

NATURE POSITIVE INITIATIVE



INITIAL MEASUREMENT GUIDANCE: STATE OF NATURE METRICS

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KEY



TERRESTRIAL

Guidance specifically for application in terrestrial ecosystems (or land realm)



FRESHWATER

Guidance specifically for application in freshwater ecosystems (or freshwater realm)



MARINE

Guidance specifically for application in marine ecosystems (or ocean realm)

VERSION LOG

VERSION	DATE PUBLISHED	KEY UPDATES
1.0	13 October 2026	N/A

SECTION 1: INTRODUCTION TO METRICS AND GUIDANCE

This document provides high-level overview guidance to support organisations in measuring the State of Nature (SoN) Indicators and Metrics, developed with the support of the 27 members of the Nature Positive Initiative. This is the first iteration of the measurement guidance and it is intended to iterate over time to incorporate emerging measurement methodologies and technologies and to reflect further insights from implementation, in order to point users towards the most robust and practical approaches available.

The following metric design criteria were used: (i) credible and science-based; (ii) responsive; (iii) able to incorporate new data and techniques; (iv) aligned with relevant international standards; (v) accessible and affordable; and (vi) auditable. The main objective was to design a minimum set of universal state of nature outcome metrics for broad and consistent adoption. This means ensuring that these metrics can be used across a variety of use cases, by stakeholders of varying capacity, and across different environmental and social contexts.

These metrics are designed to measure the state of nature and support a range of potential use cases including voluntary assessment and disclosure, regulatory compliance, and the development, implementation and tracking of corporate nature-positive strategies, targets and transition plans.

The implementation of these metrics for each specific use case rests with the standards and guidance frameworks, regulators and other implementing organisations that will adopt the metrics, in line with their respective mandates and due process requirements. It is the responsibility of those organisations to determine how the metrics are embedded and for which use cases they are adopted (see [Appendix A](#)).

For a full background on the process to develop the State of Nature Indicators and Metrics and Initial Measurement Guidance, please see the Technical Output Report available on the Nature Positive Initiative website [here](#). For a description of the State of Nature Indicators and Metrics please see the document available on the Nature Positive Initiative website [here](#).

We expect the State of Nature Indicators and Metrics to be stable and revisited infrequently. The guidance will evolve more frequently; this may include the measurement specifications outlined in this document.

Scope and use of the metric guidance materials

WHAT THE GUIDANCE IS	WHAT THE GUIDANCE ISN'T
• A supporting resource for the application/measurement of the State of Nature Indicators and Metrics • Filling gaps in existing frameworks and standards, focusing on biotic state of nature measures and complementing (rather than replacing) existing pressure and response metrics to complete the pressure-state-response (or driver-pressure-state-impact-response, DPSIR) framework • Designed for all users, though it has been developed with a focus on corporates and financial institutions as primary users • Intended to provide measurement support to help unlock further private sector/collaborative action to achieve global goals, including the aligned Kunming-Montreal Global Biodiversity Framework and Nature Positive Global Goal for Nature • An initial version intended to be iterative and evolving.	• A complete or standalone assessment, management or target-setting approach for nature • An all-encompassing scope – e.g. genetic diversity, ecosystem services/natural processes and applying metrics in highly urban areas are not currently included, and neither is sector-specific metric application guidance¹ • Guidance on metric interpretation or metric use cases, including resulting decision-making² • A comprehensive source of all available supporting tools, data sources, frameworks or guidance³ • Providing extensive contextual background or explanation⁴

1. While these topics are not in the scope of the current metrics and guidance, they may be developed by the wider community at a later date to address emerging needs and new methodologies/data sources. Application to financial portfolio measurements for intangible assets in particular was highlighted in piloting as requiring further guidance.

2. Specific implementation guidance on particular uses of the State of Nature Indicators and Metrics is already being developed by some individual framework and standards providers.

3. Only a small number of illustrative examples have been included in this guidance. These are in no way prescriptive nor exhaustive. There is a need to develop more comprehensive lists of resources in future in line with technological and methodological advancements.

4. There is a wealth of background information and groundwork that this guidance is built upon, such as from UN-SEEA-EA, the Align project and others.

Please note

This guidance does **not** cover how to use metrics to communicate or demonstrate particular outcomes or to support specific statements or claims - it solely describes how to measure the state of nature metrics. Visit naturepositive.org for the latest developments on communicating nature-positive outcomes.

The guidance also does not provide indications on operational decisions. Such decisions additionally require key contextual information (e.g. pressures, trends, site knowledge), as well as consideration of financial, political and social realities. The guidance, information, and recommendations provided are for general informational purposes only. All operational, financial, or strategic decisions made related to material in this guidance are at the user's own risk. We expressly disclaim any liability for any loss or damage arising directly or indirectly from the use of or reliance on this information. Please see the [Technical Output Report](#) for full details on the rationale for the scope of the State of Nature Indicators and Metrics themselves.

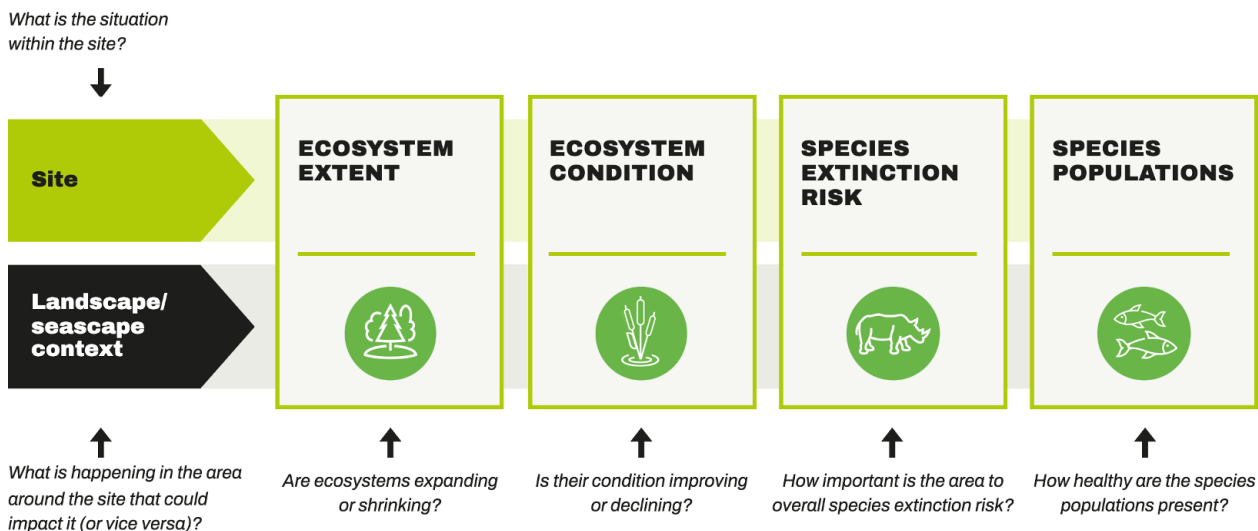
KEY TERMS TO UNDERSTAND

TERM	DEFINITION
State of nature	The condition and extent of ecosystems, and species population size and extinction risk, including positive or negative changes (TNFD, 2026).
Indicator	A quantitative or qualitative factor or variable that provides a simple and reliable means to measure performance. An indicator can be measured through one or multiple metrics (as adopted by TNFD, 2026).
Metric	A system or standard of measurement (as adopted by TNFD, 2026).
Granularity level	The scale or level of detail/precision. The granularity levels in the State of Nature Indicators and Metrics include considerations around spatial resolution, scale of classification categories and preciseness of measurement approaches/proxies. In the framework there are three granularity levels: preparatory, medium, and high.
Baseline	Starting point or benchmark against which changes in the state of nature attributed to your business activities can be compared (TNFD, 2026).
Base map	A foundational layer on a map that is the basis of GIS visual and geographic context (ESRI). In this guidance, the base map is used as the basis of ecosystem metric calculations.
Site	Area of direct operations, defined as all activities and sites (e.g. real estate, mining and , industrial sites, infrastructures, forestry concessions, farms, fishing areas, hydropower and other energy plants, etc.) over which an organisation has operational or financial control (modified from TNFD, 2026).
Landscape/ seascape	Defined geographic areas with common ecological and socioeconomic characteristics. They may be delineated based on watersheds, ecosystems, jurisdictional boundaries, company sourcing areas, or in other ways (Accountability Framework Initiative, 2024).
Land cover	The observed physical cover on the earth's surface, including vegetation (natural or planted) and human constructions (FAO, accessed 2026).
Habitat	The area, characterised by its abiotic and biotic properties, that is habitable by a particular species (IUCN, 2020).
Connectivity	The degree to which the landscape facilitates the movement of organisms (animals, plant reproductive structures, pollen, pollinators, spores etc.) and other environmentally important resources, such as nutrients and moisture, between similar habitats. Connectivity is hampered by fragmentation (IPBES, accessed 2026).
Conversion	Loss of a natural ecosystem as a result of its replacement with agriculture or another land use, or due to a profound and sustained change in a natural ecosystem's species composition, structure, or function (Accountability Framework Initiative, 2024).
Ecosystem assets (for condition measurements)	Contiguous spaces of a specific ecosystem type characterised by a distinct set of biotic and abiotic components and their interactions (UN SEEA, 2021). This breakdown is used for some high granularity measurements in the State of Nature Indicators and Metrics.
Ecosystem condition class	Ecosystem condition describes the quality of an ecosystem, measured in terms of its abiotic (non-living) and biotic (living) characteristics across a range of temporal and spatial scales (UN SEEA, 2021). An ecosystem condition class is a particular quality category, e.g. composed of a range of condition scores from X-Y.
Reference condition	The condition against which past, present and future ecosystem condition is compared in order to measure relative change over time (UN SEEA, 2021).
Natural (including semi-natural) ecosystems	Ecosystems where the impact of humans on ecosystem composition, structure and function are low compared to natural factors. Natural ecosystem types in this broad sense can include ecosystems modified by human interventions but with natural compositional, structural and functional characteristics still to some degree present and recognisable. These are referred to as semi-natural ecosystems in some contexts. It also includes instances of natural ecosystem types that are in a range of condition states, from pristine ecosystems in excellent condition or with high integrity, through to those in poor condition, degraded, or with low integrity (CBD, 2026). For the purpose of the measurement of the ecosystem metrics in the State of Nature Indicators and Metrics, natural and semi-natural ecosystems are grouped together under "natural".

TERM	DEFINITION
Anthropogenic ecosystems	Ecosystem types created and maintained through human interventions, i.e. human interventions are the primary determinant of the composition, structure and functioning of the ecosystem (CBD, 2026). These ecosystems are excluded from the measurement of the ecosystem metrics in the State of Nature Indicators and Metrics, as they are not considered “natural” per the definition above.

