



Thought Leadership

Biodiversity monitoring: species or habitat proxy?

Why and when to monitor species directly as opposed to using habitat as a proxy.



Where business and nature thrive

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Context

Businesses are increasingly required to demonstrate how they are managing their impacts on biodiversity. Indeed, many businesses are setting ambitions and targets of 'No Net Loss' or Net Gain' of biodiversity, requiring a determination of which biodiversity features the ambition relates to, many of which may be species.

As a result, businesses need robust approaches for monitoring losses and gains across their priority biodiversity features. This Industry Briefing Note focusses on direct operations and provides a pragmatic and robust approach for assessing when it is appropriate to monitor species versus scenarios where habitats are monitored as a proxy for species abundance.



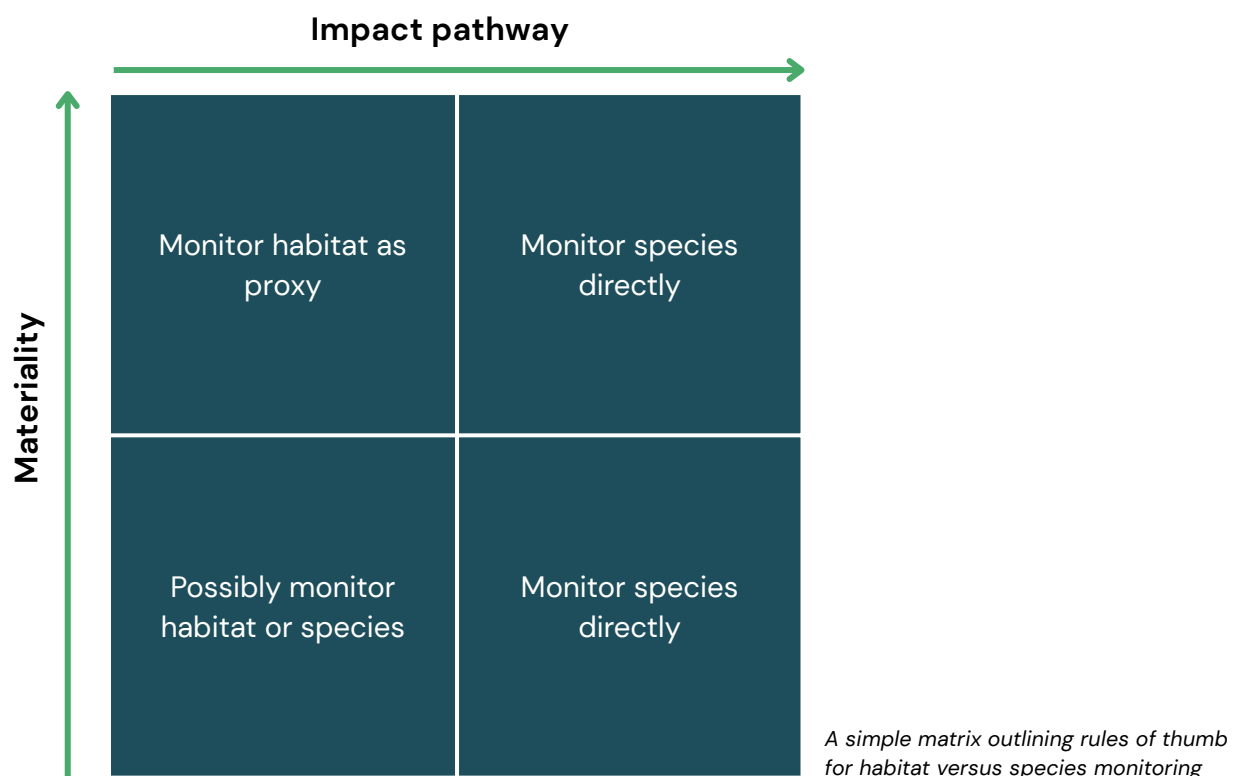
Aren't habitat metrics sufficient?

Businesses often ask why they might need to track impacts on particular species directly as opposed to indirectly monitoring the extent and condition of habitats and using this as a proxy for metrics related to the species therein. Indeed, sometimes a habitat proxy may capture changes in species in response to mitigation measures well. But in other cases, the metric may not provide enough confidence of species outcomes, or may not be a good measure for the specific species of interest (e.g. [Duffus et al., 2025](#)). A recent review of metrics used to monitor biodiversity offsets found an over-reliance on simplistic habitat-based metrics, even when species metrics were used to determine project impacts ([Marshall et al., 2025](#)). Concerns about using species metrics sometimes relate to the logistical or financial feasibility of monitoring or the number of individual species that might require bespoke monitoring. Whilst some types of species monitoring can be intensive, that is often not the case.

Navigating species monitoring

Projects considering monitoring species can navigate concerns of excessive effort or cost by considering three key things:

- You don't need to measure every species present – focus on materially useful information related to priority species.
- Measuring species is not necessarily infeasible – technology is improving and potentially underutilised (King & Halpern 2025).
- Measuring species can provide significant benefits – from demonstrating good practice, to access to finance, stakeholder collaboration, and great stories to tell.



