.4.1.2. Calculating Condition-adjusted Area of Ecosystems at Project Start

Step 7. Calculate Condition-adjusted area of ecosystems at project start (year 0)

Condition-adjusted area is the ecosystem Extent in hectares multiplied by its average Condition value. Condition-adjusted area has units of 'quality hectares' (Qha). A hectare of a fully intact ecosystem has a condition-adjusted area of 1 Qha, as does ten hectares of an ecosystem with an average Condition value of 0.1.

Project proponents must calculate the condition-adjusted area at project start for each ecosystem type (in Qha) as follows:

$$Ca_0 = E_0 * C_0$$

Where:

Ca_0 Condition-adjusted area at project start (year 0)

E_0 Extent in hectares at project start (year 0) (Step 1)

C_0 Condition at project start (year 0) (Step 6)

Finally, project proponents must sum the Condition-adjusted area (Qhas) across ecosystem types.

3.4.1.3. Crediting Baseline

The crediting baseline trend reflects the likelihood of loss of ecosystem intactness (i.e., loss of ecosystem Extent, Condition, or both) in the absence of the project intervention.

Assess and allocate ecoregional baseline trend (third-party process)

The Nature Framework proposes a standardized ecoregional approach to setting the crediting baseline. It involves assessing predicted loss of ecosystem intactness from Country Ecoregion Components (CECs), using recent historic trends in an ecosystem intactness metric combined with predicted future levels of relevant pressures.

The average annual trend in ecosystem intactness change is:

- Estimated for an entire CEC, and
- Reallocated within the CEC, at the level of the spatial units (CEC grid) used for mapping relative risk of loss cells with a proposed spatial resolution of 1 km^2 (see section 8.2.4 in the Technical Annex). This provides a locally-adjusted baseline, by specifying areas of higher and lower risk of loss of ecosystem intactness within the CEC.

Under this proposal, the estimation and reallocation of baseline trends in ecosystem intactness would be conducted by third parties for Verra, not by project proponents.

See Technical Annex section 8.2, for additional information on the proposed ecoregional approach.

Step 8. Determine the project crediting baseline

In this step, project proponents must determine the project crediting baseline by:

- Identifying the CEC or CECs where the project is located, and the related CEC grid cells based on loss risk.
- Identifying the baseline trend allocation for each CEC grid cell, based on data from the standardized third-party process described above.
- Calculating the area-weighted average of the baseline trend allocations for the overlapped CEC grid cells using the formula below.

$$B = \Sigma e_i \cdot b_i / E_0$$

Where:

B	Project crediting baseline
e_i	Area of project in ha overlapped by the i_{th} grid cell
b_i	Baseline trend allocation for the i_{th} grid cell
E_0	Extent in hectares at project start (year 0) (Step 1)

This calculation is carried out across the whole project area, not separately for individual ecosystems.

Box 16. Crediting Baseline – Rationale and Requested Feedback

Verra's intent is to develop a standardized approach for establishing ecoregional baseline trends and locally allocate them based on relative risk to ensure that the number of credits generated by a project are relative to the broader trend of change in Condition across the corresponding ecoregion. Incorporating both recent historic and future predicted pressures relevant to changes in Extent and Condition will improve the accuracy of ecoregional baseline trends. The ecoregional baselines will need to be further developed and updated after this consultation.

This standardized approach has several advantages over a project-by-project approach to setting baselines, including:

- Increased consistency and reduced potential for overestimating credit generation by relying on standardized global data sets rather than project-defined reference areas.
- Reduced technical and cost burden for project proponents and VVBs.

Verra is seeking feedback on the following:

28. Are there project contexts or activities where this standardized approach would not be appropriate or workable?
29. If so, how should baselines be set for such projects?

3.4.2 Project Impacts

Project impacts are calculated by measuring the change in Condition-adjusted area of ecosystems from the start of the project (Step 7), at least every five years, using the selected Condition indicators (Step 2) and Condition reference values (Step 3).

Step 9. Monitor project impacts

The project proponent must monitor the Extent and Condition of each ecosystem in the project area throughout the project lifetime and submit monitoring reports for verification at least once every five years.

For each monitoring period, project proponents must repeat Step 4 to Step 7 to monitor project impacts at the monitoring date (year *t*), by replacing all references to year 0 in those formulas with year *t*.

Guidance will be developed on assessing and interpreting trends over the monitoring period.

Box 17. Project Impacts – Rationale and Requested Feedback

In this proposal, Verra considers that verification frequency of five years is proposed because over this time period, relevant Condition indicators will likely be responsive to project activities and it will be possible to measure Condition change, with reasonable effort.

Verra is seeking feedback on the following:

30. Is annual monitoring of Condition indicators to be verified every five years financially viable for project proponents?

3.4.3 Leakage

Leakage represents negative impacts on biodiversity outside the project area resulting from project activities.

Step 10. Determine leakage

The Nature Framework proposes a flexible approach to leakage.[40] Project proponents must:

1. Identify potential negative impacts on biodiversity that the project activities will likely cause outside the project area.
2. Describe the measures needed and taken to mitigate these negative impacts on biodiversity outside the project area.
3. Determine unmitigated negative impacts on biodiversity outside the project area and deduct them from the biodiversity benefits generated by the project to determine net biodiversity benefits to be credited.

The proposed approach will be tested during the piloting process.

Box 18. Leakage – Requested Feedback

Verra seeks input on the proposed approach, including the following question:

31. How should residual leakage (after mitigation efforts) be determined by the project proponent?
    - Option 1: Through direct monitoring in predetermined leakage belts; and/or
    - Option 2: Applying Nature Framework-defined default values based on the kinds of activities displaced.

[40] Based on the *Climate, Community, and Biodiversity Standards v3.1* approach to Offsite Biodiversity Impacts.

3.4.4 Net Biodiversity Impacts

Step 11. Determine biodiversity impacts

Net biodiversity impacts represent the difference at the monitoring date (year *t*) between:

- The Condition-adjusted project impacts (Step 9);
- The Condition-adjusted area of ecosystems at project start (year 0) (Step 7) projected to year *t* using the locally-adjusted crediting baseline (Step 8), and
- Leakage (Step 10).

Project proponents must calculate the net biodiversity impacts (in Qha) as follows for each ecosystem type individually, which is illustrated in Figure 6:[41]

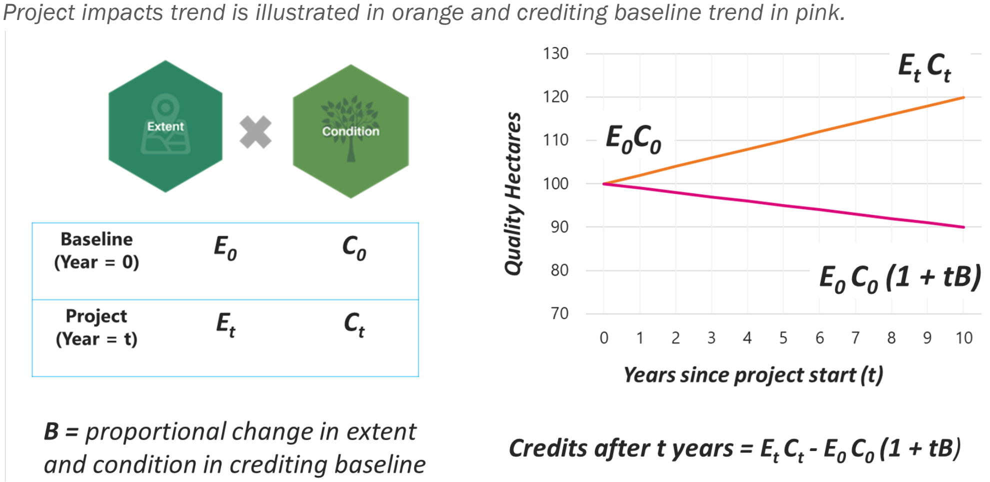
$$NBI = E_t C_t - E_0 C_0 (1 + t \cdot B) - L$$

Where:

NBI	Net Biodiversity Impacts (in Qha)
E_t	Extent in hectares at project monitoring date (year *t*) (Step 9)
C_t	Condition at project monitoring date (year *t*) (Step 9)
E_0	Extent in hectares at project start (year 0) (Step 1)
C_0	Condition at project start (year 0) (Step 4)
t	Number of years from project start
B	Project crediting baseline (Step 8)
L	Leakage (Step 10)

Figure 6. Net biodiversity impacts

Project impacts trend is illustrated in orange and crediting baseline trend in pink.



[41] For simplicity, this formula uses a linear approximation for the rate of change, rather than a proportional rate.

Step 12. Calculation of shared buffer account contribution

The number of Nature Credits to be held in the shared buffer account is determined as a percentage of the net biodiversity impacts. Leakage does not factor into the buffer calculation.