WHAT TO MEASURE: INDICATORS TABLE

The framework includes four indicators, to be measured at both site and landscape scales:



UNITS OF MEASUREMENT: METRICS TABLE

METRICS				
	Ecosystem extent	Ecosystem condition	Species extinction risk	Species populations
Site	Area, losses, and gains in extent of natural ecosystems (including semi-natural) by type (ha, %)	Area, losses and gains for each condition class (ha, %), by ecosystem type, considering elements of structure, function and composition.	Species extinction risk measurement showing the contributions of the site to global extinction risk	Number and proportion of priority species with estimated populations that are 1) declining, 2) slowing in decline, 3) stable, and 4) increasing
Landscape/seascape context	Area, losses, and gains in extent of natural ecosystems (including semi-natural) by type (ha, %)	Values and change in structural and functional connectivity between natural ecosystems	Species extinction risk measurement showing the contributions of the landscape/ seascape to global extinction risk	Number and proportion of priority species with estimated populations that are 1) declining, 2) slowing in decline, 3) stable, and 4) increasing*

*Important note: To be measured where possible, however, it is recognised that further work on data availability needs to be undertaken to make measurement more feasible

The species populations indicator and metric applied at the landscape/seascape level is included to clearly present the complete framework, however it is recognised that calculating this metric may prove challenging for organisations at the time of writing. With increasing levels of landscape collaboration, better tools, methodologies and data access in the future, it is hoped that measuring species populations at the landscape scale will become more feasible, although organisations who can measure it now should of course do so.

MEASUREMENT SPECIFICATIONS

Measurement specifications are provided at three granularity levels: preparatory, medium and high. See [Section 2, Step 3](#) for more guidance on selecting appropriate granularity levels.

Ecosystem extent and condition metrics

		TERRESTRIAL/ FRESHWATER	MARINE
Spatial resolution	Prep	≤30m	1-10km
	Med*	≤10m	100m-1km
	High*	≤10m	≤30m where possible or ≤1km
Ecological resolution: GET Level (or national equivalent)**	Prep	Natural/non-natural	Natural/non-natural
	Med	3 or 4	3
	High	5 or 6	3

*Medium and high granularity data layers should be ground-truthed for site-level ecosystem metrics and high-granularity data layers for landscape/seascape-level ecosystem metrics.

**GET refers to the IUCN [Global Ecosystem Typology](#)

Species extinction risk and populations metrics

		LAND/SEASCAPE SPECIES EXTINCTION RISK	SITE SPECIES EXTINCTION RISK	SPECIES POPULATIONS† (SITE AND LANDSCAPE)
Spatial resolution	Prep	≤10km	≤5km	≤30m (or up to ≤1km for marine)**
	Med	≤5km	≤1km (5km for marine)	N/A
	High	≤5km	≤1km (5km for marine)	N/A
Measurement	Prep	Sum the proportion of the global area of habitat* of each species in scope that falls within the landscape. It is strongly recommended to weight each species by threat status and/or use proportion of a specified historical reference range, except when robust assessments of extinction risk are unavailable at global, regional, or national levels.	Sum the proportion of the global area of habitat* of each species in scope that falls within the site. It is strongly recommended to weight each species by threat status and/or use proportion of a specified historical reference range, except when robust assessments of extinction risk are unavailable at global, regional, or national levels.	Area of habitat/range proxies
	Med			Species-based index of relative abundance
	High			Estimates of absolute abundance or density

† Species Selection Filter guidance is available to assist organisations in prioritising measurement effort. See [Section 2, Step 6](#).

* If area of habitat is not available, species range may be used.

** This spatial resolution refers to the ecosystem basemap developed for this granularity level, which may be helpful to use again here. It may be necessary to utilise different spatial resolution data for species habitat or range maps.

SECTION 2: PREPARING TO MEASURE

Five key steps are outlined to help you prepare to make your calculations.

1	<u>Determining your assessment scope</u>
2	<u>Determining your baseline</u>
3	<u>Selecting your granularity level</u>
4	<u>Collecting data</u>
5	<u>Preparing an ecosystem base map</u>
6	<u>Prioritising species measurements</u>

Important note

The outputs of steps 1-4 can influence each other, be prepared to iterate earlier steps as you progress through them

STEP 1: DETERMINING YOUR SCOPE

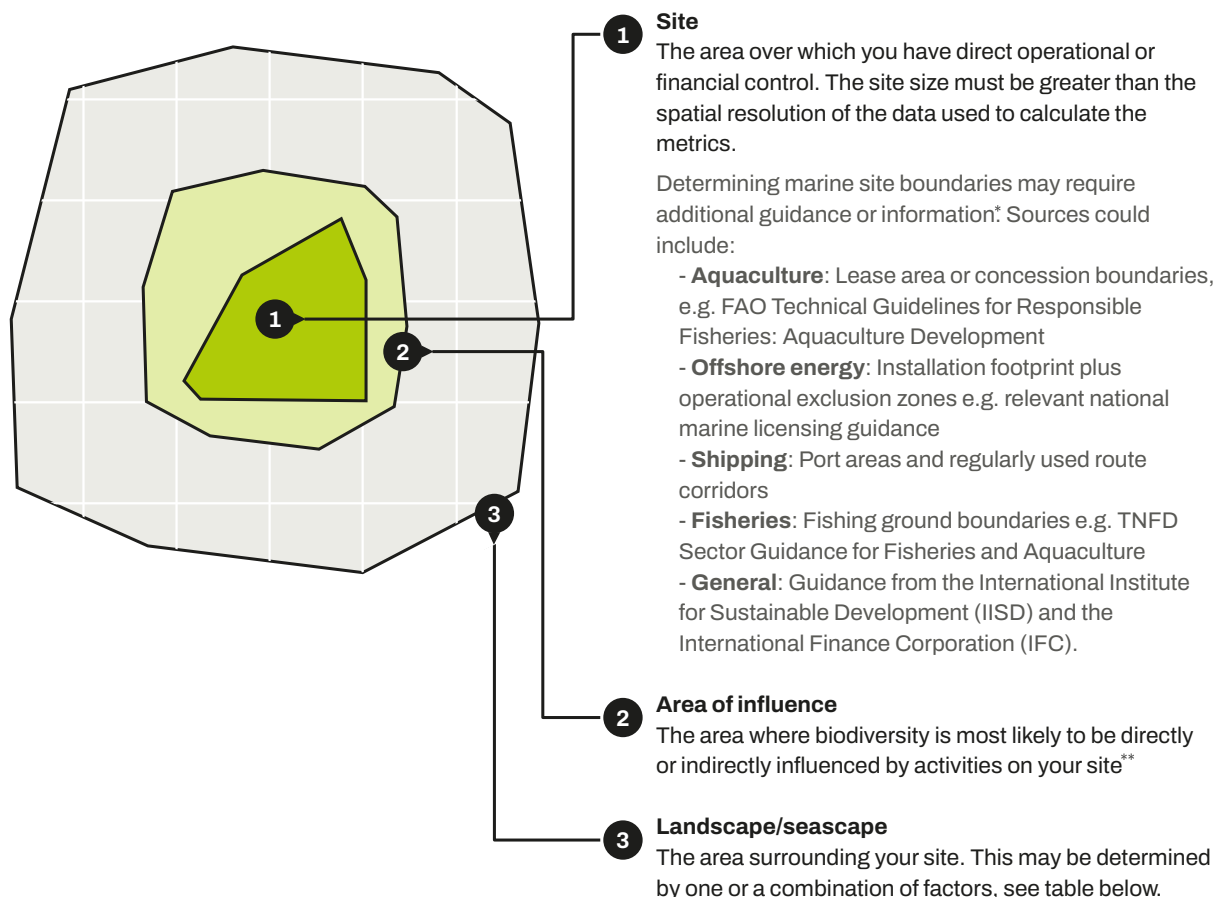
a. Organisational scope

As nature is locally specific, state of nature measurement requires location data for operations and value chains. While traceability across value chains may be a challenge, it does not need to be a barrier to engaging in state of nature measurement. Key considerations for determining the organisational scope of your state of nature assessment include:

- ✓ Use credible frameworks and guidance to help you prioritise where to focus first. Examples include: TNFD Locate phase, SBTN Steps 1 and 2, GRI 101 Biodiversity Standard, IUCN RHINO, ISO 17298:2025.
- ✓ Develop (and ideally disclose) a plan for expanding your scope over time
- ✓ If your largest nature-related impacts occur in your value chain, you may be able to start by using the landscape metrics if you can't get to site-level location data
- ✓ If you are assessing a financial portfolio with more limited traceability, especially for non-tangible assets, also consider focussing on where you may be able to have the biggest influence on nature outcomes
- ✓ Note that different granularity levels are available for calculating the metrics (see guidance in [Step 3](#) below). Starting with a lower granularity approach may help make the scope more feasible

b. Geographical scope

Once you have selected the sites in scope, you also need to determine the geographical boundaries of both the site and the surrounding landscape/seascape. Your assessment scope should include all terrestrial, freshwater and marine ecosystems within these boundaries.



* A primer document developed by the World Economic Forum and Ocean Risk and Resilience Action Alliance to support preparing to calculate state of nature metrics in marine ecosystems is available [here](#), covering boundary setting and other key topics.

**Please note that the area of influence may be spatially disparate from the site.

Landscape/seascape boundary-setting approaches

APPROACH	POTENTIAL RATIONALE	EXAMPLE GUIDANCE
Ecologically Appropriate Area of Analysis (EAAA)	E.g. credibility, aligning with financing requirements	International Finance Corporation (IFC)'s Guidance Note 6
Jurisdictions or spatial planning units	E.g. if working with local governments	World Political Boundaries (ArcGIS Hub); Marine Spatial Planning units
Ecoregions	E.g. for ensuring global data availability	Ecoregions datasets, e.g. FAO , Marine Ecoregions of the World
Sector-specific	E.g. to ensure coverage of Area of Influence	IBAT guidance; IFC Environmental Flows Guidance for the hydropower sector
Watersheds or service-sheds	E.g. if freshwater or ecosystem services provision are a focus	HydroBasins sub-basin boundaries at levels 8-12; Aquatic system delineation guidance, e.g. Australian Government ; InVEST ecosystem service tools

Please note that multiple approaches can be selected and datasets overlaid to ensure coverage. There are some important safeguards to follow to ensure your landscape/seascape boundary setting is robust:

- It is important to check that your landscape boundary incorporates the Area of Influence (AoI) of your site, i.e. the area where biodiversity is most likely to be directly or indirectly influenced by activities on

your site. Good practice is to report metrics for your Aol boundary in addition to both direct operations and the broader landscape. For additional guidance on assessing Aol, see [IUCN RHINO Technical Source Document 2.0 p.47](#) or [Cross Sector Biodiversity Initiative \(CSBI\) guidance on good practices for collection of biodiversity baseline data](#).

- Sense-check that it meets the intended measurement use case, for example, does the boundary capture measurement of the likely most significant nature-related risks that could impact the site from the surrounding landscape. Refer to the framework or standard in which the metrics are embedded for additional guidance on which approach(es) to prioritise for the specific use case.
- Use credible and widely adopted approaches or guidance.
- Be transparent about the methodology chosen and the justification for it.

Box 1: Why landscape/seascape context metrics?

Landscape and seascape-level metrics give essential context to the state of nature measured on sites. They help to:

- (i) understand key impacts and dependencies generated from the surrounding landscape that could impact the site,
- (ii) provide input to support well-designed site-level actions,
- (iii) encourage collaborative action at the scale most needed for achieving nature-positive outcomes,
- (iv) provide a starting point for applying metrics in value chains where there is not yet traceability to site,
- (v) provide important context for external users of the metrics to understand the significance of site-level trends and whether strategies to address them are appropriate and proportionate,
- (vi) detect the potential leakage of impacts from the site into the surrounding area.

