Industry Briefing Note

How to use consensus State of Nature metrics to understand business dependencies on ecosystem services

The Biodiversity Consultancy

Where business and nature thrive

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Businesses and financial institutions increasingly seek to understand their dependencies on nature, and what this means for risk, resilience and reporting. A big part of that is identifying where, and measuring how, their operations, value chains and portfolios depend on ecosystem services, such as water supply, flood mitigation, crop pollination, soil quality, and the supply of food and fibre.

To support measurement, the Nature Positive Initiative (NPI) has helped drive convergence around a consensus set of 'State of Nature' metrics. These metrics describe the health of ecosystems and species and are increasingly being embedded within major voluntary disclosure frameworks and target-setting standards, such as those of the Taskforce on Nature-related Financial Disclosures (TNFD), the Global Reporting Initiative (GRI), and the Science Based Targets for Nature (SBTN).

Because ecosystem services are ultimately underpinned by the state of nature, the consensus State of Nature metrics provide a strong foundation for understanding dependencies. This includes identifying where ecosystem services are supplied, which are most vulnerable to loss, and how future hazards, like extreme weather events, may create financially material risks.

The practical opportunity for business and finance now is how to get the most out of the State of Nature metrics, by configuring and tailoring them toward the ecosystem services that matter most and complementing those metrics with additional information where needed.

State of Nature metrics and ecosystem services: a strong link that can be strengthened

The consensus State of Nature metrics are being designed to capture multiple dimensions of biodiversity and ecosystem functioning, including ecosystem extent and condition and the extinction risk and population trends for selected species. Whereas dependency assessments focus on the supply of ecosystem services and the benefits that they provide to people, businesses and economies.

These two concepts – state of nature and ecosystem services – are clearly closely related. However, the relationship between them is not always straightforward. For example, the supply of ecosystem services may depend not only on ecosystem condition or species populations, but also on higher level ecological interactions, landscape configuration of nature, and other factors mediated by local socio-economic and cultural contexts.

Fortunately, the consensus State of Nature metrics have enough flexibility to be configured toward questions about business dependence on ecosystem services and their vulnerability to loss. For example, businesses can select ecosystem condition indicators that reflect the attributes most relevant to the supply of priority ecosystem services. They can also focus their species population metrics on the species most important for their dependencies, rather than purely focusing on threatened species, for example; and draw on optional metrics, such as the proportion of natural and semi-natural habitat.

Where the link between the state of nature and a particular service is less direct, complementary metrics and analysis can also help sharpen the picture. This is recognised in a recent discussion paper, which highlights the value of strengthening guidance on the relationship between the measurement of state of nature, ecosystem services, dependencies and business risk, including suggesting condition variables relevant to the supply of ecosystem services and the use of various ecosystem service modelling tools.

A practical way to build insight on dependencies from State of Nature metrics

A good place to start is to focus and tailor the State of Nature metrics towards priority ecosystem services, then to configure these metrics to the attributes of nature and locations most relevant to those services, and finally to assess where complementary metrics and additional analyses can add further value.

A simple four-step process is illustrated in Figure 1 and explained in detail below.