Project proponents calculate the buffer contribution by multiplying net biodiversity impacts by the standard 20% deduction (see section 2.7).

$$Buffer = E_t C_t - E_0 C_0 (1 + t \cdot B) \cdot 0.2$$

Where:

Buffer Total buffer withholding (Qha)

E_t Extent in hectares at project monitoring date (year *t*) (Step 9)

C_t Condition at project monitoring date (year *t*) (Step 9)

E_0 Extent in hectares at project start (year 0) (Step 1)

C_0 Condition at project start (year 0) (Step 4)

t Number of years from project start

B Project crediting baseline (Step 8)

Step 13. Calculation of Nature Credits

Net Biodiversity Impacts are the basis for generating Nature Credits. To estimate the number of Nature Credits for the monitoring period, project proponents must deduct the buffer withholding from net biodiversity impacts:

$$NC = NBI - Buffer$$

Where:

NC Nature Credits

NBI Net Biodiversity Impacts (Qha) (Step 11)

Buffer Total buffer withholding (Qha) (Step 12)

3.5 Biodiversity Significance

Concept

Biodiversity Significance (from here on referred to as Significance) is the importance of biodiversity for achieving defined conservation aims. In the Nature Framework, Significance is defined as the importance of biodiversity in the project area for contributing to the GBF.

In the Nature Framework, Significance is included as attributes independent from the calculation of Nature Credits, that:

- Reflect a project's potential contribution to specified GBF targets, which means that Significance attributes may differ according to the GBF target under consideration.
- Provide buyers additional information to identify projects that contribute to particular global goals for nature, by transparently displaying the project's attributes on the Verra Registry.

Requirements for Reporting Significance

Four Significance attributes are proposed with the following considerations:

- Each attribute:
  - Represents a different target under GBF Goal A (Table 6), and
  - Will include five tiers labeled neutrally (e.g., A, B, C, D, E) and separately, representing a clear ranking order based on 20th percentile thresholds of quantitative indicators.
- Project proponents must identify their project's tier for each Significance attribute based on the project location, using mapped, publicly available global datasets, which will be validated by the VVBs. The initial dataset proposal is included in Table 6.
  - Conservation projects must report on Target 1. Restoration projects must report on Target 2. Projects including conservation and restoration activities must report on both Targets 1 and 2.
  - All projects must report on Targets 3 and 4.

Additional Significance attributes may be added to accommodate different buyer needs.

Table 6. GBF Goal A[42] Targets and proposed attributes to assess project Significance based on the potential contribution to Targets

GBF Target (Headline summary and relevant text)	**Project contribution**	**Potential Significance Attribute**	
		Terrestrial (Measurement dataset)	**Marine** (Measurement dataset)
Target 1. Halt loss of ecosystems of high ecological integrity Bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of Indigenous Peoples and local communities	Preserving highly intact ecosystems	High ecoregional intactness (Measured via Ecoregion Intactness Index) See illustrative example in Figure 7.	Low human pressures (Measured via Marine Human Pressures Index - requires further development)

[42] Goal A: The integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050; Human induced extinction of known threatened species is halted, and, by 2050, extinction rate and risk of all species are reduced tenfold and the abundance of native wild species is increased to healthy and resilient levels.

GBF Target (Headline summary and relevant text)	**Project contribution**	**Potential Significance Attribute**	
		Terrestrial (Measurement dataset)	**Marine** (Measurement dataset)
Target 2. Effective restoration of degraded ecosystems Ensure that by 2030 at least 30 percent of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration	Restoring degraded ecosystems	Low ecoregional intactness (Measured via Ecoregion Intactness Index) See illustrative example in Figure 7.	High human pressures (Measured via Marine Human Pressures Index - requires further development)
Target 3. Effective conservation of ecologically representative areas Ensure and enable that by 2030 at least 30 per cent of terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed	Conserving under-represented biodiversity	Low percentage of ecoregion protected (Measured via WDPA) See illustrative example in Figure 8.	Low percentage of marine region protected (Measured via WDPA)
Target 4. Halt extinctions and reduce extinction risk Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species	Reducing species extinctions	High potential to reduce extinction risk (Measured via terrestrial STAR) See illustrative example in Figure 9.	High potential to reduce extinction risk (Measured via marine STAR)

Figure 7. Ecoregion intactness separated into five tiers based 20th percentiles

Indicative of: 1) GBF Target 1 (T1 - halt loss of ecosystems of high ecological integrity) with priority areas in purple/blue; and 2) GBF Target 2 (T2 - restoring highly degraded areas) with priority areas in yellow/green.

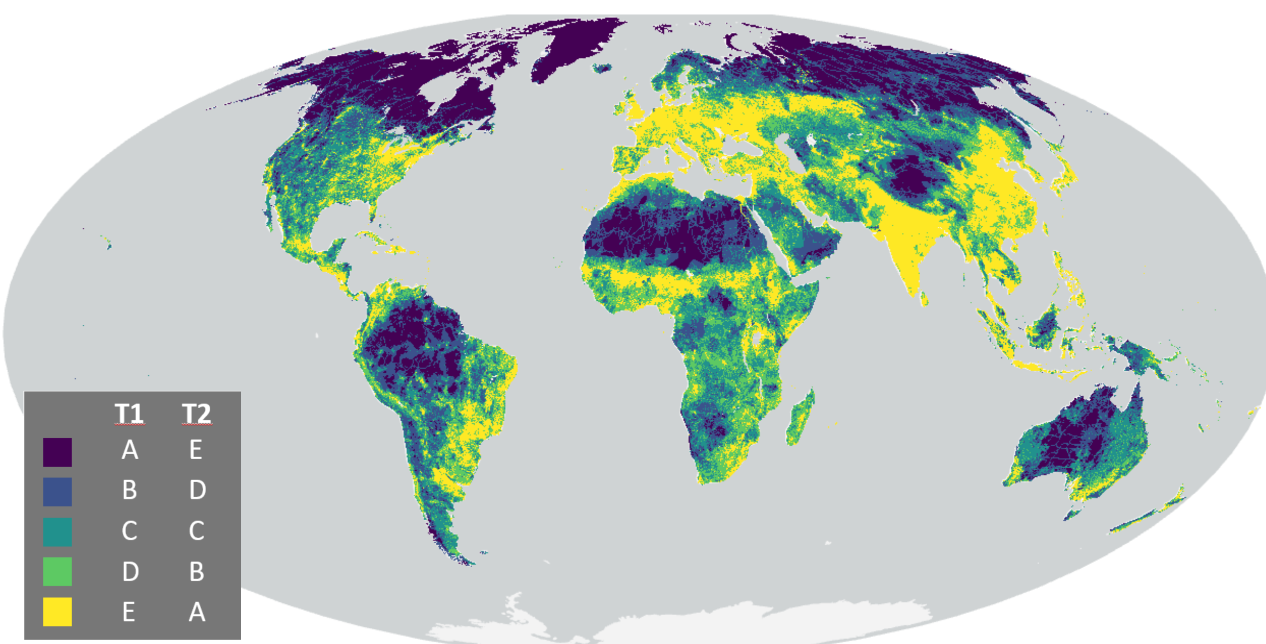


Figure 8. Percentage of ecoregion protected with IUCN category protected areas 1-4, separated into five tiers based on 20th percentiles

Indicative of GBF Target 3 (effective conservation of ecologically representative areas). Priority areas are those with low percentages of the ecoregion protected in purple/blue.