Box 2: Especially large and small sites

Especially large sites, e.g. thousands of square kilometers, may be broken down into smaller sub-units for analysis. Different granularity levels (see [Step 3](#) below) may be used for different sub-units to enable robustness to be improved across the site as a whole over time. When prioritising sub-units for higher granularity assessment, consider which areas hold the most significant biodiversity for nature and people and also which areas are seeing the greatest shifts in state of nature.

For especially small sites, e.g. less than 900m² (pixel size at preparatory level), it may actually be easier to use higher granularity methodologies such as direct measurements and counts than to use coarse global datasets in GIS. This is because the global datasets are unlikely to be accurate enough for meaningful measurement at this scale, while the resource requirements for direct measurement are lower due to the small assessment area.

Box 3: Application to multiple sites

The prioritisation approaches specified in the framework or standard the user is applying should be used to identify which sites need to be assessed ([Step 1a](#)). When designing measurement processes/procedures, consider applicability across sites with different data availabilities, capacity or environmental and operational contexts to help ensure the central processes established are sufficiently flexible to be applied across all locations.

Scaling up assessment across multiple sites also presents opportunities to maximise efficiencies. For example, tool/data platform licensing, training rollout and base map preparation (see Step 5) could all be streamlined, whilst sharing learnings across sites during measurement can help enhance success overall.

Box 4: A note on using GIS

From determining site and landscape boundaries onwards, the use of Geographical Information Software (GIS) is needed for the calculation of state of nature metrics. This may be new for some companies. Free to use software options (e.g. QGIS) are available, as well as helpful resources for support learning to use these tools. Lower granularity metrics will generally require less advanced use of GIS.

STEP 2: DETERMINING YOUR BASELINE

A baseline year of 2020 is advised in order to align with the [definition of Nature Positive](#) and goals and targets of the [Kunming-Montreal Global Biodiversity Framework](#) (GBF). However, if the specific use case, framework, standard or regulation being applied requires a different baseline or the data needed for a particular metric is not available (e.g. for some marine data sources), then an alternative baseline year can be used and there should be transparency regarding the rationale for its selection. The UN Convention on Biological Diversity advises countries submitting national reports on progress towards the goals and targets of the GBF to use baseline years between 2011-2020, where data is available ([CBD, 2022](#)).

In situations where a recent significant impact on nature occurred before the baseline being considered, e.g. a new mine site began operations in 2019 or 2020 saw a significant wildfire event, organisations should rather use a pre-impact baseline to ensure credibility and avoid the risk of greenwashing and should be transparent regarding the rationale for its selection.

STEP 3: SELECTING YOUR GRANULARITY LEVEL

Three granularity levels are available for users. Different granularity levels might be used for different metrics and for different sites, and very large sites may be broken down into sections with different granularity levels applied.

Organisations should look to increase the granularity of their metrics over time, with ideally no more than two years spent at the preparatory level and a clear timeline disclosed for progression to Medium. The preparatory level approaches are designed to give an initial estimate of impacts to inform management and as an on-ramp to using the more robust higher granularity levels of each metric. Please note that whilst guidance development relating to demonstrating and communicating nature-positive outcomes (e.g. making statements or claims) is not yet completed, preparatory granularity metrics are unlikely to be sufficiently detailed to be credible for such uses.

To select the appropriate granularity level, it is important to consider:

- The use case for the metrics
- Data availability (including costs to access) for the site and landscape
- Capacity to calculate the metrics
- Whether the specific framework/standard being applied stipulates a required granularity level

Granularity level selection criteria

	● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
Data needed	Freely accessible global or national datasets, as available	Increased resolution datasets and ecosystem type classifications (at least GET level 3) Ground-truthing datapoints to sample test ecosystem layers Species-specific information to calculate abundance proxies for selected species	High resolution datasets and ecosystem type classifications Ground-truthing datapoints to sample test ecosystem layers Direct counts or estimators for selected species
Resource needed	Introductory-level GIS capability (until tools become available) Contact with site team to sense-check metric outputs	Competent GIS capacity (until tools become available) Resource for ground measurements and/or purchasing/accessing high-resolution satellite data for ground-truthing site metrics May need expert support for setting up monitoring protocols	Competent GIS capacity (until tools become available) Additional resource for ecologist technical input and monitoring on the ground More likely to need access to paid-for datasets
Summary	Best for: organisations at the start of their nature-positive journey, first iterations of assessments, very wide-scale assessments and preparing for the next level	Best for: ensuring confidence* in measurement results, assessing and designing contributions to nature positive goals	Best for: measurements at higher level of detail, e.g. for strategy design, leading practice and maximum confidence* in outcomes

*Whilst this guidance will support improving confidence in data, ultimately accurate outputs and thus confidence will be driven by selecting the right, robustly-measured data for the specific context.

STEP 4: COLLECTING DATA

As a first step, organisations should review their data needs against what they already have available internally. A cross-mapping to where relevant data may have been collated by the company previously for existing target-setting or disclosure standards and frameworks is included in [Appendix B](#).

Measurement effort should be appropriate for the intended use case and should be proportionate to site or landscape scale, types of pressures, and should consider existing data availability. The most robust data that is both available and accessible should be identified, noting that local and national sources may have higher accuracy than global data layers. You may have options to choose from when it comes to selecting available datasets or approaches for making your own measurements. Ensure you consider the following:

- i Data quality principles** – e.g. see TNFD’s recommendations for Nature Data Principles [here](#);
- ii Responsible stakeholder engagement** – e.g. see guidance from [TNFD](#) and [SBTN](#), and [Gonzalez et al 2026](#);
- iii Good practice biodiversity monitoring** – e.g. see guidance from the [Cross Sector Biodiversity Initiative](#);
- iv License information indicating whether datasets are available for free** (for commercial use) or require payment;
- v Ecological/social context** – e.g. the accessibility of the site, the ability of different monitoring approaches to identify changes in the state of nature etc.;
- vi Timeliness/frequency of dataset updates**, as required for the use case. This may not always mean annually or more frequently; many robust, high-quality datasets are less frequently updated. Some ecological contexts (e.g. level of seasonality or productivity) may also require different measurement frequencies.

Start by making a data checklist and ensure you document the sources and key metadata of the data you collect, as this will be important for repeatability, transparency and assurance purposes.

In this guidance, some example datasets and named metrics are provided that can be used to calculate the metrics. In no way are these examples intended to be prescriptive, nor exhaustive. Users are welcome to use other datasets if they meet resolution and other requirements specified for each indicator within the measurement guidance. It is also noted that nature-related data and technologies are evolving rapidly so scanning for new or upcoming data sources may be a helpful practice. Databases such as the [TNFD Tools Catalogue](#) or [UNEP-WCMC Nature Tools Compass](#) may be helpful here.

Where site-level data are not available across supply chains, users may begin by applying metrics at the landscape level as a pragmatic starting point.

Box 5: Use of proxies

Proxy approaches are provided in this guidance for some metrics where data availability is known to be very limited at present, particularly at preparatory granularity (e.g. pressure-based models of ecosystem condition are available for use at preparatory level where no other state data are available and indicator species population measurements are an option as a proxy for ecosystem metrics for small freshwater systems). Proxies should be used as temporary interim measurements and not as replacements for robust, biotic measurements; users should transparently document their limitations and plan for progression to direct measurements.

Box 6: Ground-truthing

Ground-truthing is used to test remotely-sensed data layers to ensure they are accurately reflecting the state of nature on the ground. A sample of points are selected and compared to the ground-truthing data; if discrepancies are found then the data layer may need to be refined.

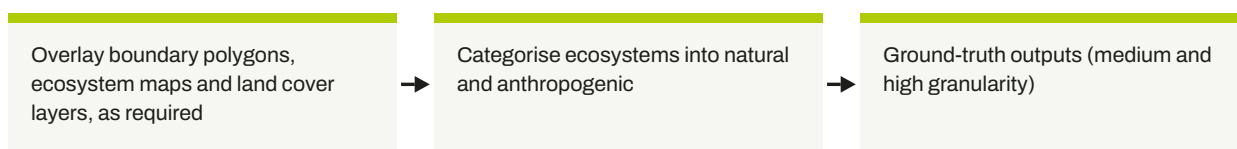
Methods for collating ground-truthing data include ground surveys, aerial imagery (e.g. by small plane/drone) and high-resolution satellite datasets (i.e. same or greater resolution as aerial monitoring). Ground-truthing is required at medium and high granularity for site-level metrics and high granularity only for landscape-level metrics.

STEP 5: ECOSYSTEM BASE MAP PREPARATION

Base maps for the baseline year and assessment year are used to calculate each of the ecosystem metrics. Each map utilises up to three data sources:

Boundaries	Where are my site and landscape/seascape assessment boundaries? (Step 1)
Ecosystem	What are the ecosystem types present? Which are natural (including semi-natural)?
Land cover	If needed: What are the land cover types in the area? Note: This type of information is primarily available for terrestrial areas, however available habitat or use maps may also be helpful references for marine areas.

Process:



The site and landscape/seascape polygons from Step 1 must be overlaid with ecosystem maps at the classification level specified in the base map specification table below. Not all ecosystem type maps are updated frequently enough to directly measure changes in ecosystems for some use cases. If this is the case for a particular location, more frequently updated land cover layers may also be overlaid if available to help in identifying changes. These layers also provide additional useful context for understanding any changes identified, so overlaying them may be helpful regardless of the ecosystem maps being used.

The ecosystems within each site and landscape/seascape boundary must also be categorised into either natural (including semi-natural) and anthropogenic.

► **Natural (including semi-natural):** Ecosystems where the impacts of humans on ecosystem composition, structure and function are low compared to natural factors. Natural ecosystem types in this broad sense can include ecosystems modified by human interventions but with natural compositional, structural and functional characteristics still to some degree present and recognisable. These are referred to as semi-natural ecosystems in some contexts. It also includes instances of natural ecosystem types that are in a range of condition states, from pristine ecosystems in excellent condition or with high integrity, through to those in poor condition, degraded, or with low integrity (CBD, 2026).

Examples (following IUCN GET Level 3 categories): T1.1 Tropical/subtropical lowland rainforests, F2.1 Large permanent freshwater lakes, M1.1 Seagrass meadows.

► **Anthropogenic:** Ecosystem types created and maintained through human interventions, i.e. human interventions are the primary determinant of the composition, structure and functioning of the ecosystem (CBD, 2026).

List of IUCN GET Level 3 categories that are considered anthropogenic and thus excluded from “natural ecosystems”, per the UN Convention on Biological Diversity

REALM	BIOME	ECOSYSTEM FUNCTIONAL GROUPS (LEVEL 3)
Terrestrial	T7 Intensive land-use systems	T7.1 Annual croplands
		T7.2 Sown pastures and fields
		T7.3 Plantations
		T7.4 Urban and industrial ecosystems
		T7.5 Derived semi-natural pastures and old fields*
Freshwater	F3 Artificial fresh waters	F3.1 Large reservoirs
		F3.2 Constructed lacustrine wetlands
		F3.3 Rice paddies
		F3.4 Freshwater aquafarms
		F3.5 Canals, ditches and drains
Marine	M4 Anthropogenic marine systems	M4.1 Submerged artificial structures
		M4.2 Marine aquafarms
Marine-terrestrial	MT3 Anthropogenic shorelines	MT 3.1 Artificial shorelines

**Specific national ecosystem types that fall within EFG T7.5 may be grouped with the broad category “natural” if the ecosystem type existed pre-industrially and/or has substantial importance for biodiversity.*

See the metadata for GBF Headline Indicator A.2 for full details of natural and anthropogenic definitions (CBD, 2026). Note that in mixed use anthropogenic or mosaic landscapes, it is important that remaining fragments of natural (including semi-natural) ecosystems are identified in the base map (to the extent that data resolution allows) so that the ecosystem metrics can be measured, as these areas can provide significant value for biodiversity. Some anthropogenic ecosystems, e.g. constructed wetlands, submerged artificial marine structures or other anthropogenic ecosystems where restoration actions are being taken, can become naturalised over time. In these cases, the ecosystem category may change once the natural/semi-natural definition above is met and the area would be captured in the ecosystem metrics - prior to naturalisation, the species population metrics may be used to help monitor habitat colonisation.