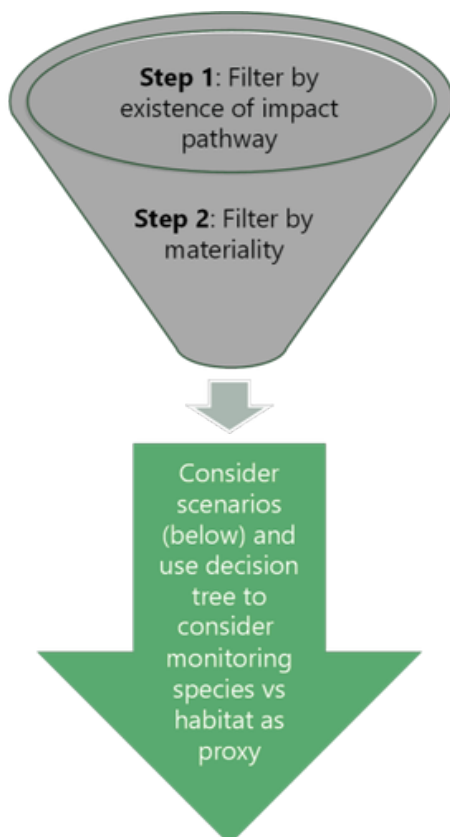
Monitoring and disclosure

Voluntary and regulatory disclosure frameworks and impact assessment regulations increasingly require assessments of the state of nature, including species, which can seem like an overwhelming task. Our proposed approach provides pragmatic steps to determine appropriate species monitoring to meet framework requirements. This can include 1) deciding upon where habitat-based metrics give enough confidence on species impacts alone, and where species-focussed monitoring is needed, and 2) deciding upon the detail and approaches needed for species monitoring where it has been deemed necessary.

When does it make sense to monitor species directly?

Our simple decision pathway helps businesses to understand which, if any, species may require tracking separately.

- **Step 1: Identify potential impact pathways.** Priority species should be shortlisted through, e.g. a Critical Habitat Assessment, Environmental and Social Impact Assessment, or using other internal criteria. Projects should review potential positive and negative project impact pathways for each priority species. Consider whether an impact pathway exists and whether the impact would be material for the species and/or the project.
- **Step 2: Consider materiality and the use case.** How might material impacts be to the species and to your business? What do you want to be able to say about this species? For more consequential impacts and/or stronger claims (e.g. claiming Net Gain for a species), species metrics should be considered. For lower consequence impacts, and where strong claims are not being made, a habitat-based metric might be sufficient.
- **Step 3: Use a decision tree to conclude a habitat or species approach for filtered species.** Apply a decision tree for the feasibility of monitoring species abundance as suggested below.