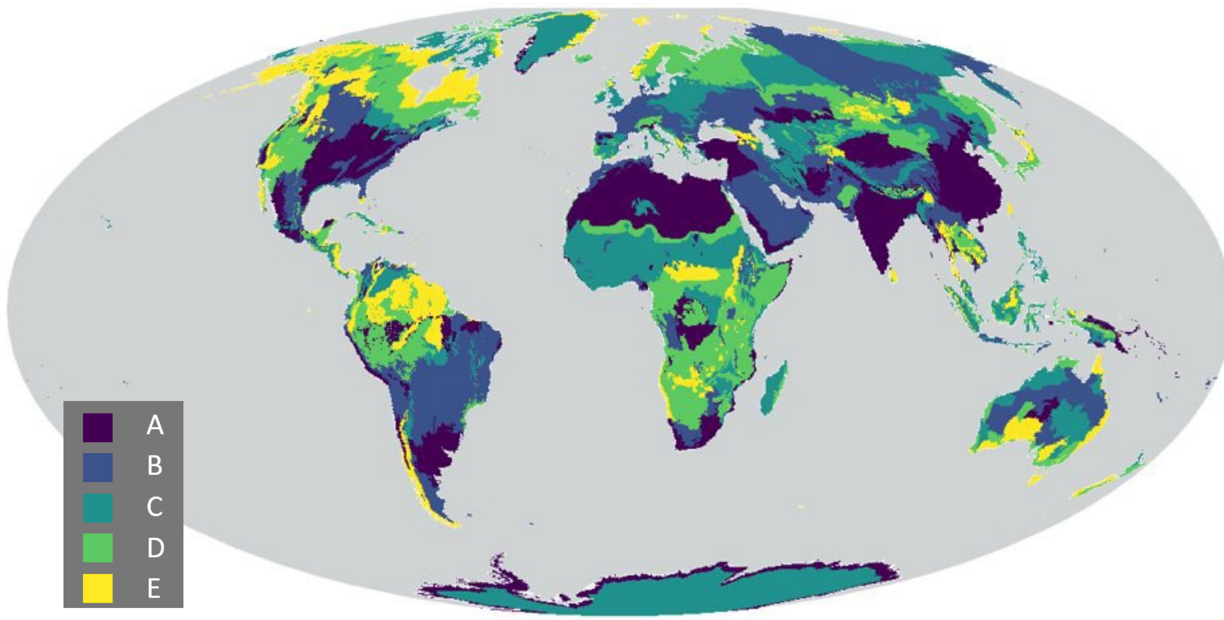
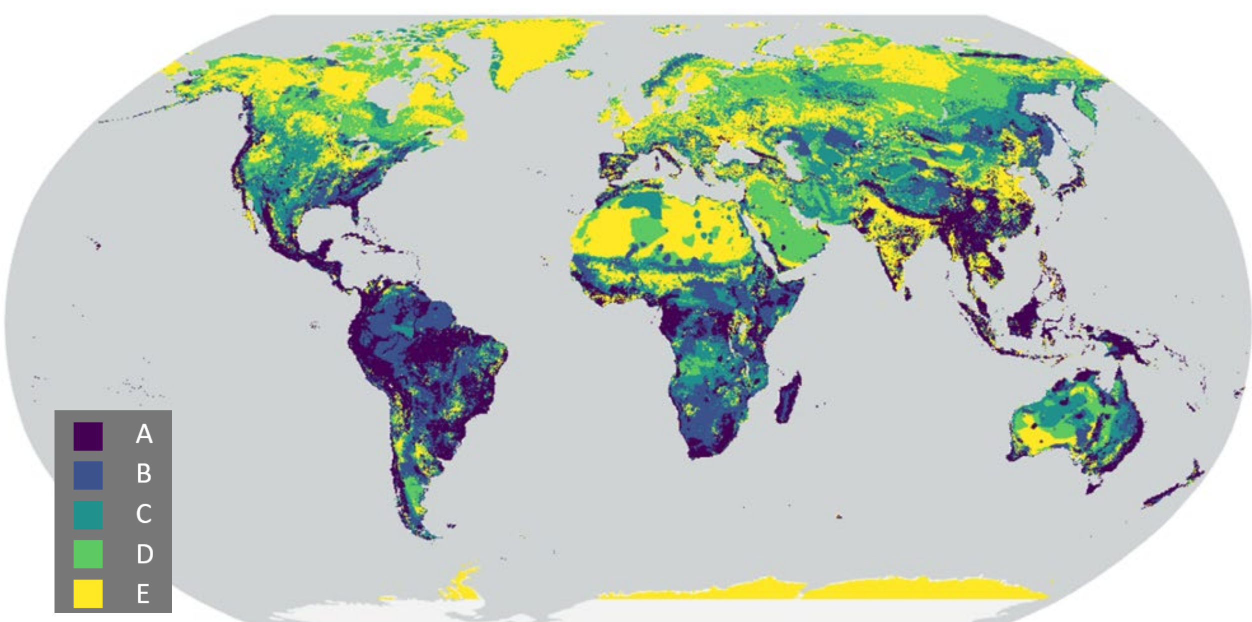


Figure 9. Species Threat Abatement Restoration (STAR) metric threat abatement global layer separated into five tiers based on 20th percentiles

Indicative of GBF Target 4 (halt extinctions and reduce extinction risk). Priority areas are in purple/blue.



Illustrative examples of how Significance tiers would work across projects is shown in Figure 10.

Figure 10. Significance attributes aligned with GBF Targets 1-4 for example projects

	1. Halt loss of ecosystems of high ecological integrity	2. Effective restoration of degraded ecosystems	3. Effective conservation of ecologically representative areas	4. Halt extinctions and reduce extinction risk
Example project 1: conservation	**A** Pristine area	N/A	**D** Under existing protection	**B** Potential to reduce species extinction
Example project 2: restoration	N/A	**A** Degraded area	**A** Without existing protection	**E** Limited for reducing species extinction
Example project 3: combined conservation & restoration	**C** Touched area		**D** Under existing protection	**C** Possibilities to reduce species extinction

Box 19. Significance – Rationale and Requested Feedback

- Assigning Significance to any aspect of biodiversity conservation is a value judgement. However, the GBF is a set of globally agreed conservation priorities, endorsed by the 196 Parties to the Convention on Biological Diversity and the outcome of a rigorous negotiation process.
- Significance can be assessed in relation to specific GBF goals and targets, using appropriate attributes and quantitative datasets. A tiered indication of the project's level of Significance, in relation to a particular target, helps to promote objective comparisons and transparency of communication.
- Biodiversity and threats to it are unevenly distributed around the world. A project's location strongly influences its potential to contribute to a particular global biodiversity target. Showing the level of Significance indicates this potential and provides relevant information to investors interested in supporting specific GBF elements.
- Because Significance is not integrated into the quantification of Nature Credits, it is possible to show information on several different dimensions through a suite of attributes, rather than focusing on just one.

Verra is seeking feedback on the following:

32. What additional Significance attributes should be included in the Nature Framework and why?
33. How could Indigenous Peoples and local community stewardship and cultural values be signaled within the framework as a Significance attribute?

3.6 Monitoring

The *SD VISta Methodology Template* requires asset methodologies to include a monitoring section, containing the data and parameters required at validation and verification. The next draft of the Nature Framework will detail the data and parameters used in the equations for quantification of biodiversity outcomes at project design and monitoring.

4 COMMUNICATIONS AND CLAIMS

This section sets out requirements to ensure that application and use of Nature Framework claims are easy, correct, and truthful to avoid misleading claims and uses that could damage the integrity, credibility, and reputation of the market mechanism, the Nature Framework, the SD VISta Program, Verra, or Verra's stakeholders.

This section applies to proponents of projects that have ever been validated or verified to the Nature Framework, intermediaries/marketers in the biodiversity/nature credit market, buyers of Nature Credits, VVBs approved under the SD VISta Program, academic and research institutions, and the media.

4.1 Claims about Projects Using the Nature Framework and Nature Credits

Oral or written claims about projects validated and/or verified to SD VISta and the Nature Framework must be made accurately. Authors of such claims must ensure that statements regarding the Nature Framework are used only for the project and activities specifically described in the project documents that have been validated or verified. Table 7 gives requirements for claims related to projects and Nature Credits.

Table 7. Claim Requirements

Subject of claim	Requirements	Example
Validated project, not yet verified	Claim refers only to the quality of **project design** and **projected benefits**	The SD VISta Nature Framework was used to validate that this project was designed to generate biodiversity uplift of 940 quality hectares of natural ecosystems over 20 years, compared to the without-project scenario.
Verified project	Claim refers to the **most recent verification date** and **achieved outcomes**	Activities from XYZ project resulted in a biodiversity uplift of 105 quality hectares of natural ecosystems from January 1, 2024 to December 31, 2025, compared to the without-project scenario.
Nature Credits	Claim specifies the **verification period** and **credit characteristics**	These Nature Credits were verified to the SD VISta Nature Framework for conserving and/or restoring biodiversity, resulting in a biodiversity uplift of 105 quality hectares of natural ecosystems for the period of January 1, 2024 to December 31, 2025, compared to the without-project scenario.

Organizations preparing for or undergoing validation may refer to the SD VISta Nature Framework by name for stakeholder consultation.

The penalty for a project proponent's misrepresentation of a project's status or Nature Credits is a freeze on Nature Credit issuances and future verifications until the misrepresentation is rectified. The penalty for an end user's misrepresentation of Nature Credits is that all account activity is stopped for the account where the Nature Credits are held.

4.2 Best Practices for Nature Credit End Users

End users of Nature Credits are required to adhere to Section 4.1 and must publicly report (e.g., in corporate sustainability reports) their Nature Credit purchases and their retirement dates.

To avoid making misleading statements about the use of Nature Credits, end users must communicate transparently about the context in which those credits are used. For example, a business might state the following:

"We have taken X, Y and Z steps to address our impacts on nature, from prevention to transformational actions to reduce the drivers of biodiversity loss. Beyond that commitment, we have purchased Nature Credits certified by an independent third-party auditor to the SD VISta Nature Framework to derisk our value chain and sustain our dependencies on nature. These Nature Credits represent the increase in biodiversity outcomes that would not have occurred without our financing of the project intervention. [Insert details of Nature Credits purchased here.] We will continue to invest both within and beyond our value chain until nature is visibly and measurably on the path of recovery toward a nature-positive world."