Land cover maps can also be helpful for delineating natural vs anthropogenic areas, although it can be particularly challenging to determine natural or anthropogenic status from land cover alone where natural and anthropogenic ecosystems are structurally similar, for example:

- plantation forests, which may be superficially similar to natural forests;
- grasslands intensively managed for pasture, whose composition may be changed through seeding or fertilisation while remaining structurally similar to natural grassland.

In these cases, local knowledge, ground-truthing or use of additional remote sensing datasets can help with the classification. See also the [SBTN Natural Lands Map](#) technical documentation for a detailed example of a natural/non-natural delineation approach for terrestrial areas.

Base map specifications per granularity level

	● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
Boundaries	Site and landscape/seascape polygons	Site and landscape/seascape polygons	Site and landscape seascape polygons
Spatial data resolution	Terrestrial/freshwater: ≤30m Marine: ~1-10km*	Terrestrial/freshwater: ≤10m Marine: ~100m to 1km*	Terrestrial/freshwater: ≤10m Marine: ≤30m where possible or ≤1km*
Ecosystem classification	Natural/anthropogenic only	Terrestrial/freshwater: Global Ecosystem Typology Level 3 or 4 (or national equivalent) Marine: Global Ecosystem Typology Level 3	Terrestrial/freshwater: Global Ecosystem Typology Level 5 or 6 (or national equivalent) Marine: Global Ecosystem Typology Level 3

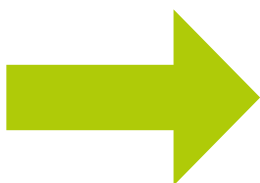
* Due to data availability being one of the top concerns in the marine realm, there is flexibility on resolution depending on the dataset or ecosystem of interest. Organisations should select the greatest resolution (smallest pixel size) feasible given data availability. Note that the size of the area for assessment must be greater than the pixel size (resolution) of the spatial data being used.

Example data sources for land cover and ecosystem classification for each realm.

The most relevant granularity level is provided in brackets.

	 TERRESTRIAL	 FRESHWATER	 MARINE
Example ecosystem classification data sources		Global Lakes and Wetlands Database (prep) Global Wetlands Watch 10m (due end 2026) U.S. National Wetlands Inventory	Allen Coral Atlas (high) Coastal and Marine Ecological Classification Standard (CMECS) (high) Global Mangrove Watch (high) Global high-resolution mapping of seagrass to support conservation, Peng et al. 2026 (high) IUCN Global Ecosystem Typology Resources (prep-high, where available)
	SBTN Natural Lands (prep) IUCN Global Ecosystem Typology Resources (prep-high, where available) Red List of Ecosystems Database (high, where available) Equivalent national classifications, e.g. for Brazil: Instituto Brasileiro de Geografia e Estatística Brazilian (IBGE) (med)		IUCN Global Ecosystem Typology Resources (prep-high, where available)
	Global Ecosystems Atlas (med, expanded scope due end 2026)		
Example land cover data	Dynamic World (med/high) ESRI Sentinel-2 10m Land Cover (med/high) National land cover datasets, e.g. MapBiomas (Brazil), LUCAS New Zealand Land Use, South Africa National Land Cover (med/high).		N/A

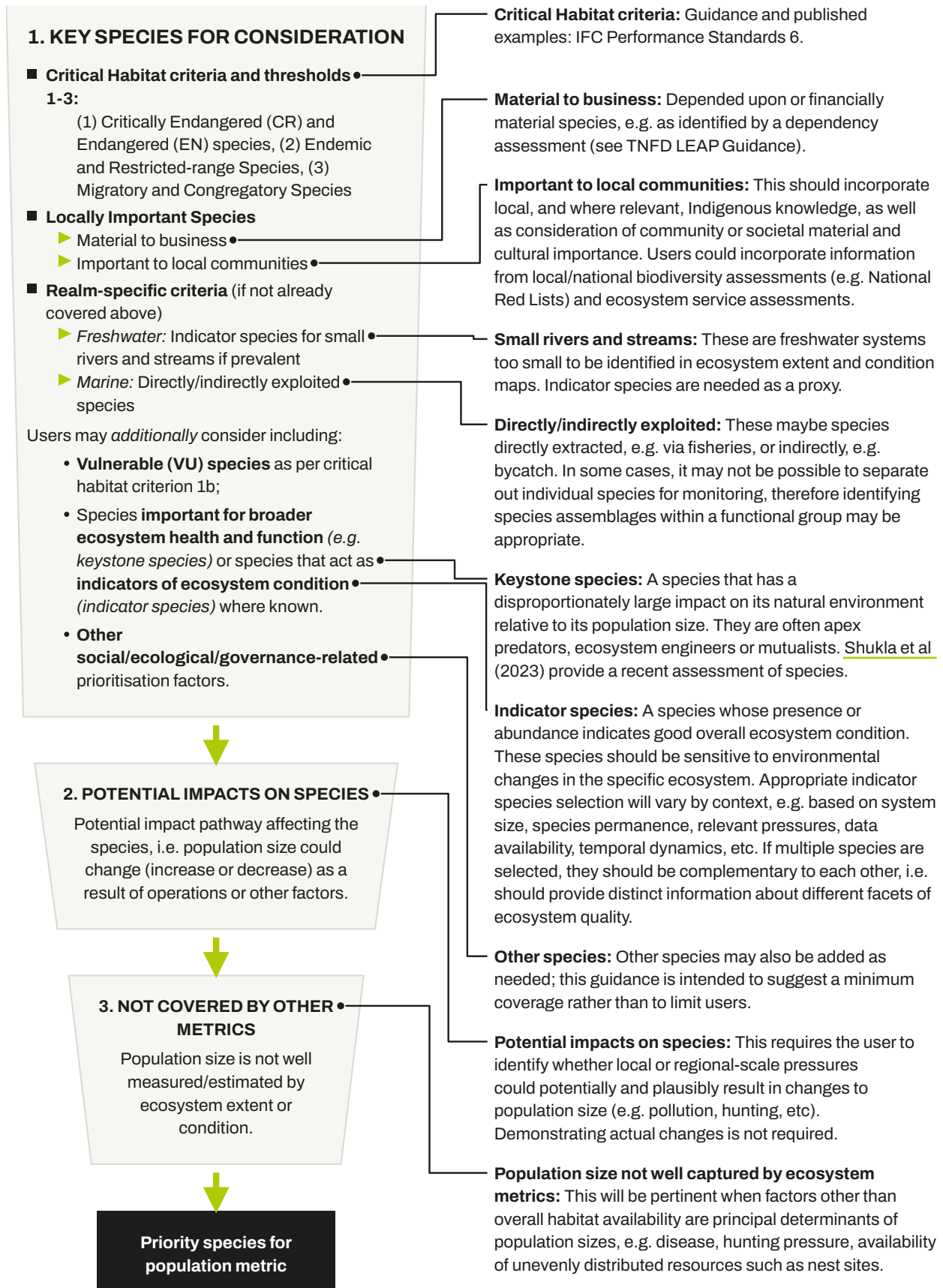
Note that if you are calculating ecosystem metrics at different granularity levels, you will need more than one base map.

**Base map output**

A data layer showing both the site and landscape/seascape categorised into natural and anthropogenic areas. Higher granularity level maps also have breakdowns into ecosystem classifications.

STEP 6: PRIORITISING SPECIES POPULATION MEASUREMENTS

The Species Selection Filter below provides guidance on identifying a minimum species list for the population metrics. More species can be monitored on top of this following additional criteria important to the organisation or its stakeholders.



The following steps are needed to apply the filter:

i. Create a priority species longlist – Identify all species meeting the following criteria

CRITERION	EXAMPLE DATA SOURCES
Critical Habitat criteria and thresholds 1-3: (1) CR and EN species, (2) Endemic and Restricted-range Species, (3) Migratory and Congregatory Species (all realms)	IUCN Red List Range and Area of Habitat Maps , World Database of Key Biodiversity Areas , Alliance for Zero Extinction sites , Blue Corridors Database , OBIS , GBIF , Convention on the Conservation of Migratory Species of Wild Animals Library of Existing Databases , Map of Life
Locally important species , i.e. directly linked to ecosystem services - Material to business - Important to local communities	Company nature-related dependency, impact, risk and opportunity (DIRO) assessments, particularly for species-specific dependencies. E.g. following TNFD LEAP Guidance. Local knowledge, Local/National biodiversity assessments (e.g. National Red Lists), ecosystem service assessments.
Realm-specific criteria Freshwater: If smaller rivers and streams are prevalent on the site (i.e. with a width of less than the spatial resolution of your land cover data), prioritise at least one species that is a good indicator of the health of these systems. Marine: Direct and indirect exploitation of species should be considered when identifying species, given the threat of overexploitation in the marine realm. Resolution may vary by functional groups.	Freshwater: Freshwaterecology.info database, Freshwater Information Platform, Fishbase, Molluscabase, IUCN Red List, Local/National biodiversity assessments Marine: FAO FishInfo database; FAO FishStat database, SBTN ocean guidance and resources, including the Ocean Data Resources Tool.

ii. Categorise longlist to inform prioritisation

CATEGORY	EXAMPLE GUIDANCE
a. Identify species not subject to or responsive to impact drivers (positive or negative) in the short to medium term	CSBI 2015 Biodiversity inclusive impact assessment good practices (section 2) Threats applying to species in IUCN Red List of Species
b. Identify species where population size closely follows change in ecosystem extent or ecosystem condition, e.g. sedentary species such as trees	The Biodiversity Consultancy 2026, Biodiversity monitoring: species or habitat proxy? Mayfield et al 2022 CSBI 2015, Biodiversity baseline good practice guide

iii. Prioritise shortlist for measurement

PREPARATORY LEVEL	MEDIUM & HIGH
Exclude species not being or not likely to be impacted (directly or indirectly) by company activities	- KEEP all CR species and all realm-specific key species - Exclude other species not being impacted either by company activities or external factors - Exclude species closely following other metrics - Consider monitoring feasibility when selecting amongst remaining species and finalising priorities.

iv. Select best available proxy metric/data source

See the metric measurement guidance in Section 3 for the different proxies and data sources available for calculating species metrics.

Note: The above guidance is intended to help prioritise species *population* measurement efforts. For an example of prioritising species *extinction risk* measurements and actions, see the [IUCN RHINO](#) approach under the Direct Impact Track, Step A2.