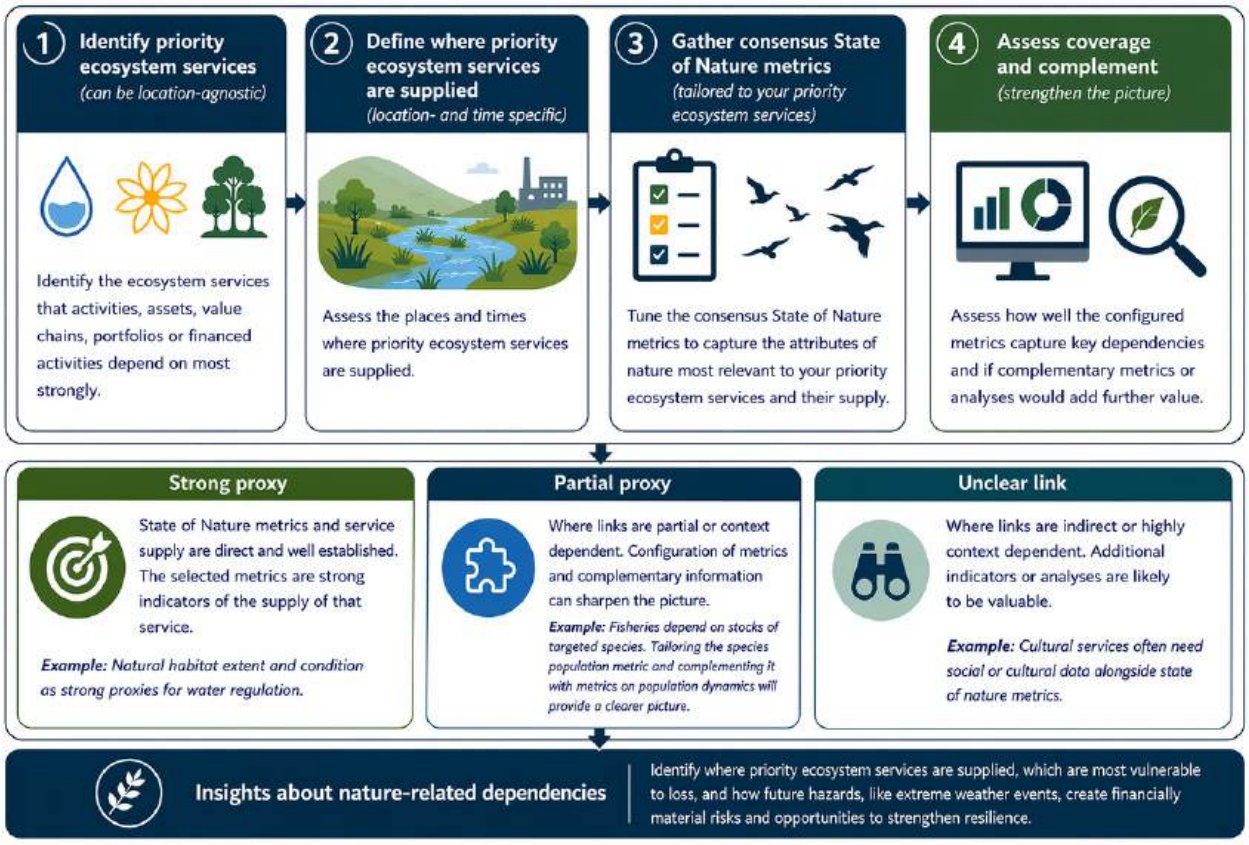

Figure 1. A practical process for configuring the consensus State of Nature metrics to understand and manage business dependencies on ecosystem services.

Step 1: Identify priority ecosystem services (can be location-agnostic)

Start by identifying the ecosystem services that assets, value chains, portfolios or financed activities depend on most strongly. This can initially be done at a company or sector level, without reference to specific locations. For example, a mining company may identify dependencies on water regulation and flood control, while an agricultural business may prioritise crop pollination and soil quality.

This step helps narrow the focus before moving into more detailed spatial and temporal analysis.

Step 2: Define where and at what scale the ecosystem service is produced

For each priority ecosystem service the business depends on, identify where and at what scale the service is supplied relative to the business unit. This includes both the spatial (i.e. upstream vs downstream, site-level vs landscape/catchment-level) and temporal (e.g. seasonality sensitivities) scales.

Assessing spatial scale is particularly important because NPI's metrics are segmented in a similar way. The services supplied locally (e.g. crop pollination) can draw on site level metrics, whereas others supplied by wider landscape processes (e.g. water supply or flood regulation) can draw on landscape level metrics.

Step 3: Gather and configure State of Nature metrics to your priority ecosystem services

The next step is to gather and configure the State of Nature metrics, so they capture the ecological attributes that underpin priority ecosystem services, at the relevant spatial and temporal scales.

For example:

- For ecosystem condition, businesses using the bottom-up approach at medium or high granularity to select metrics can use condition indicators reflecting the ecosystem attributes most relevant to their dependencies (e.g. soil-related attributes for soil quality, or vegetation characteristics for flood mitigation).
- For species populations, businesses can select species that are most important for the services that their operations depend on, in addition to those that are globally threatened with extinction.
- Additionally, businesses can also select to use the optional State of Nature metrics of proportion of natural and semi-natural habitat where habitat availability and configuration are important for service supply (e.g. for crop pollination services).

Step 4: Assess coverage and the need for complementary metrics and analysis

The final step is to check how well the configured State of Nature metrics capture the ecological attributes and functions underpinning the supply of priority ecosystem services, including whether they capture information on vulnerability of service supply to future hazards and the consequences of its loss for relevant business activities.

In practice, it helps to treat this as a simple spectrum:

- Where the link is direct or even universally consistent, configured metrics can serve as a strong indicator of service supply.
- Where the link is partial, the State of Nature metrics provide useful context, and targeted complementary indicators can help sharpen the picture.
- Where the link is indirect, unclear or highly context-dependent, additional indicators or analysis are usually needed to fully capture insight on nature related dependencies.

Where the consensus State of Nature metrics provide strong insight, and where complementary metrics can add value

State of Nature metrics are most useful where ecosystem services are strongly linked to the same attributes they measure, such as ecosystem extent and condition. Some examples of where this is likely:

- Flood mitigation linked to upstream vegetation extent and condition
- Erosion control linked to vegetation cover and land condition
- Cultural values linked to the persistence of threatened species

For other ecosystem services, a combination of configured State of Nature metrics and complementary indicators will give a stronger picture. For example:

- Fisheries productivity depends directly on population stocks of targeted fish species. These can be included in the species population metric, and complemented with indicators of population dynamics, like catch per unit effort or size-class distribution, for a fuller picture.
- Crop pollination depends on diversity of pollinators and the configuration of their habitat. The optional proportion of natural and semi-natural habitat metric can act as a useful proxy here, and can be complemented with more specific data on pollinator populations where available.
- Water purification by freshwater species (e.g. bivalves) depends on the population abundance and distribution of those species, which again can be captured through targeted species selection, complemented by additional monitoring where needed.

Moving From State of Nature Metrics to insight on risk and resilience

State of Nature metrics represent a major step forward in giving businesses a consistent, credible way to measure their relationship with nature. For organisations looking to understand dependencies as well as impacts, the flexibility built into the NPI metric framework means these metrics can do more than they might first appear, particularly when configured with dependencies in mind.

At The Biodiversity Consultancy, we help organisations:

- Identify priority ecosystem services across assets, value chains, portfolios and financial activities.
- Gather and configure metrics to capture information relevant to business dependence on ecosystem services, including where services may be vulnerable to degradation and therefore where unrecognised operational and financial risks may be greatest.
- Determine where additional indicators or analysis are required and available.

For more information on our approach to translating assessments of nature-related dependencies into risk and financial materiality, see our recent webinar.

If your organisation is exploring how the consensus State of Nature metrics can support ecosystem service and dependency assessments, we would be pleased to discuss how we can help.

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