5 VALUE PROPOSITION AND USE CASE FOR NATURE CREDITS

This section highlights the use case for Nature Credits and their potential to enable voluntary contributions to a nature-positive future.

The value proposition for Nature Credits

Verra's Nature Credits will provide companies and other interested parties with a verified way to support high-quality projects, Indigenous Peoples, and local communities while addressing their impacts and dependencies on nature by derisking their value chains. This will allow buyers to demonstrate their commitment to and act beyond the biodiversity mitigation hierarchy and contribute to a nature-positive world.

Nature is in crisis, and companies need to act

Nature degradation, its resulting biodiversity loss, and companies are interdependent and interact mainly in two ways:

- **Impacts.** Companies affect nature, causing changes in its state and altering its capacity to provide social and economic functions.[43] For instance, land converted by the agri-food industry leads to bee population decline, which results in reduced crop productivity.

  Companies must address their impacts through adherence to the biodiversity mitigation hierarchy.[44]

  Where a nature deficit resulting from accumulated existing or ongoing impacts,[45] or through industry wide impacts that are not attributable to an individual entity, remains in the value chain after application of the mitigation hierarchy, companies can invest beyond the mitigation hierarchy through market-based mechanisms such as Nature Credits.

- **Dependencies.** Reliance on aspects of ecosystem services to function, such as ecosystems' ability to regulate water flow, water quality, and hazards like fires and floods, or provide a suitable habitat for pollinators (who in turn provide a service directly to economies).[46]

  Companies can help secure their dependencies on nature through market-based mechanisms, such as Nature Credits.

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[43] Taskforce on Nature-related Financial Disclosures (TNFD). "TNFD definitions of impacts," https://framework.tnfd.global/concepts-and-definitions/definitions-of-impacts/
[44] Science-based Targets Network (SBTN). "Science-based Targets for Nature. Initial Guidance for Business," September 2020, p.9, https://sciencebasedtargetsnetwork.org/wp-content/uploads/2020/09/SBTN-initial-guidance-for-business.pdf
[45] The term nature deficit here is broadly intended to encompass impacts that remain after implementation of the mitigation hierarchy. For example, this could arise in the temporal sense where it may take 30-50 years until restoration efforts are fully in place once production ceases.
[46] TNFD. "Glossary of Key Terms," https://framework.tnfd.global/appendix/glossary-of-key-terms/

Companies need to identify, understand, and act upon their impacts and dependencies on nature to mitigate nature-related risks. Examples of nature-related risks include supply chain disruptions, asset damage, raw material price spikes, and lower-valued or stranded assets. However, many companies lack the information and understanding of how their business impacts nature and how their operations and finances can be affected by their dependencies on nature.

Two initiatives are collaborating to transform business models toward a nature-positive economy based on the best available science:

- Science-based Targets Network (SBTN) enables companies' implementation of science-based targets that reduce and improve their impact on nature and society.[47]
- Taskforce on Nature-related Financial Disclosures (TNFD) is a framework for companies and financial institutions to manage and disclose their risks resulting from their impacts and dependencies on nature.[48]

At the moment, these initiatives are voluntary. However, in time they could inform national or regional regulations. For instance, the TNFD is explicitly referenced in the European Union's Corporate Sustainability Reporting Directive that impacts European companies and companies based outside the EU that meet certain criteria.[49]

[47] SBTN. "Frequently asked questions." https://sciencebasedtargetsnetwork.org/
[48] TNFD. "Who we are," https://tnfd.global/
[49] PricewaterhouseCoopers. "Nature and biodiversity: Measuring your impact for a stronger business and better world." https://www.pwc.com/us/en/services/esg/library/biodiversity-loss-and-nature.html

6 RELATED INITIATIVES AND CONCEPTS

6.1 Related Initiatives

This section outlines the most relevant global initiatives related to the Nature Framework.

Global Biodiversity Framework and Equity-based Nature Credits

In December 2022, the Parties to the United Nations Convention on Biological Diversity adopted the Kunming-Montreal Global Biodiversity Framework (GBF) at the 15th meeting of the Conference of the Parties (COP15)[50]. The GBF provides the foundation for halting and reversing biodiversity loss and improving ecosystem functions by 2050. Despite the GBF being a voluntary agreement, governments and organizations are committed to demonstrating progress toward its achievement.

Verra's Nature Framework focuses on three critical contributions to the GBF's purpose:

- Incentivizing high-quality biodiversity outcomes (Goals A and B).
- Ensuring equitable, inclusive, effective, and gender-responsive representation, participation, and benefit sharing of Indigenous Peoples and local communities in decision-making of project design and implementation (Target 22).
- Mobilizing private sector finance to close the estimated annual investment gap of USD 700 billion to achieve the GBF successfully (Targets 19 and 19 (d)).

Frameworks to Assess and Disclose Nature-related Risks, Dependencies, and Impacts from the Private Sector

Target 15 of the GBF encourages large companies and financial institutions to assess and disclose risks, dependencies, and impacts on biodiversity. The adoption of this Target follows a call to action from more than 330 companies and investors to mandate nature assessment and disclosure.

SBTN and TNFD are joining forces to transform business models toward a nature-positive economy based on the best available science, as follows:

- Being complementary. SBTN provides companies the guidance to set science-based targets for nature, and TNFD works to create a framework for companies and financial institutions to manage and disclose their nature-related risks.
- Collaborating actively to ensure alignment in how companies and financial institutions understand, frame, and address nature-related risks, so nature is impactfully and efficiently considered in decision-making.

[50] Kunming-Montreal Global Biodiversity Framework (GBF). 15th Conference of the Parties of the Convention on Biological Diversity (2022). https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf

While Verra's Nature Framework does not directly use the SBTN and TNFD frameworks, it was drafted to ensure it is aligned with existing global initiatives related to nature and biodiversity. The claims that can be made upon purchasing and retiring Nature Credits will be linked to the metrics outlined by the SBTN and TNFD.

6.2 Relationship between Verra's Nature and Carbon Credits

Concept

Climate and nature are inextricably linked, and both crises need urgent and coordinated action. Verra supports a holistic approach to ecological and climate transitions through market mechanisms. The Nature Framework is being built to enable the stacking of nature and carbon credits. Stacking is understood as the possibility of a project issuing carbon and biodiversity units, as long as there is no double counting of benefits. To ensure so, projects must comply with the additionality requirements for the Nature Framework and the Verified Carbon Standard (VCS) Program, and ensure additional impacts to people and their prosperity.

Box 20. Relationship between Nature and Carbon Credits – Rationale and Requested Feedback

While we must learn from the maturity and lessons of the carbon market, nature is broader and systemic, which requires a more flexible and customizable approach than carbon. This means that some projects could have supplementary activities leading to nature and carbon outcomes, while others might only focus on one.

Verra seeks to incentivize the flow of finance to places generating positive biodiversity outcomes and in need of financial resources. Many high-quality efforts, including those led by Indigenous Peoples and local communities, are often not eligible for carbon finance. Furthermore, existing carbon projects may transition to this alternative finance source upon, for instance, successfully reforesting a project area.

A separate asset class could also make it easier for companies to invest in projects that relate more closely to their value chains' dependencies on nature.

Verra is requesting feedback on the following:

34. Considering that the current Nature Framework additionality proposal is more flexible than carbon (see section 2.5), would you support discounting a portion of a project's Nature Credits based on ecosystem structure indicators (see section 3.3) which are more highly correlated with carbon indicators as a precautionary approach when stacking Nature Credits and Verified Carbon Units (VCUs)?

7 DEFINITIONS

Biodiversity Significance (Significance)

The importance of biodiversity for achieving defined conservation aims. In the Nature Framework, Significance is defined as the importance of biodiversity in the project area for contributing to the GBF.

Biome

A component of a realm united by broad features of ecosystem structure and one or a few common major ecological drivers that regulate major ecological functions, derived from the top-down by subdivision of realms.[51] Examples include: Marine shelf, rivers and streams, tropical and sub-tropical forests.

Condition-adjusted Area

The area of an ecosystem type in hectares, multiplied by its condition value (scaled 0-1), and expressed in quality hectares (Qha).

Country Ecoregion Component (CEC)

The portion of an ecoregion within a country, recognizing that jurisdictional boundaries are also relevant to available datasets and conservation policies. Examples include: Albertine Rift montane forests (Burundi), Albertine Rift montane forests (Rwanda), Albertine Rift montane forests (Uganda).

Crediting Baseline

The projected baseline trend in ecosystem Condition in the absence of the project intervention. The crediting baseline is used to calculate the project impact and number of credits generated. The crediting baseline is measured by an independent third party at the broader scale of CEC. This trend is then reallocated within the CEC to provide finer spatial resolution by specifying areas of higher and lower risk of loss of ecosystem intactness within the CEC.

Customary Rights Holder

Holder of a legitimate customary right to lands, territories, and resource usage.