SECTION 3: METRICS

High-level calculation guidance is provided for the following metrics:

- 1. [Site ecosystem extent](#)
- 2. [Landscape ecosystem extent](#)
- 3. [Site ecosystem condition](#)
- 4. [Landscape ecosystem condition](#)
- 5. [Site species extinction risk](#)
- 6. [Landscape species extinction risk](#)
- 7. [Site species populations](#)
- 8. [Landscape species populations](#)

1. SITE ECOSYSTEM EXTENT

Metric: Area, losses, and gains in extent of natural ecosystems (including semi-natural) by type (ha, %)

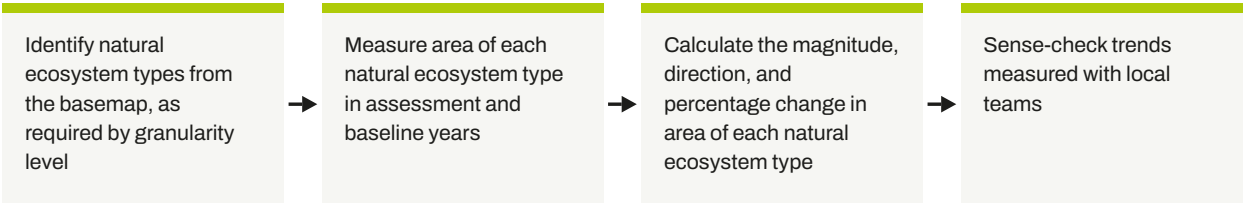
Calculation overview:

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Area of natural ecosystems in assessment year

Area of natural ecosystems in baseline year

Process:



Outputs:

PREPARATORY	MEDIUM	HIGH
Area, losses, and gains in natural ecosystem cover (ha, %)	Area, losses, and gains in natural ecosystems, with breakdown by GET Level 3 or 4 or national equivalent (ha, %)	Area, losses, and gains in natural ecosystems, with breakdown by ecosystem asset and by GET Level 5 or 6 (GET Level 3 for marine) or national equivalent (ha, %)

2. LANDSCAPE/SEASCAPE ECOSYSTEM EXTENT

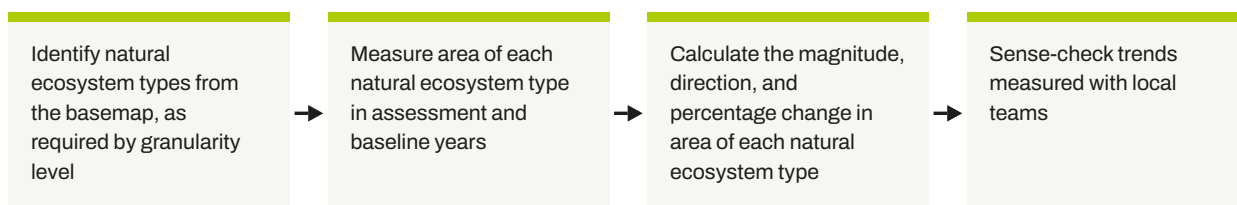
NB: Metric calculation is the same as site ecosystem extent but applied for the full landscape/seascape boundary.

Metric: Area, losses, and gains in extent of landscape/seascape natural ecosystems (including semi-natural) by type (ha, %)

Calculation overview:

$$= \text{Area of natural ecosystems in assessment year} - \text{Area of natural ecosystems in baseline year}$$

Process:



Outputs:

● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
Area, losses and gains in natural ecosystem extent (ha, %)*	Area, losses and gains natural ecosystem extent, with breakdown by GET Level 3 or 4 or national equivalent (ha, %)	Area, losses and gains in natural ecosystem extent, with breakdown by ecosystem asset and by GET Level 5 or 6 (GET Level 3 for marine) or national equivalent (ha, %)*

**An alternative framing of this metric is that it captures the area and percentage of natural ecosystems remaining.*

Additional metrics for consideration

Users are also encouraged to draw on additional sector and biome specific metrics as needed for their context and use case. Examples related to ecosystem extent include:

METRIC	POTENTIAL USE
Average % of natural ecosystems per km ² , and a frequency distribution chart showing the % across all pixels	This shows the distribution of natural habitat across a site or landscape. It may be useful in mosaic landscapes and potentially in areas with, for example, forest harvesting cycles to ensure that sufficient natural habitat is being maintained over time.

FRESHWATER AND MARINE REALMS



Note that marine ecosystem extent is measured as a surface area. For ecosystems with considerable vertical structure (e.g. coral reefs, kelp forests, deep-sea habitats, deep lakes), users should consider whether data at different depth strata are needed and document any 3D limitations of their assessment.

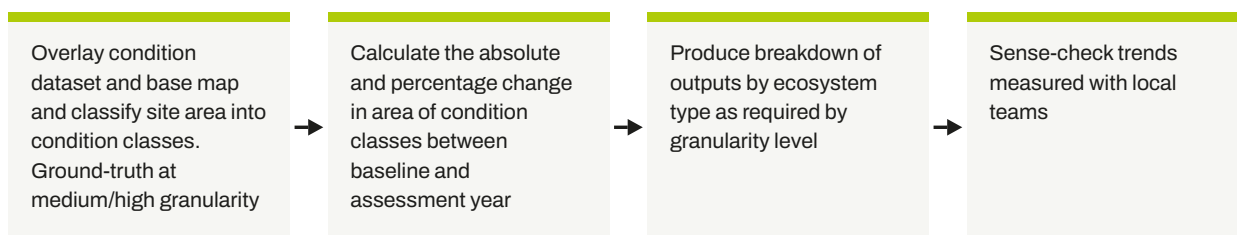
3. SITE ECOSYSTEM CONDITION

Metric: Area, losses, and gains for each condition class (ha, %), by ecosystem type, considering elements of structure, function and composition

Calculation overview:

$$= \left[\text{Area of ecosystems in each condition class in assessment year} \right] - \left[\text{Area of ecosystems in each condition class in baseline year} \right]$$

Process:



Ecosystem condition data layer specifications

Ecosystem condition can be measured using national/regional datasets, biome-level datasets or realm-level datasets.

Ecosystem condition specifications per granularity level

	● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
Specifications	Measurement: Measure change in condition using national/regional datasets, biome-level datasets or realm-level datasets Dataset criteria: - Condition data layers should measure at least one of the components out of the composition, structure or functioning of the ecosystems. - They should comply with widely-recognised principles and standards for data quality (see Section 2, Step 4) and accepted national/regional datasets should be prioritised. - Condition scoring approaches can be used if they meet the above requirements, have clearly documented criteria and thresholds, and are calibrated for the ecosystem of interest. - Datasets modelled on pressure data should only be used as a last resort. Where used, field verification is advised.	Measurement: Measure change in condition using national/regional datasets, biome-level datasets or realm-level datasets Dataset criteria: - Condition data layers should measure at least two components out of the structure, composition and/or functioning of the ecosystems. - They should comply with widely-recognised principles and standards for data quality (see Section 2, Step 4) and accepted national/regional datasets should be prioritised. - Condition layers must not be modelled based on pressure data.	Measurement: Measure change in condition using national/regional datasets, biome-level datasets or realm-level datasets Dataset criteria: - Condition data layers should be based on relevant biotic, and where useful relevant abiotic, condition variables, following IUCN RLE and/or UN SEEA-EA guidance. - They should comply with widely-recognised principles and standards for data quality (see Section 2, Step 4) and accepted national/regional datasets should be prioritised. - Dataset measurements must include biotic condition variables, combining structural, at least one species composition variable, and where relevant, functional variables.

	● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
Example potential datasets for review*	- Condition scoring approach linked to the ecosystem of interest, e.g. UK Biodiversity Net Gain metric - Scalable Ecological Condition - Bioclimatic Ecosystem Resilience Index - Land cover time series datasets where the land cover classes include aspects on condition, e.g. secondary, primary forest - Above-ground biomass data layers (where relevant for the ecosystem) - Metrics with modelled components: Ecosystem Integrity Index, GLOBIO-MSA	- European Forest Condition Index - Forest Structural Condition Index (FSCI) - Allen Coral Atlas benthic habitat maps and bleaching monitoring (marine) NB: The availability of high granularity datasets, e.g. existing Red List of Ecosystems (RLE) assessments or UN-SEEA compatible accounts, could also be assessed here in the absence of medium-level dataset coverage	- Existing RLE assessments or the tools, guidance and script for their development - UN SEEA-EA compatible ecosystem accounts using field data and remote sensing - Accounting for Nature Econd certified metrics – ecosystem focussed - Field-based ecological condition assessments, e.g. reef health indices, benthic cover surveys, EU Water Framework Directive Biological Quality Elements, river habitat surveys, habitat condition assessments

There is no single standardised approach to converting condition values/scores into condition classes at present. Users should first seek to use existing precedent and guidance for the chosen condition measurement and dataset. For example, the EU Water Framework Directive methods specify particular condition classes based on management thresholds.

Where existing credible precedent and guidance for assigning condition classes is not available, the following guidelines may provide further support:

The key objective is to ensure a sufficient minimum **number** of classes and reflective **thresholds** between classes to capture the potential variation in condition, such that the outputs are meaningful both ecologically and for decision-making. The highest condition class should align with a reference condition based on a best quality state of the same ecosystem type – this could be natural or near-natural condition, the best available condition, or another justified benchmark (see [UN-SEEA-EA](#) for further guidance). In general, there should not be fewer than five classes, where datasets allow.

If the condition dataset has a manageable number of discrete categories (e.g. <20), there may be no need to aggregate these into fewer classes and the dataset can be used as is. If you have a continuous dataset or need to aggregate, consider:

- i. **Appropriate distribution** – equally-sized classes may be appropriate in many cases, however datasets with logarithmic scales or with particular interpretation guidance (e.g. a value of X reflects a natural state), for example, may need a refined approach;
- ii. **Ecological relevance** – are there any thresholds associated with particular ecological responses that should be reflected by a class boundary? E.g. below X% canopy cover, key species will not use the habitat;
- iii. **Management usefulness** – how many classes might be needed, and where might class thresholds most usefully be set, to inform the intended use case and provide sufficient information for decision-making? The use case guidance being applied may have further information on this.

Ensure to sense-check the classifications and consider testing how changes in thresholds impact the outputs. In all cases, there should be clear documentation and transparency on the approach and rationale (including the dataset, reference condition, number of classes, class thresholds, validation or sensitivity testing conducted).

FRESHWATER REALM



See the [Biodiversity Benefit Accounting \(BioBA\) Guidance](#) Table A4B-1 and Appendix 4C for details on measuring ecosystem condition in freshwater systems. At medium and high granularity, at least one volumetric measure should be incorporated into the condition assessment. See [WRI's Volumetric Water Benefit Accounting 2.0](#) for further guidance.

Small freshwater bodies, i.e. those with a width of less than half the spatial resolution of the base map, may not be identified in the data. Where these systems are prevalent, e.g. a common feature in the site and/or providing important value for species or the surrounding ecosystem, an indicator species may be used as a proxy for measuring ecosystem condition. See the freshwater realm-specific criterion in the Species Selection Filter ([Section 1, Step 6](#)) and the site species population metric guidance. When presence of indicator species is used as a proxy for ecosystem condition, these should not be interpreted as standalone or complete representations of ecosystem condition.