Theoretical corporate-level example #1

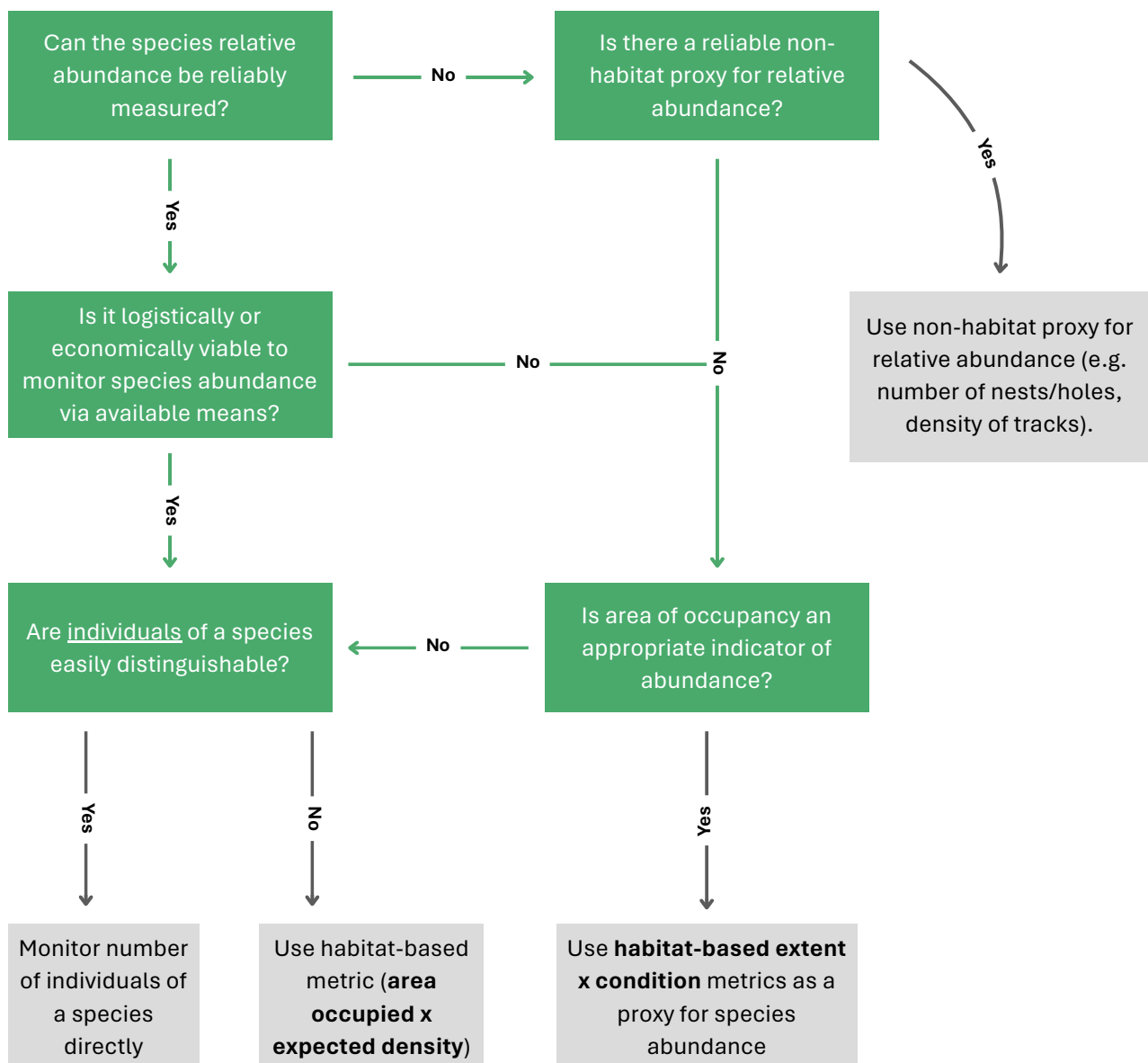
A renewable energy developer with a corporate Net Gain target is determining how to ensure projects consistently monitor losses and gains in relation to material impacts to priority species at their wind farms.

- The company conducts a biodiversity screening (e.g. using BFIS) to identify priority species with high risk of collision at their wind farms.
- They determine material risks based on the scale, scope, remediability and likelihood of impacts in line with European (ESRS E4) requirements.
- Due to the risk of direct impacts on birds and bats at a particular wind farm, and high stakeholder concern, they screen in all priority bird and bat species for a species-specific monitoring approach but screen out all invertebrates and plants to cover via a habitat-based approach.

Theoretical corporate-level example #2

A factory manufacturing chemicals is required to disclose its impacts on nature for the site and the surrounding area of influence.

- The site manager identifies a potential impact pathway for freshwater biodiversity related to water use and risk of pollution.
- A materiality screening is conducted, identifying protected and threatened species, including five freshwater fishes, a plant and a snail.
- Following the decision-tree, the manager concludes that the plant and snail populations can best be monitored via a habitat extent x condition approach, as area of occupancy is a reliable indicator of abundance. For the fishes, which are patchily distributed in pools and channels of higher habitat suitability, the decision tree recommended an approach of area occupied x expected density.



Scenarios where species-based metrics are likely to be most appropriate

- Species with small or highly localised habitat across the region
- Species whose spatial habitat use varies considerably between seasons or years.
- Species threatened by pressures unrelated to habitat quality or extent (e.g. project direct impacts, hunting, invasive species, disease, parasites).
- Species with very few individuals or populations, where loss of a small number would have disproportionate consequences for survival.
- Species whose regeneration or recovery requires specific actions not captured by habitat extent/condition (e.g. targeted management interventions).
- Species of significant stakeholder concern or high public profile.

Work with us to navigate biodiversity risks and action mitigation and monitoring measures

The Biodiversity Consultancy (TBC) supports companies across the renewables, mining and infrastructure sectors to understand, assess, and manage nature-related risks and opportunities — ensuring projects are resilient and nature positive.

Since 2006, we have partnered with leaders across energy, mining, and infrastructure to deliver effective, on-the-ground biodiversity management aligned with best practice.

Examples of some of our services relevant to full mineral-based value chains include:

- Development of Biodiversity Monitoring and Evaluation Plans to establish indicators, metrics and methods that can track progress towards biodiversity targets and enable adaptive management
- Biodiversity survey design to inform baselines, to monitor and assess impacts or to track conservation outcomes
- Specialised survey design and implementation e.g. to inform Collision Risk Modelling and setting of fatality thresholds for wind farms or post construction fatality monitoring to assess the effectiveness of mitigation measures
- Development of habitat maps and condition metrics
- Thought leadership on appropriate use of differing technologies (e.g. [eDNA](#))
- Appropriate [use of technology and data interpretation for offshore wind](#) with our partners Spoor



Contact the team

If you need to meet biodiversity disclosure requirements and determine the right monitoring approach



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