Customary Rights to Lands, Territories, and Resources

Patterns of long-standing community lands, territories, and resource usage in accordance with Indigenous Peoples' and local communities' customary laws, values, customs, and traditions, including seasonal or cyclical use, rather than formal legal title to lands, territories and resources issued by the State.[52]

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[51] Global ecosystem typology. "The New IUCN Global Ecosystem Typology." Accessed September 14, 2023. https://global-ecosystems.org/page/typology.

[52] World Bank Operational Manual, OP 4.10 - Indigenous Peoples. 2005. https://ppfdocuments.azureedge.net/1570.pdf

Data Layer

Spatially explicit dataset providing the values of a measure or metric, or other relevant spatial information. Examples include: World Terrestrial Ecosystems map and Species Range Rarity map.

Ecoregion

Relatively large units of land or sea containing a distinct assemblage of natural communities and species, with boundaries that approximate the original extent of natural communities prior to major land-use change.[53] Examples include Albertine Rift montane forests.

Ecosystem

A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.[54]

Ecosystem Condition (Condition)

The quality of an ecosystem within a defined spatial unit measured in terms of its abiotic and biotic characteristics. Condition includes four simplified components: composition, structure, function, and pressures.

Ecosystem Conversion

The altering of an ecosystem through clearing, planting or seeding, or negative changes to native species, soil, or hydrology as a result of species introduced as part of project activities, or other project activities which impact the ecosystem.

Ecosystem Type

Ecosystem types are differentiated from one another by a degree of uniqueness in composition, structure, ecological processes, and function. Ecosystem types are thus a useful simplifying abstraction of the complexities of the natural world.

Extent

The project area over which biodiversity outcomes are measured. Extent is measured in hectares, for each ecosystem type within the project boundary (see section 2.3).

Grid cell

The spatial unit used for mapping relative risk of ecosystem Extent x Condition loss within a CEC.

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[53] Olson, David, Eric Dinerstein, Eric D. Wikramanayake, Neil Burgess, George Powell, and Emma Underwood. “Terrestrial Ecoregions of the World: A New Map of Life on Earth: A New Global Map of Terrestrial Ecoregions Provides an Innovative Tool for Conserving Biodiversity.” BioScience 51, no. 11 (2001): 933–38. https://doi.org/https://doi.org/10.1641/0006-3568(2001)051[0933:TEOTWA]2.0.CO;2.
[54] Convention on Biological Diversity (CBD). Article 2 of the Convention on Biological Diversity (1992). https://www.cbd.int/doc/legal/cbd-en.pdf

Indicator

A measure or metric used to provide information about more than just itself. Examples include: Populations of aquatic invertebrates sensitive to changes in water chemistry.

In this context, a measure is a numerical representation of a dimension of biodiversity or a related proxy variable. Examples include: Tree species richness, tree canopy height, or human population density.

Indigenous Peoples

Per the International Labour Organization Indigenous and Tribal Peoples Convention:[55]

> (a) tribal peoples in independent countries whose social, cultural and economic conditions distinguish them from other sections of the national community, and whose status is regulated wholly or partially by their own customs or traditions or by special laws or regulations;
>
> (b) peoples in independent countries who are regarded as indigenous on account of their descent from the populations which inhabited the country, or a geographical region to which the country belongs, at the time of conquest or colonization or the establishment of present state boundaries and who, irrespective of their legal status, retain some or all of their own social, economic, cultural and political institutions.

Invasive Species

A non-native species whose introduction and spread by human activity either accidentally or intentionally may cause socio-cultural, economic, or environmental harm or harm to human health as set out in the Global Invasive Species Database and/or a jurisdictional registry which takes precedence over any global dataset.

Measurement framework

Generalized approach to construct metrics, with some flexibility regarding particular measures and data sources. Examples include: UN SEEA, Biodiversity Disclosure Protocol, and UNEP-WCMC Nature Risk Profile Methodology.

Metric

Mathematical combination of two or more measures. Examples include: DEFRA Biodiversity Metric, Forest Landscape Integrity Index, or Mean Species Abundance.

Model

Mathematical procedure calculating values of measures and metrics based on relationships derived from empirical studies. Examples include: Global Biodiversity Model for Policy Support (GLOBIO) and Projecting Responses of Ecological Diversity in Changing Terrestrial Systems (PREDICTS).

[55] International Labour Organization, 1989. Indigenous and Tribal Peoples Convention, 1989 (No. 169): Convention concerning Indigenous and Tribal Peoples in Independent Countries

Net Biodiversity Impacts

The difference between the project impact and the crediting baseline (Qha).

Positive Biodiversity Outcome

An increase in the amount or quality of biodiversity relative to a baseline resulting from the effective management of conservation and restoration projects.

Project Baseline

The Condition-adjusted area (Qha) of ecosystems within the project boundary at the start of the project, measured by the project proponent.

Project Impacts

The changes in Condition-adjusted area (Qha) of ecosystems within the project boundary from the start of the project, measured by the project proponent.

Project Lifetime

The time period over which project activities are implemented.

Project Longevity

The number of years, beginning from the project start date, that project activities will be maintained. In some cases, the project longevity period can be longer than a project's crediting period.

Quality Hectare (Qha)

A unit of ecosystem Extent x Condition. 1 Qha is equivalent to 1 hectare of an intact ecosystem with a Condition value of 1.

Realm

One of five major components of the biosphere that differ fundamentally in ecosystem organization and function: terrestrial, freshwater, marine, subterranean, atmospheric and combinations of these (transitional realms). Because variation in nature is continuous, transitional realms are also included, where the realms meet and have their own unique organization and function.[56] Examples include: marine, freshwater, terrestrial, subterranean.

Tool

Software or guidance to support use of measures, metrics, data layers, models, and frameworks for specific applications. Examples include: ENCORE Biodiversity Module, WWF Biodiversity Risk Filter, FAO Adaptation, Biodiversity and Carbon Mapping Tool (ABC-Map).

[56] Global ecosystem typology. "The New IUCN Global Ecosystem Typology." Accessed September 14, 2023. https://global-ecosystems.org/page/typology.

8 TECHNICAL ANNEX

This section provides additional context, rationale, and technical details to provide readers a more in-depth understanding of the proposed quantification approach described in section 3.

8.1 Selection and Measurement of Condition Indicators

Two key issues of indicator selection are of particular relevance to the Nature Framework - the number of indicators monitored and their appropriateness for the local ecological context.

First, there is a trade-off between the cost and uncertainty of measurement in indicator selection. Indicators must be carefully selected and effectively monitored. Including more indicators is likely to increase the certainty of measured outcomes. However, it will also increase costs.

Second, there can be significant variability in how Condition indicators respond to a project intervention. For example, not all taxa respond the same way to changes in land-use, and some taxa are generally better and more cost-effective indicators than others in particular contexts (e.g., in the Amazon, birds and dung beetles are considered good indicator taxa as they respond consistently to degradation and are cost-effective to monitor).[57]

The selection of which taxa to monitor for composition indicators could affect the number of credits generated by a project. Therefore, composition indicators must have a demonstrable link to the broader Condition. Single species indicators representative of only a narrow subset of species will generally not be appropriate. Detailed guidance on indicator selection will be provided in the full methodology to be developed.

It is also important that indicators are measured in standardized ways according to established best practice. For example, the reported species richness of a particular taxon is only meaningful if it has been measured using the appropriate techniques and expertise, and with standardized sampling effort and coverage.[58,59] Consistent application of stratified random sampling across the full range of ecosystem types and quality within a project is important. For instance, it would be misleading to measure Condition indicators in the most degraded parts of the project initially and in the most pristine parts subsequently. It is expected that projects will use recommended standardized methods for sampling and measuring Condition indicators.[60,61]

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[57] Gardner, Toby A., Jos Barlow, Ivanei S. Araujo, Teresa Cristina Ávila-Pires, Alexandre B. Bonaldo, Joana E. Costa, Maria Cristina Esposito, et al. "The Cost-Effectiveness of Biodiversity Surveys in Tropical Forests." Ecology Letters 11, no. 2 (2008): 139–50. https://doi.org/10.1111/j.1461-0248.2007.01133.x.
[58] Gotelli, Nicholas J., and Robert K. Colwell. "Quantifying Biodiversity: Procedures and Pitfalls in the Measurement and Comparison of Species Richness." Ecology Letters 4, no. 4 (2001): 379–91. https://doi.org/10.1046/j.1461-0248.2001.00230.x.
[59] Chao, Anne, and Lou Jost. "Coverage-Based Rarefaction and Extrapolation: Standardizing Samples by Completeness Rather than Size." Ecology 93, no. 12 (2012): 2533–47. https://doi.org/10.1890/11-1952.1.
[60] Sutherland, William J. Ecological Census Techniques: A Handbook. 2nd ed. Cambridge: Cambridge University Press, 2006.
[61] Santos, Jean Carlos, and Geraldo W. Fernandes. Measuring Arthropod Biodiversity: A handbook of sampling methods. Cham, Switzerland: Springer, 2021.