MARINE REALM



Given a lack of universal, accessible measures for capturing marine condition, pressure-based or abiotic proxies may be needed at the preparatory level (e.g. thermal stress indicators, chlorophyll-a concentration, dissolved oxygen levels and ocean acidification indices) and biome- or ecosystem-specific measures at the medium and high granularity levels (e.g. coral cover, macroalgal cover, species composition indices, or mangrove canopy density). When applying to marine ecosystems at medium and high granularity, users may also incorporate additional relevant abiotic stressors as a component of ecosystem condition measurement to meet the above specifications. See also WWF's report on [Monitoring, Measuring and Tracking Progress Towards Nature Positive for the Ocean](#).

FRESHWATER AND MARINE REALMS



Diffuse and dynamic impacts

Freshwater and marine ecosystems are often characterised by mobile water masses, migratory species and strong seasonal variability. Where impacts are diffuse (e.g. from land-based pollution, fishing or shipping), organisations should:

- Apply landscape/seascape-level metrics to capture the broader extent of diffuse impacts beyond the site boundary;
- Determine and disclose the methodology and rationale for the site’s area of influence boundary, given the nature of the pressures exerted by commercial activities at the site and the ecosystem context (e.g., currents). Existing standards, such as those provided by the International Finance Corporation (IFC), may provide useful and justifiable approaches even where IFC standards are not directly targeted at your operations;
- Consider applying relevant additional state of nature metrics where particular material pressures are applicable, particularly for sedimentation and water pollution impacts
- Report state of nature metrics alongside relevant pressure and response metrics to contextualise results, e.g. see marine examples in WWF’s 2026 report [on monitoring progress towards nature positive for the ocean](#).

Outputs:

PREPARATORY	MEDIUM	HIGH
Absolute and change in area of each condition class (ha, %)	Absolute and change in area of each condition class with breakdown by GET Level 3 or 4 or national equivalent (ha, %)	Absolute and change in area of each condition class with breakdown by ecosystem asset and by GET Level 5 or 6 (GET Level 3 for marine) or national equivalent (ha, %)

4. LAND/SEASCAPE ECOSYSTEM CONDITION

Metric: Value and change in structural and functional connectivity between natural ecosystems

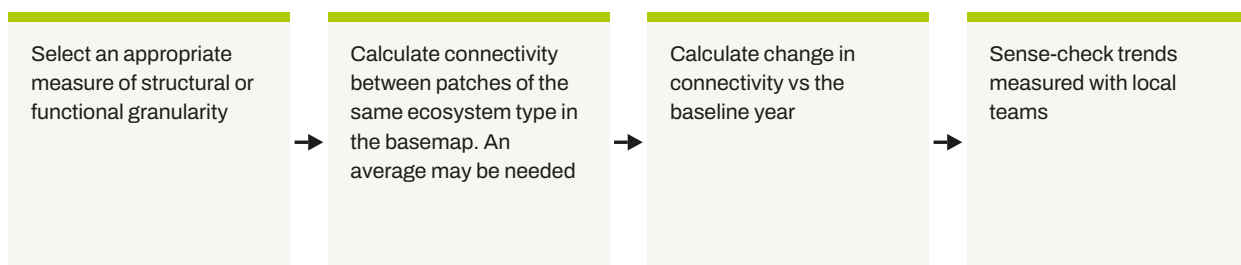
Calculation overview:

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Connectivity score in assessment year



Connectivity score in baseline year

Process:**All granularity levels:****Structural connectivity measurement specifications:**

	● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
Specifications	Use a relevant measure of structural connectivity between patches of natural ecosystems	Use a relevant measure of structural connectivity between ecosystems of the same type (GET Level 3 or 4 or national equivalent), using landcover classes	Use a relevant measure of structural connectivity between ecosystems of the same type (GET Level 5, 6 or national equivalent), using landcover classes
Example measures	- Connectance Index - Connectivity Status Index (free-flowing rivers) - E.g. Straight line estimates (marine)	- Connectance Index - Connectivity Status Index (free-flowing rivers) - Mean free-flowing river length as calculated from Global Dam Watch dataset - Passive dispersal between functional group patches via ocean current data (marine)	- Connectance Index - Dendritic Connectivity Index (freshwater) - Estimate passive dispersal between habitats (e.g. using HYCOM or Copernicus Marine Service ocean current data) and supplement spatial and current data with biophysical data (marine)

Functional connectivity measurement specifications:

	● ● ● HIGH
Specifications	Use a relevant measure of functional connectivity based on linkages of natural ecosystem fragments in the landscape. Species-specific connectedness thresholds will be needed, e.g. using average dispersal distance.
Example measures	Connectance Index (need to include species-specific movement thresholds) Population Connectivity Index (freshwater) Supplement spatial and current data with biophysical larval connectivity measure (marine) NOTE: The Connectance Index is a direct measure and primarily a structural connectivity metric based on how many habitat patches are linked. However, if species-specific movement probabilities or dispersal thresholds are included in defining the links, it can also serve as a functional connectivity measure.

MARINE REALM

Marine connectivity measurements should be incorporated where meaningful and feasible.

Outputs:

● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
Absolute and change in natural habitat structural connectivity score	Absolute and change in structural connectivity score by GET Level 3 or 4 or national equivalent	Absolute and change in structural and functional connectivity scores by GET Level 5 or 6 or national equivalent

Additional metrics for consideration

Users should consider additionally measuring ecosystem condition across landscapes beyond connectivity, e.g. considering aspects of the structure, function and composition of ecosystems (see the site-level ecosystem condition measurement guidance), where possible (noting that some practical limitations may exist at present), as this can support a more comprehensive understanding of ecosystem health.

Users are also encouraged to draw on additional sector, context and biome specific metrics as needed for their use case. Examples related to ecosystem condition include:

METRIC	POTENTIAL USE
Area (ha) and percentage of marine ecosystems experiencing sedimentation, high nitrate/phosphate concentrations, harmful algal blooms, hypoxic zones and/or garbage patches (marine)	This metric can help more closely monitor the state of marine environments that are particularly exposed to specific pressures

5. SITE SPECIES EXTINCTION RISK

Species extinction risk measurement showing the contributions of the site to the global extinction risk

Process:

Extinction risk measurement specifications:

	● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
Specific-ations	• Data layer spatial resolution ≤5km • Measurement must sum the proportion of the global area of habitat* of each species in scope that falls within the site. It is strongly recommended to weight each species by threat status and/or use proportion of a specified historical reference range, except when robust assessments of extinction risk are unavailable at global, regional, or national levels	• Data layer spatial resolution ≤1km (≤5km for marine) • Measurement must sum the proportion of the global area of habitat* of each species in scope that falls within the site. It is strongly recommended to weight each species by threat status and/or use proportion of a specified historical reference range, except when robust assessments of extinction risk are unavailable at global, regional, or national levels • Ground-truthing	• Data layer spatial resolution ≤1km (≤5km for marine) • Measurement must sum the proportion of the global area of habitat* of each species in scope that falls within the site. It is strongly recommended to weight each species by threat status and/or use proportion of a specified historical reference range, except when robust assessments of extinction risk are unavailable at global, regional, or national levels • Ground-truthing
Example measures	• Rarity-weighted richness • Estimated STAR-t • Land-cover change Impacts on Future Extinctions (LIFE) metric layer • Range maps and habitat preferences for species	• Calibrated STAR-t • LIFE metric layer	• Calibrated STAR-t • Ground surveys

* If area of habitat is not available, species range may be used.

Outputs:

● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
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Overall extinction risk measurement for the baseline year (or as close as possible to this year). If possible, reporting changes in site contribution to species extinction risk over time using comparable datasets.

Important note:

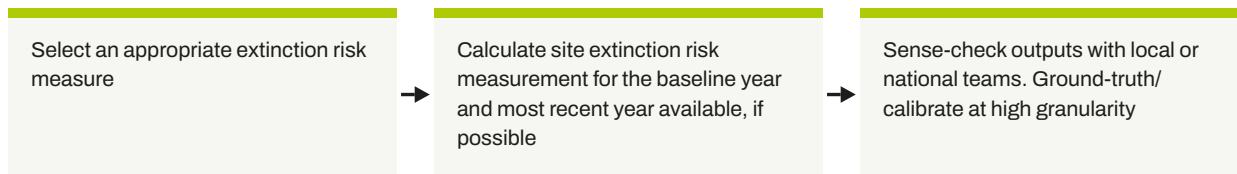
Global extinction risk data are available from the IUCN Red List for over 170,000 species of animals, plants, fungi and chromists in all realms worldwide and information is available [here](#) on the coverage of existing data and efforts to expand it. It is noted that not every species in the IUCN Red List is currently captured in associated extinction risk scores/metrics. If data is not available for your priority species, alternative global extinction risk assessment data, national/regional extinction risk datasets, or proxies/measurements that comply with widely-recognised principles and standards for data quality (see [Section 2, Step 4](#)) can be used. Scoring approaches can be used if they meet the above requirements, have clearly documented criteria and thresholds, and are calibrated to the species of interest. Datasets modelled on pressure data should only be used as a last resort.

This metric provides important information for understanding the state of nature. However, for very small sites, where the cost of accessing relevant datasets may be disproportionately high and the ability to influence extinction risk outcomes more limited, organisations may instead initially prioritise the species populations metric as a pragmatic alternative.

6. LANDSCAPE SPECIES EXTINCTION RISK

Metric: Species extinction risk measurement showing the contributions of the landscape/seascape to global extinction risk

Process:



Extinction risk measurement specifications:

	● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
Specifications	- Data layer spatial resolution ≤10km - Measurement must sum the proportion of the global area of habitat* of each species in scope that falls within the landscape/seascape. It is strongly recommended to weight each species by threat status and/or use proportion of a specified historical reference range, except when robust assessments of extinction risk are unavailable at global, regional, or national levels	- Data layer spatial resolution ≤5km - Measurement must sum the proportion of the global area of habitat* of each species in scope that falls within the landscape/seascape.. It is strongly recommended to weight each species by threat status and/or use proportion of a specified historical reference range, except when robust assessments of extinction risk are unavailable at global, regional, or national levels	- Data layer spatial resolution ≤5km - Measurement must sum the proportion of the global area of habitat* of each species in scope that falls within the landscape/seascape. It is strongly recommended to weight each species by threat status and/or use proportion of a specified historical reference range, except when robust assessments of extinction risk are unavailable at global, regional, or national levels - Ground-truthing
Example measures	- Rarity-weighted richness layer - Estimated STAR-t - LIFE metric layer (terrestrial)	- Estimated STAR-t - LIFE metric layer (terrestrial) - Range maps and habitat preferences for species	- Calibrated STAR-t - Ground surveys

* If area of habitat is not available, species range may be used.

Outputs:

Overall extinction risk measurement for the baseline year (or as close as possible to this year). If possible, reporting changes in landscape contribution to species extinction risk over time using comparable datasets.

Important note:

Global extinction risk data are available from the IUCN Red List for over 170,000 species of animals, plants, fungi and chromists in all realms worldwide and information is available [here](#) on the coverage of existing data and efforts to expand it. It is noted that not every species in the IUCN Red List is currently captured in associated extinction risk scores/metrics. If data is not available for your priority species, alternative global extinction risk assessment data, national/regional extinction risk datasets, or proxies/measurements that comply with widely-recognised principles and standards for data quality (see [Section 2, Step 4](#)) can be used. Where users have more granular measures of extinction risk, for example population viability assessments, these can be used instead of global layers.

7. SITE SPECIES POPULATIONS

Metric: Number and proportion of priority species with estimated populations that are 1) declining, 2) slowing in decline, 3) stable, and 4) increasing (absolute, %)

Calculation overview:**Population trend per species**

$$= \frac{\text{(Average) population measurement or proxy in assessment year*}}{\text{(Average) population measurement or proxy in baseline year}}$$

*It is recommended to also review population measurements in all interim years to confirm trend

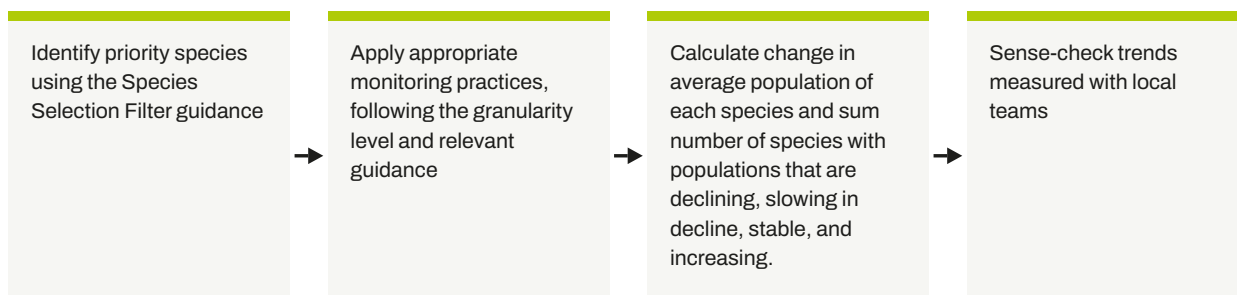
Metric calculation

$$= \frac{\text{No. priority species with declining populations}}{\text{Total no. priority species}}$$

$$= \frac{\text{No. priority species with populations slowing in decline}}{\text{Total no. priority species}}$$

$$= \frac{\text{No. priority species with stable populations}}{\text{Total no. priority species}}$$

$$= \frac{\text{No. priority species with increasing populations}}{\text{Total no. priority species}}$$

Process:**Population change measurement specifications**

	● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
Specifications	Calculate relative abundance trend using change in area of habitat or, if not possible, species range as a proxy	Calculate relative abundance trend using species-related (i.e. not habitat-related) proxies. Relative abundance proxies include number or density of nests, burrows or tracks (per unit effort), with species presence confirmed	Calculate relative or absolute abundance trend using methods that aim to quantify the density or actual number of individuals at a site. Example methods are mark-recapture, distance sampling, catch-per-unit effort, count-per-unit effort or complete counts
Example potential data sources for review	- IUCN Red List distribution maps - Regional Area of Habitat maps - Map of Life distribution maps	- Species monitoring, e.g. bioacoustic monitoring, camera traps, eDNA, remote sensing, ground surveys - Citizen science data sources, (e.g. eBird Status and Trends, iNaturalist) and derived indices - Additional marine species monitoring methods: baited remote underwater video systems (BRUVS), underwater visual census, echosounders, acoustic monitoring, fish length-based sustainability indicators	Primary population count data collection (e.g. using species monitoring methods listed under medium granularity), with associated level of sampling effort recorded (e.g. catch per unit effort)

Population trends should, where possible, be derived from data covering repeated measurements over time, with measurement frequency informed by experts or scientific evidence. Single baseline-to-current comparisons should be interpreted cautiously and accompanied by disclosure of sampling effort, uncertainty and temporal coverage. A range of external guidance sources are available for species monitoring and calculating trends, e.g. the [Guidelines for Using the IUCN Red List Categories and Criteria](#), and supporting resources from organisations such as the [IUCN](#) and [GEO BON](#). The [Living Planet Index Guidance for National and Regional Use \(Version 1.2\)](#) provides helpful information on preparing species populations datasets such that they can also be of use for Global Biodiversity Framework and other national/local target monitoring.

Outputs:

● ● ● PREPARATORY	● ● MEDIUM	● ● ● HIGH
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Number and proportion of priority species with estimated populations that are 1) declining, 2) slowing in decline, 3) stable, and 4) increasing (absolute, %). Provide a breakdown of the species assessed and the absolute and % change in average population size across all species considered, with unit of measurement.

8. LANDSCAPE SPECIES POPULATIONS

Important note: This metric should be measured where possible, however it is recognised that further work on data availability needs to be undertaken to make measuring this metric more feasible for organisations.

Metric: Number and proportion of priority species with estimated populations that are 1) declining, 2) slowing in decline, 3) stable, and 4) increasing (absolute, %).

Calculation overview:**Population trend per species**

$$= \frac{\text{(Average) population measurement or proxy in assessment year*}}{\text{(Average) population measurement or proxy in baseline year}}$$

*It is recommended to also review population measurements in all interim years to confirm trend

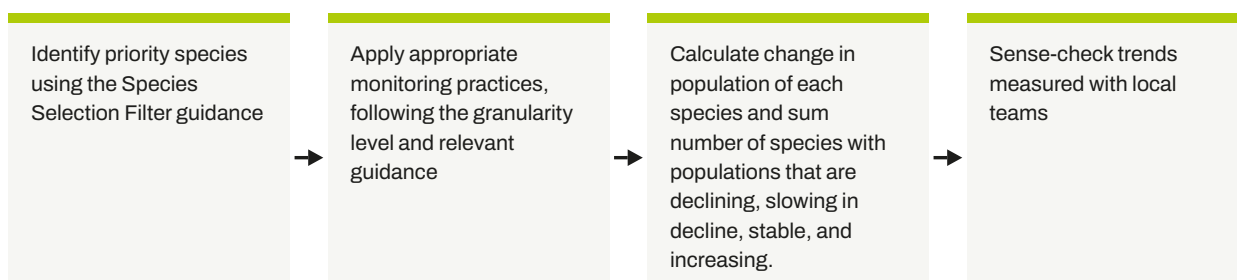
Metric calculation

$$= \frac{\text{No. priority species with declining populations}}{\text{Total no. priority species}}$$

$$= \frac{\text{No. priority species with populations slowing in decline}}{\text{Total no. priority species}}$$

$$= \frac{\text{No. priority species with stable populations}}{\text{Total no. priority species}}$$

$$= \frac{\text{No. priority species with increasing populations}}{\text{Total no. priority species}}$$

Process:

Population change measurement specifications

	● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
Specifications	Calculate relative abundance trend using change in area of habitat or, if not possible, species range as a proxy	Calculate relative abundance trend using species-related (i.e. not habitat-related) proxies. Relative abundance proxies include number or density of nests, burrows or tracks, catch-per-unit effort, count-per-unit effort etc. Species presence/absence data may be used where robust models/datasets are available to estimate population trends	Calculate relative abundance trend using methods that aim to quantify the density or actual number of individuals at a site. Example methods are mark-recapture, distance sampling, or complete counts
Example potential data sources for review	- IUCN Red List distribution maps - Regional Area of Habitat maps - Map of Life distribution maps	- Species monitoring, e.g. Bioacoustics, camera traps, eDNA, remote sensing, ground surveys - Citizen science data sources, (e.g. eBird Status and Trends, iNaturalist) and derived indices - Other secondary sources if appropriate data is available, e.g. GBIF, OBIS, national monitoring databases	- Primary population count data collection, with associated level of sampling effort recorded - Other secondary sources if appropriate data is available, e.g. GBIF and OBIS, national monitoring databases

Population trends should, where possible, be derived from data covering repeated measurements over time, with measurement frequency informed by experts or scientific evidence. Single baseline-to-current comparisons should be interpreted cautiously and accompanied by disclosure of sampling effort, uncertainty and temporal coverage. A range of external guidance sources are available for species monitoring and calculating trends, e.g. the [Guidelines for Using the IUCN Red List Categories and Criteria](#) and supporting resources from organisations such as the [IUCN](#) and [GEO BON](#). The [Living Planet Index Guidance for National and Regional Use \(Version 1.2\)](#) provides helpful information on preparing species populations datasets such that they can also be of use for Global Biodiversity Framework and other national/local target monitoring.

Outputs:

● ● ● PREPARATORY	● ● ● MEDIUM	● ● ● HIGH
Number and proportion of priority species with estimated populations that are 1) declining, 2) slowing in decline, 3) stable, and 4) increasing. Provide a breakdown of the species assessed and the change in average population size across all species considered, with unit of measurement.		

Additional metrics for consideration

Users are also encouraged to draw on additional sector, context and biome specific metrics as needed for their use case. Examples related to species populations include:

METRIC	POTENTIAL USE
Values and changes in indices of marine species diversity	This metric could be helpful where there is high species exploitation pressure (e.g. from fishing activities) to monitor the species assemblages in a specific location

SECTION 4: TRANSPARENCY

Guidance on how metrics are presented will be in the purview of the specific framework or standard into which the metrics are embedded. Many existing frameworks and standards provide helpful guidance on good practices for sustainability-related disclosures, e.g. [GRI](#), [TNFD](#) and [IFRS](#). The most important principle is to *be transparent* about your approaches and findings, as is well-established in financial and non-financial disclosure standards across the world.

Some specific examples relating to state of nature metrics are outlined below as potential considerations for report preparers and standard setters:

- 1** Make your methodology publicly available and reference it where your metrics are disclosed. Key aspects of the methodology could include:
 - Scope of assessment – including how boundaries were determined for landscape/seascapes, proportion of operations and value chain covered and how prioritised
 - Data sources, age of data/temporal limitations and any ground-truthing performed
 - Baseline year and rationale
 - Granularity level, calculations performed or published methodology followed
 - Any key assumptions or estimations made
 - Criteria for species selection, including justification for selection of indicator species and proxies where appropriate.
- 2** Provide context and explanation for metrics and trends where possible, including the relationship between the different metric outputs. For example, why might the site ecosystem extent metric be improving but declining in the landscape overall? Note that the interpretation of the outputs may vary by realm or ecosystem type, e.g. in freshwater systems, hydrological drivers, degree of connectivity and natural variation/seasonality may be impacting the metrics. Your sense-checking of metric outputs, as per the process flow diagrams in Section 3, can provide a useful source of information for this.
- 3** Document your process, maintain evidence records and seek third-party assurance as appropriate for your use case. Records could include remote sensing data, photographic evidence, field observations, and third-party biodiversity assessments. Implementing [reproducible principles for data management and analysis](#) right from the start can make documenting, understanding and reporting on your data more efficient and give you the confidence to be transparent about the approach taken, e.g. see [guidance from the British Ecological Society](#).
- 4** Consider your audience and use case when aggregating your metrics, including following any requirements outlined in the disclosure framework or relevant standard being applied. For example, the full outputs of a high granularity assessment for the purposes of in-depth site initiative design and monitoring may need to be summarised for incorporation into an annual report, whilst a high-level dashboard could be helpful for internal company leadership oversight of progress.
- 5** Consider making underlying data collected accessible for use by others, e.g. for conservation science or national monitoring. See Biodiversa+'s [Guide on best practices sharing biodiversity data for private companies](#), or [IAIA's guide to publishing biodiversity data](#).