Some biodiversity measurement error is unavoidable in the field. Error will be inherent in the techniques used, as will variability in measured values between years due to environmental and demographic fluctuations. To accurately assess overall trends a multi-year dataset is required. It is recommended that annual surveys are done to assess each Condition indicator with a minimum of five annual assessments recommended to provide sufficient confidence in indicator trends.

8.2 Setting the Crediting Baseline

8.2.1 Overall approach

The number of credits generated by a project is estimated based on the change in Condition in the project area relative to the change in Condition within the broader landscape, analogous to jurisdictional REDD baselines. This approach is used to promote the integrity of credited outcomes by ensuring that projects are only credited for achieving a positive change in Condition relative to the without-project scenario.

By taking account of the risk of loss of Condition in the broader landscape, the Nature Framework provides a pathway for supporting projects in parts of the world under high rates of loss. However, there is a potential risk that allowing for the use of a declining baseline, the framework would enable crediting of projects that contribute to adverse outcomes. Ecological guardrails are proposed to ensure that projects are credited based on real outcomes and account for potential leakage.

A standardized ecoregional approach is proposed instead of a project-by-project approach for setting crediting baselines. This draws on the lessons of REDD projects and is proposed to promote integrity of the crediting system as a whole. Verra's new consolidated REDD methodology uses a two-stage approach to establish crediting baselines for avoiding unplanned deforestation. First, information on recent forest loss is generated for an entire jurisdiction (a country or sub-national administrative unit). This provides a prediction for jurisdiction-level forest loss in the upcoming crediting period. Second, relative deforestation risk is mapped across the jurisdiction based on proximity to observed recent losses. Combining this mapping with the jurisdictional baseline allows allocation of an appropriate crediting baseline to each project.

Setting a jurisdictional baseline provides a consistent context for all projects in the jurisdiction and across jurisdictions. Allocating this baseline according to relative mapped risk accounts for expected within-jurisdiction variation. This allocation is determined by a Verra-contracted third party, not by project developers.

For the Nature Framework, a similar approach is proposed but adapted to account for the distinct context of biodiversity and Nature Credits. Considerations for the Nature Framework approach include:

- It needs to apply to all realms, biomes and ecosystem types. Therefore, using change in forest cover is not relevant in all contexts. Instead, change in threatening pressures are proposed to indirectly assess change in Condition in a way that is generalizable across ecosystems.

- For biodiversity, changes in Condition (analogous to forest degradation for REDD) may involve changes in ecosystem composition that are not necessarily reflected in ecosystem structure (e.g., pressures such as hunting or disturbance may cause the loss of key animal species without an obvious change in vegetation). Changes in composition indicators are often not directly observable using remote sensing data.
- Recent past trends in ecosystem intactness may often be a good predictor of future trends. However, ecoregions may also be subject to rapid changes in pressures such as urbanization, agricultural expansion, infrastructure development, or the direct and indirect effects of climate change. Combining recent past trends with predicted future changes in relevant pressures (Table 8 and Table 9) will give a better estimate of likely future trends.

The key adaptations proposed (with rationale explained in more detail below) are:

- Use of Country Ecoregion Components (CECs) rather than administrative (jurisdictional) units as the default geographical unit for assessing baselines to ensure ecologically coherent units of assessment that also share jurisdictional characteristics.
- Use of an ecosystem intactness metric (analogous to historic average forest loss for jurisdictional REDD), combined with forward-looking datasets on relevant pressures, for predicting ecoregional trends in ecosystem intactness.

The framework proposes a globally standardized approach for setting ecoregional baselines in the terrestrial, freshwater, and marine realms, which would provide the standard, default option for estimating crediting baselines. Globally available data layers on past and projected future pressures will be used to predict future trends in ecoregion intactness.[62] Baselines for CECs are to be developed, periodically updated, and maintained by an independent third party with a public interface to show mapped ecoregional trends.

Globally standardized approaches will not estimate change in Condition equally well for all ecoregions or ecosystem types. Therefore, the Nature Framework could allow, where appropriate, ecoregion-specific approaches to supersede the globally standardized approach if these can be demonstrated to make a significant improvement in accuracy of measuring Condition change. This ecoregion-specific approach could, for example, use supplementary datasets only available for a particular region or ecosystem type, or additional criteria of particular importance to a specific ecosystem, such as high sensitivity of coral reefs to the threatening pressure of increasing surface water temperature. Baselines using ecoregion-specific approaches would be developed and managed by an independent third party where there is a demonstrable high demand and need for improved accuracy estimates.

[62] Note that the indicators used to assess change in ecosystem intactness (globally available pressure indicators) are not the same as those used to assess change in Condition at the project level (which are selected according to the characteristics of the ecosystems included).

8.2.2 Country Ecoregion Components (CECs)

Ecoregions are relatively large biogeographical units that contain a distinct assemblage of natural communities and species, with boundaries approximating the original extent of natural communities.[63] Country Ecoregion Components (CECs) are the components of ecoregions within national boundaries.[64]

CECs are a convenient spatial unit for assessing baseline crediting trends. There is broad scientific support for ecoregions as coherent biogeographical units,[65] and global definitions and mapping, including for terrestrial and freshwater realms and the marine shelf biome. CECs have both ecological and socio-political coherence. Using the country component, rather than entire ecoregions, links to national management approaches, which can vary greatly by jurisdiction. CECs are likely the most granular spatial scale[66] for which there is good consensus on ecological boundaries.

8.2.3 Determining ecoregional trends

The crediting baseline trend predicts the risk of loss of ecosystem intactness in the absence of a project intervention. At the CEC level, this is proposed to be assessed primarily using recent change in ecoregion intactness, combined with forward-looking datasets predicting relevant pressures (see Table 8 and Table 9).

Applying a standardized global approach will require updating existing metrics, developing a methodology for combining historical and forward-looking data, and producing and maintaining a global dataset of CEC-scale predictions of ecosystem intactness change. Until this database is available, an interim approach for estimating baselines would be provided in the Nature Framework to allow calculation of baselines for early adopting project proponents.[67]

Recent change will be assessed using indices for the marine and terrestrial realms that infer change in ecoregion intactness based on global databases of modelled human pressures (e.g., road networks - terrestrial, fishing pressure - marine). Methodologies for the freshwater realm have not yet been defined but are under review.

[63] Olson, David, Eric Dinerstein, Eric D. Wikramanayake, Neil Burgess, George Powell, and Emma Underwood. “Terrestrial Ecoregions of the World: A New Map of Life on Earth: A New Global Map of Terrestrial Ecoregions Provides an Innovative Tool for Conserving Biodiversity.” *BioScience* 51, no. 11 (2001): 933–38. https://doi.org/https://doi.org/10.1641/0006-3568(2001)051[0933:TEOTWA]2.0.CO;2
[64] Global Environment Facility Council Meeting Minute. November 2004. https://www.thegef.org/sites/default/files/council-meeting-documents/C.24.8_Resource_Allocation_Framework_FINAL.pdf
[65] Smith, Jeffrey R., Andrew D. Letten, Po-Ju Ke, Christopher B. Anderson, J. Nicholas Hendershot, Manpreet K. Dhami, Glade A. Dlott, et al. “A Global Test of Ecoregions.” Nature Ecology & Evolution 2, no. 12 (2018): 1889–96. https://doi.org/10.1038/s41559-018-0709-x.
[66] The mean size of terrestrial CECs is 76,500 km^2.
[67] For terrestrial ecosystems, the interim methodology may be an adaptation of Verra’s Jurisdictional Activity Data Baseline for Unplanned Deforestation methodology, using data on land-cover change. An estimated 12-18 months are required to develop the full baseline-setting methodology for the Nature Framework, including updates to relevant datasets.

For the terrestrial realm, the Ecoregion Intactness Index[68] assesses status and historical trends in ecoregion intactness. This is a landscape-scale metric with global terrestrial coverage, and a clear methodology for calculation available in the published literature. The published, mapped index is available for use but requires updating with more recent datasets to show the current picture of ecoregion intactness and recent trends. It measures intactness relative to a reference state, incorporating habitat loss, quality, and fragmentation resulting from anthropogenic disturbances. The metric incorporates a suite of anthropogenic pressures on biodiversity that impact Condition, and a direct estimate of ecosystem connectivity at landscape scale.

Using the Ecoregion Intactness Index, proportional loss or gain of intactness within a CEC can be estimated by comparing values across points in time. Other information relevant to expected future trends (in the absence of additional conservation interventions) will also be considered. Suitable datasets for relevant pressures are under review but may include, for example, predicted population growth rates, urbanization and agricultural expansion (see Table 8).

For the marine realm, an analogous index for estimating risk of loss of ecoregion intactness is provided by the Marine Cumulative Human Impact index (MCHI).[69] The MCHI is based on global datasets of human pressures including commercial fishing, artisanal fishing, benthic structures (e.g., oil rigs), commercial activity, invasive species, ocean pollution and climate change.

The MCHI was first developed in 2008 and repeat assessments were undertaken in 2015[70] and 2019.[71] Data are available to update the assessment using the published methodology[72] (see summary of datasets in Table 9). In addition to the data used in the MCHI, Table 9 includes several other more recent datasets that have been developed since the MCHI's original publication.

8.2.4 Allocation of ecoregional trend across CECs

CECs usually represent a relatively large geographic area, averaging 76,500 km^2. Within each CEC there will be variability in the rate of loss of Condition. Ecoregional approaches set a crediting baseline based on the average rate of loss for an entire CEC, which could disadvantage (or advantage) some project proponents developing projects in sites of locally higher (or lower) risk of loss than the broader ecoregional trend.

[68] Beyer, Hawthorne L., Oscar Venter, Hedley S. Grantham, and James E.M. Watson. "Substantial Losses in Ecoregion Intactness Highlight Urgency of Globally Coordinated Action." Conservation Letters 13, no. 2. (2019). https://doi.org/10.1111/conl.12692.
[69] Halpern, Benjamin S., Shaun Walbridge, Kimberly A. Selkoe, Carrie V. Kappel, Fiorenza Micheli, Caterina D'Agrosa, John F. Bruno, et al. "A Global Map of Human Impact on Marine Ecosystems." Science 319, no. 5865 (2008): 948–52. https://doi.org/10.1126/science.1149345.
[70] Halpern, Benjamin S., Melanie Frazier, John Potapenko, Kenneth S. Casey, Kellee Koenig, Catherine Longo, Julia Stewart Lowndes, et al. "Spatial and Temporal Changes in Cumulative Human Impacts on the World's Ocean." Nature Communications 6, no. 1 (2015). https://doi.org/10.1038/ncomms8615.
[71] Halpern, B.S., et al. 2019. Recent pace of change in human impact on the world's ocean. Scientific Reports, 9: 11609
[72] Halpern, Benjamin S., Catherine Longo, Julia S. Stewart Lowndes, Benjamin D. Best, Melanie Frazier, Steven K. Katona, Kristin M. Kleisner, Andrew A. Rosenberg, Courtney Scarborough, and Elizabeth R. Selig. (2015). 'Patterns and Emerging Trends in Global Ocean Health'.PLOS ONE 10 (3): e0117863. https://doi.org/10.1371/journal.pone.0117863.

For REDD, Verra's Jurisdictional Risk Mapping Tool provides a methodology for allocating jurisdiction - wide baselines to project areas, which could be adapted for use in ecoregions for the Nature Framework.

Mapping Extent x Condition loss for natural ecosystems across grid cells in the CEC would provide the basis for application of this method, where the relative risk of loss for each grid cell reflects the level of recent loss in the cells around it. Loss may be expressed as a binary (0/1) state using a threshold, as for forest in the Jurisdictional Risk Mapping Tool, or as a proportional change. The proposed spatial resolution for each grid cell is 1 km^2, based on the resolution of available supporting datasets (Table 8 and Table 9; note that potential datasets for freshwater have not yet been identified).

This method requires further development and testing for implementation in the Nature Framework. Before the re-allocation method is finalized, early adopter projects working in forest ecosystems may use the risk mapping produced for REDD projects (if available). Early adopter projects in other ecosystems have the option to propose project-specific baselines using specific control site(s) matched on locally relevant criteria (e.g., distance to urban centers, elevation, distance to roads). The project proponent must justify the need and selection of matching indicators.

Box 21. Technical Annex – Requested Feedback

Verra seeks input on the technical elements of the proposed approach, including the following questions:

On the overall approach to setting the crediting baseline (section 8.2.1):

35. Is a globally standardized, third-party implemented approach, with scope for ecoregion-specific refinement, appropriate for setting crediting baselines at ecoregion level?

On the reallocation of ecoregional trend to sub-jurisdictions (section 668.2.4):

36. Is an adaptation of Verra's Jurisdictional Risk Mapping Tool, with local risk-of-loss levels based on proximity to recent loss of ecosystem Extent and Condition, appropriate for re-allocating baseline CEC trends in the Nature Framework?

Table 8. Potential data layers to support an ecoregional approach to crediting baselines (terrestrial)

Variable type	**Variable**	**Dataset**	**Source**	**Spatial scale**	**Data availability** (publicly available / on request)
Past pressures	Population density	WorldPop Program, World population density from 2000-2020	WorldPop - *Lloyd, C. T. et al. 2019*, University of Southampton	1 km	Public Domain
	Human pressure	Human Impact Index	Wildlife Conservation Society, *https://wcshumanfootprint.org/data-access*, Eric Wayne Sanderson, Kim Fisher, Nathaniel Robinson, Dustin Sampson, Adam Duncan, Lucinda Royte,	300 m	(CC BY-NC-SA 3.0) Non Commercial
	Navigable waterways	HydroSHEDS (Hydrological data)	*Lehner, B. et al 2008*	Vector data	Public Domain
	Roadways, railways	Open Street Maps (OSM)	*https://planet.osm.org*	Vector data	Public Domain
Indirect past pressure	Built environments	Annual maps of global artificial impervious area (GAIA) between 1985 and 2018 (GAIA)	*Gong, P. et al. 2020*, http://data.starcloud.pcl.ac.cn/resource/13	30 m	Public Domain
	Nighttime light	Inter-calibrated stable nighttime lights series from VIIRS	Earth Observation Group, Payne Institute for Public Policy, Colorado School of Mines, *Elvidge, C. D. et al. 2017*	500 m	Public Domain
	Croplands and pasture lands	European Space Agency (ESA) Climate Change Initiative (CCI) Landcover dataset	*http://maps.elie.ucl.ac.be/CCI/viewer/*	30 m	Public Domain
	Rivers and wetlands	High-resolution mapping of global surface water and its long-term changes	European Commission, Joint Research Centre. *Jean-François Pekel & Andrew Cottam & Noel Gorelick & Alan S. Belward, 2016.*	30 m	Public Domain
Past and future pressures	Roadways, railways	Global patterns of current and future road infrastructure	*Meijer, J.R., Huijbregts, M.A.J., Schotten, C.G.J. and Schipper, A.M. (2018):* www.globio.info		*(CC-BY-0)*
Current and future pressures	Population density	High Resolution Population Density Maps	Data for Good at Meta: https://data.humdata.org/organization/meta?q=population%20density&sort=if(gt(last_modified%2Creview_date)%2Clast_modified%2Creview_date	30 m	Public Domain

Variable type	**Variable**	**Dataset**	**Source**	**Spatial scale**	**Data availability** (publicly available / on request)
Future	Population growth	Global 1 KM-Grid Population Distributions from 2020 to 2100	*Xinyu Wang & Xiangfeng Meng, Ying Long,* https://doi.org/10.6084/m9.figshare.19608594	1 km	CC-BY-4.0
Future	Potential for future agricultural expansion	Global maps representing the potential for conversion into agricultural land	Cengic et al., 2023 *https://www.mdpi.com/2073-445X/12/3/579*	300 m	CC-BY-4.0
Future	Climate	NEX-GDDP-CMIP6: NASA Earth Exchange Global Daily Downscaled Climate Projections, 1950-2100	*Thrasher, B., Maurer, E. P., McKellar, C., & Duffy, P. B.,* 2012: doi:10.5194/hess-16-3309-2012	25 km	CC-BY-4.0

Table 9. Potential data layers to support an ecoregional approach to crediting baselines (marine)

Type of Variable	Variable	Source	Spatial scale
Land based pressure	Nutrient pollution	MCHI - Halpern et al. 2008, 2015a, 2015b, 2019	1 km^2
	Organic pollution		1 km^2
	Inorganic pollution		1 km^2
	Direct human pressure		1 km^2
	Light pollution		1 km^2
	Wastewater pollution	Tuholske *et al.,* 2021	1 km^2
Fishing pressure	Demersal, destructive	MCHI - Halpern et al. 2008, 2015a, 2015b, 2019	half-degree (c. 50km)
	Demersal, non-destructive, high bycatch		Half-degree
	Demersal, non-destructive, low bycatch		Half-degree
	Pelagic, high bycatch		Half-degree
	Pelagic, low bycatch		Half-degree
	Artisanal		1 km^2
	Total fishing effort across six vessel/gear classes	Kroodsma et al. 2018; Global Fishing Watch 2023	0.01 degree
Climate change	SST anomalies	MCHI - Halpern et al. 2008, 2015a, 2015b, 2019	c. 21 km^2
	UV radiation		1 degree (c. 100 km^2)
	Ocean acidification		1 degree
	Sea level rise		0.25 degrees
Ocean based indirect pressures	Commercial shipping	MCHI - Halpern et al. 2008, 2015a, 2015b, 2019	0.1 degree
	Invasive species		1 km^2
	Ocean-based pollution		1 km^2
	Benthic structures		1 km^2
	Shipping	Kroodsma et al. 2018; Global Fishing Watch 2023	0.01 degree

9 WORKED EXAMPLE

Note: This worked example illustrates the application of the quantification steps using real, readily available field data. However, it is not intended to imply that the project type or selected Condition indicators would be preferred options for application of the framework.