APPENDIX A: KEY PRINCIPLES FOR EMBEDDING METRICS

The State of Nature Indicators and Metrics are designed to be embedded into existing frameworks and standards, and is not a stand-alone framework. These could include, but are not limited to, voluntary and mandatory disclosure standards, product certifications, project monitoring policies/guidance, corporate strategy approaches/guidance, measurement tools and services etc. Maintaining the integrity of the metrics will ultimately be the responsibility of the frameworks and standards owners. While how to embed these metrics is ultimately the decision of the organisations embedding them, we provide here some key principles to consider:

- 1** Maintain the core indicators and metrics as a **holistic approach** to state of nature assessment. The components are designed to be combined to create a robust perspective on the state of nature, and this purpose will not be achieved if only a selection of the indicators are embedded.
- 2** Embed state metrics alongside the pressure and response metrics they are designed to complement in order to support an absolute avoidance approach to managing pressures on nature, consistent with SBTN's AR3T framework, and avoidance first emphasis consistent with the mitigation hierarchy and conservation hierarchy. These metrics should be used to drive action to halt and reverse nature loss, consistent with the definition of Nature Positive and the mission of the Kunming-Montreal Global Biodiversity Framework. Monitoring and reporting of the metrics should not be utilised to drive perverse outcomes for nature, e.g. habitat loss (e.g. deforestation) or overexploitation (e.g. overfishing), and other pressures. For more information on the importance of embedding and safeguards, please see Accountability Framework Initiative, Science Based Targets Network, and long-standing institutional positions on deforestation and conversion-free commodities (DCF).
- 3** Ensure a robust and credible approach to prioritisation of locations for measurement is applied where needed. This should incorporate the principle of double materiality and consideration of species and ecosystem risk. Examples of prioritisation approaches include TNFD's Locate phase, GRI 101 Biodiversity Standard Disclosures 101-4 and 101-5, and SBTN Steps 1 and 2 guidance.
- 4** Maintain appropriate safeguards to ensure the responsible implementation of measurement, both from environmental and social perspectives. This includes the respectful and equitable incorporation of local and Indigenous Knowledge regarding the state of nature, following the principle of Free, Prior and Informed Consent. Examples of this can be found within the [Global Commission on Economics of Water Technical Report on Indigenous and Western Knowledge: Bringing Diverse Understandings of Water Together in Practice](#).
- 5** If creating additional guidance or tools to support metric implementation, keep in mind the core design criteria for the metrics:
 - ☒ Credible and science-based
 - ☒ Responsive
 - ☒ Flexible
 - ☒ Aligned
 - ☒ Accessible and affordable
 - ☒ Auditable
- 6** Take action to ensure transparency of methodologies and approaches (see [Section 4](#)). This could include, for example, requiring "Comply or explain" approaches for disclosures and granularity level progress, especially as organisations are getting up to speed with measuring the metrics.
- 7** Consider the ecological appropriateness and practicality of measurement when determining requirements related to frequency of reporting, noting that this may vary across species and ecosystems.

APPENDIX B: DATA NEEDS CROSS-MAPPING

Which requirements in existing frameworks and standards might have overlapping data needs with state of nature metrics?

METRIC	DATA NEEDED	DATA TYPES	TNFD	GRI 101 BIO-DIVERSITY	SBTN	ESRS E4*	ISSB S1 & S2	CDP 2026
All	Location: Site	Owned, leased or managed areas e.g. exact spatial locations for direct operations	Locate L1-3 Strategy Disclosures B and D Metrics & Targets Disclosures B: Core global disclosure metric C1.0	Requirements 101-5-a, 101-5-c	Step 1, Task 10	ESRS E4 paragraph 19(a); paragraph 8; AR 8. Paragraph 19(b)-(c)	S1: Paragraph 32 S2: Paragraph 13 S2: Paragraph 29 (a)(i) - Scope 1 and 2 metrics	1.8 / 1.8.1 facility geolocation data, where supply-chain requested; 3.2 river basin facility risk; 9.1.1 country/area and river basin of excluded water, where relevant.
	Location: Value chain	Upstream or downstream e.g. exact spatial locations or, if not possible, landscape/region-level location information for sites in the value chain	Locate L1-3 Strategy Disclosures B and D Metrics & Targets Disclosures B: Core global disclosure metric C1.0	Requirement 101-5-d Option in Guidance to 101-5	Step 1, Task 10	ESRS E1 Chapter 5.2 ESRS E4 paragraph 13(a); AR 7(c) (now attached to para. 16)	S1: Paragraph 32 S2: Paragraph 13 S2: Paragraph 29 (a)(i) - Scope 3 metrics	1.24 value chain mapping; 1.24.2 upstream mapping of timber, palm oil, cattle, soy, rubber, cocoa and coffee; 5.11 / 5.11.1 value chain engagement and engagement topics; 8.3 / 8.5 origin of forest-risk commodities and sourced commodity volumes.
Base map layers	Land/sea use	Land/sea use e.g. maps/data layers showing land/sea use types present in the area	Locate L3 Metrics & Targets Disclosures B: Core global disclosure metric C1.1	Natural ecosystem conversion (101-6-a-i) Other modified ecosystem conversion (101-6-a-ii)	Step 1, Task 11-13 Step 3: Land, Step 3: Ocean	ESRS E4 Paragraph 20 AR 10 for para. 20 AR 11 for para. 20	Paragraph 46**	-
	Eco-system classification	Ecosystem classification e.g. map showing the types of ecosystems present using the IUCN Global Ecosystem Typologies or national equivalent	Locate L3 Metrics & Targets Disclosures B: Core global disclosure metric C1.1	Requirement 101-6-a Requirement 101-7-a-i	Step 1, Task 10	AR 11 for para. 20	Paragraph 46**	-

Data needs cross-mapping (continued)

METRIC	DATA NEEDED	DATA TYPES	TNFD	GRI 101 BIO-DIVERSITY	SBTN	ESRS E4*	ISSB S1 & S2	CDP 2026
Metric-specific	Eco-system extent	Area (absolute and percentage) of loss, gain and net change in extent of natural ecosystems (ha, %) e.g. using the ecosystem classification maps described above	Locate L4, Evaluate E3 Metrics & Targets Disclosures B: Core global disclosure metric C5.0	Requirements 101-7-a-i and 101-7-a-ii	Step 1, Task 13 Step 3: Land	ESRS E4 Paragraph 20; AR 10 (a); AR 10(c); AR 11; AR 12	Paragraph 46**	8.10 / 8.10.1 monitoring and estimating deforestation and conversion footprint
	Eco-system condition	Area and change by condition class (ha, %) E.g. data layers showing the structure, function and/or composition of ecosystems	Locate L4, Evaluate E3 Metrics & Targets Disclosures B: Core global disclosure metric C5.1	Requirement 101-7-a-iii	Step 1, Task 13, Step 3: Land	ESRS E4 Paragraph 20; AR 10 (a); AR 10(c); AR 11; AR 12	Paragraph 46**	3.1 / 3.1.1 environmental risks and value-chain stage; 3.2 river basin facility risk; 5.11.1 impact on habitats and basin/landscape/marine ecosystem condition; 2.5 / 2.5.1 and 9.2 / 9.2.9 water pollutants, pollutant management and wastewater treatment; 9.15 / 9.15.1 water targets including SBTN-related fields.
		Values and change in structural and functional connectivity between natural ecosystems e.g. scores, maps or indices measuring ecosystem connectivity	Locate L4, Evaluate E3 Metrics & Targets Disclosures B: Core global disclosure metric C5.1	Requirement 101-7-a-iii	Step 1, Task 13 Step 3: Land	ESRS E4 Paragraph 20; AR 10 (a); AR 10(c); AR 11; AR 12	Paragraph 46**	
	Species extinction risk	Species extinction risk measurement showing the contributions of the site to global extinction risk	Locate L4, Evaluate E3 Metrics & Targets Disclosures B: Core global disclosure metric C5.2	Requirements 101-5-b and 101-6-b-i & recommendation in Guidance to 101-7		ESRS E4 Paragraph 20; AR 10(b); AR 11; AR 12	Paragraph 46**	-
		Species extinction risk measurement showing the contributions of the landscape/seascape to global extinction risk	Locate L4, Evaluate E3 Metrics & Targets Disclosures B: Core global disclosure metric C5.2	Requirements 101-5-b and 101-6-b-i & recommendation in Guidance to 101-8	Step 1: Task 13, Step 3: Land	ESRS E4 Paragraph 20; AR 10(b); AR 11; AR 12	Paragraph 46**	
	Species populations	Number and proportion of priority species with populations that are 1) declining, 2) slowing in decline, 3) stable, and 4) increasing.	Locate L4, Evaluate E3 Additional global disclosure metric A5.0	Recommendation in Guidance to 101-7	Step 1: Task 13 (optional), Step 3: Ocean	ESRS E4 Paragraph 20; AR 10(b); AR 11; AR 12	Paragraph 46**	-

Data needs cross-mapping (continued)

METRIC	DATA NEEDED	DATA TYPES	TNFD	GRI 101 BIO-DIVERSITY	SBTN	ESRS E4*	ISSB S1 & S2	CDP 2026
Prioritizing species	Critical habitat criteria	(1) CR and EN species (2) Endemic and Restricted range Species (3) Migratory and Congregatory Species (all realms) e.g. Critical Habitat data layers	Locate L4, Evaluate E3 Strategy Disclosures A, B & D	Requirement 101-5-b & Guidance to 101-7	Step 1, Task 9 and Task 13, Step 3: Ocean	ESRS E4 paragraph 19(b); AR 8; AR 9; AR 10(b)	Paragraph 43-44**	-
	Locally important species	Locally important species e.g. information on species important for ecosystem service delivery and local values	Locate L4, Evaluate E3 Strategy Disclosures A, B & D	Requirement 101-5-b & Guidance to 101-7	Step 1, Task 9 and Task 13	ESRS E4 paragraph 20; AR 10(b); AR 11; AR 12. Paragraph 18(b)	Paragraph 43-44**	-
	Realm-specific criteria	Freshwater: One species as a good indicator of the health of small rivers/streams, if applicable. Marine: Species subject to direct and indirect exploitation.	Metrics & Targets Disclosures B: Core global disclosure indicator C3.1 Marine: Additional global metric A3.5	Wild species (101-6-b-i) & Guidance to 101-7	Step 3: Ocean, Step 3: Freshwater	ESRS E4 paragraph 20; AR 10(b); AR 11; AR 12. Paragraph 18(c)	Paragraph 43-44**	-
Resources			Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations TNFD Guidance on the identification and assessment of nature-related issues: the LEAP approach	GRI 101: Biodiversity 2024 Decoding biodiversity impacts: A practical guide to corporate reporting with the GRI Standards	SBTN Step 1: Assess SBTN Step 2: Prioritise SBTN Step 3: Set Targets - Land SBTN: Step 3: Set Targets - Ocean	Revised European Sustainability Reporting Standards (ESRS), European Commission Delegated Act, 3 July 2026	ISSB S1 Standard ISSB S2 Standard	CDP 2026 Disclosure

*Revised European Sustainability Reporting Standards (ESRS), European Commission Delegated Act, 3 July 2026

**ISSB S1 states that an entity shall disclose an entity's processes to identify, assess, prioritise and monitor sustainability-related risks and opportunities, and metrics for each sustainability-related risk and opportunity that could reasonably be expected to affect the entity's prospects. Therefore the State of Nature Indicators and Metrics may be relevant depending on the specific sustainability-related risk or opportunity context. Ongoing work by the ISSB on nature can be followed [here](#).

Note: The mapping is illustrative and identifies potential overlaps in underlying data needs only. It does not indicate equivalence between the State of Nature indicators and metrics and the requirements, methods or outputs of the listed frameworks and standards, nor does it imply endorsement, approval or validation by the organisations listed unless separately confirmed.