The SAFE Project in Sabah, Malaysia, has collected data across different land-use types and levels of forest degradation to investigate the effects of forest fragmentation on biodiversity.[73] This includes data on ecosystem structure (forest cover, above ground biomass) and composition (including surveys of multiple taxa groups).

SAFE Project data on ecosystem structure and composition compiled in a study[74] are used here to envisage a hypothetical project to restore riparian forest in an area of 200 ha previously cleared for palm oil agriculture, following the quantification steps detailed above.

Step 1. Define ecosystem types in the project area and measure their Extent at project start

The project area is located within 200 ha of highly degraded riparian and lowland tropical forest.

Step 2. Select Condition indicators

Table 10. Structure and composition indicators selected

Condition component	Indicator description
Structure	Forest cover (%)
	Above ground biomass at 250m radius from sampling point (metric tons per hectare [t ha^{-1}])
	Above ground biomass at 100m radius from sampling point (metric tons per hectare [t ha−1])
Composition	Species richness of forest specialist frogs
	Species richness of forest specialist small mammals
	Species richness of forest specialist birds
	Species richness of forest specialist dung-beetles

In the data provided, measured species richness was corrected (through rarefaction) to control for sample sizes and standardized against reference values for each taxon group, so in this example the composition indicators' reference values equal 1.

[73] Ewers, Robert M., Raphael K. Didham, Lenore Fahrig, Gonçalo Ferraz, Andy Hector, Robert D. Holt, Valerie Kapos, et al. "A Large-Scale Forest Fragmentation Experiment: The Stability of Altered Forest Ecosystems Project." Philosophical Transactions of the Royal Society B: Biological Sciences 366, no. 1582 (2011): 3292–3302. https://doi.org/10.1098/rstb.2011.0049.
[74] Deere, Nicolas J, Jake E Bicknell, Simon L Mitchell, Aqilah Afendy, Esther L Baking, Henry Bernard, Arthur YC Chung, et al. "Riparian Buffers Can Help Mitigate Biodiversity Declines in Oil Palm Agriculture." Frontiers in Ecology and the Environment 20, no. 8 (2022): 459–66. https://doi.org/10.1002/fee.2473.

Steps 3. Define reference state values for the selected Condition indicators; 4. Measure Condition indicators at project start (year 0); and 5. Standardize Condition indicators by Condition reference value at project start (year 0)

Using the data provided, the following values were defined; from which project start reflects areas cleared for oil palm.

Table 11. Condition indicator baseline values for a hypothetical restoration project in Sabah, using data from the SAFE project

Condition component	Indicator description	Reference value	Condition value measured at project start	Standardized Condition value
Structure (S_1)	Forest cover (%)	0.66	0.12	0.12/0.66 = 0.18
Structure (S_2)	Above ground biomass at 250m radius from sampling point (t ha^{-1})	218	39.6	39.6/218 = 0.18
Structure (S_3)	Above ground biomass at 100m radius from sampling point (t ha^{-1})	220	17.5	17.5/220 = 0.08
Composition (Cm_1)	Species richness of forest specialist frog species	1*	0.51	0.51
Composition (Cm_2)	Species richness of forest specialist small mammal species	1*	0.4	0.4
Composition (Cm_3)	Species richness of forest specialist bird species	1*	0.03	0.03
Composition (Cm_4)	Species richness of forest specialist dung beetles species	1*	0.10	0.10

**Data on species richness provided are already standardized by reference values. Raw data are not summarized for reference sites.*

Step 6. Estimate Condition at project start (year 0)

To calculate the Condition at project start, we determine the arithmetic mean of the standardized composition and structure Condition indicators from Step 5, using the following formula:

$$C_0 = \frac{\left(\frac{St_1 + St_2 + \cdots St_n}{n}\right) + \left(\frac{Cm_1 + Cm_2 + \cdots Cm_n}{n}\right)}{2}$$

We then calculated the three arithmetic means stepwise:

- Structure indicators at project start = (St_1 + St_2 + St_3) / 3 = (0.18 + 0.18 + 0.08) / 3 = 0.15
- Composition indicators at project start = (Cm_1 + Cm_2 + Cm_3 + Cm_4) / 4 = (0.51 + 0.4 + 0.03 + 0.10) / 4 = 0.26
- Condition at year 0: C_0 = (0.15 + 0.26) / 2 = 0.21

Step 7. Calculate Condition-adjusted area of ecosystems at project start (year 0)

Extent (E_0) x Condition (C_0) = 200 x 0.21 = 42 Qha

Step 8. Determine the project crediting baseline

Step 8 proposes an approach which will require further development of the Country Ecoregion Components and risk loss to locally allocate it. This illustrative example utilizes the Ecoregion Intactness Index to calculate the crediting baseline percentage which will be used to project the Qha from Step 7 into the future.

Forested habitats in Sabah are highly threatened ecosystems, where the change in ecosystem intactness over 10 years between 1993 and 2009 was estimated at −36%, or 0.36[75] as a proportional decline, so the predicted proportional decline per annum is:

- Baseline (B) = -0.36/10 = -0.036

In this example, this baseline is assumed to apply to the project area as the project crediting baseline.

Step 9. Monitor project impacts

Step 9 requires projects to repeat Steps 4 to 7 at the project monitoring date, for this example, year 5.

Table 12 displays the results of Steps 4 and 5 together at project start (year 0) and monitoring date (year 5) (i.e., the standardized values of Condition indicators) in this hypothetical restoration project.

[75] Beyer, et al. "Substantial Losses in Ecoregion Intactness Highlight Urgency of Globally Coordinated Action." (2019).

Table 12. Comparative between standardized Condition indicator values after 5 years

Condition component	Indicator description	Project Condition values at project start	Project Condition values at year 5
Structure	Forest cover (%)	0.18	0.19
	Above ground biomass at 250m	0.18	0.62
	Above ground biomass at 100m	0.08	0.55
Composition	Species richness of forest specialist frog species	0.51	0.82
	Species richness of forest specialist small mammal species	0.4	0.89
	Species richness of forest specialist bird species	0.03	0.64
	Species richness of forest specialist dung beetles species	0.10	0.42

To replicate Step 6 in the monitoring period and calculate Condition at year 5, we calculate the arithmetic mean of the standardized composition and structure Condition indicators, using the data above and the formula adapted to time *t* (year 5):

$$C_t = \frac{\left(\frac{St_1 + St_2 + \cdots St_n}{n}\right) + \left(\frac{Cm_1 + Cm_2 + \cdots Cm_n}{n}\right)}{2}$$

We will once again calculate the three arithmetic means stepwise:

- Structure indicators at year 5 = (St_1 + St_2 + St_3) / 3 = (0.19 + 0.62 + 0.55) / 3 = 0.45
- Composition indicators at year 5 = (Cm_1 + Cm_2 + Cm_3 + Cm_4) / 4 = (0.82 + 0.89 + 0.64 + 0.42) / 4 = 0.69
- Condition at year 5: C_5 = (0.45 + 0.69) / 2 = 0.57

Finally, following the formula from Step 7, we calculate the Condition-adjusted area of ecosystems at year 5:

Extent (E_5) x Condition (C_5) = 200 x 0.57 = 114 Qha

Step 10. Determine leakage

In this example, we assume the project determined no leakage.

Step 11. Determine biodiversity outcomes

The net biodiversity impacts are calculated using the following formula:

$$NBI = E_t C_t - E_0 C_0 (1 + t \cdot B) - L$$

They are the difference between:

- The Condition-adjusted project impacts at year 5 (E_5 C_5 calculated in Step 9).
- The Condition-adjusted area of ecosystems at year 0 (E_0 C_0 calculated in Step 7), projected to year 5 using the locally-adjusted crediting baseline (1 + (5 x B)), from which B is calculated in Step 8.
- Leakage (L, calculated in Step 10).

Net biodiversity impacts at year 5 = 114 Qha – 42 Qha (1 + (5 x -0.036)) – 0 = 79.56 Qha

Step 12. Calculation of shared buffer account contribution

The buffer contribution is calculated by multiplying net biodiversity impacts from Step 11 by the standard 20% deduction:

Buffer = 79.56 Qha * 0.2 = 15.91 Qha

Note: Leakage is not factored into the buffer contribution. However, this hypothetical project did not experience any leakage.

Step 13. Calculation of Nature Credits

Nature Credits = 79.56 Qha – 15.91 Qha = 63.65 Qha

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