European Commission

Exploring measurement solutions for corporate Nature Positive commitments

A discussion paper from the Align project

Align | Aligning accounting approaches for nature

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Project consortium

The Align project - Aligning accounting approaches for nature - came into being with the objective to co-develop recommendations for a standard on corporate biodiversity measurements and valuation. Align was a three and a half-year project aimed at providing businesses and financial institutions with principles and criteria for biodiversity measurement and valuation. The Align project was funded by the European Commission. It was led by UNEP-WCMC, the Capitals Coalition, Arcadis, and ICF with the support of WCMC Europe.

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Executive summary

'Nature positive' is an emerging concept aiming to galvanize action by multiple actors to halt and reverse the global decline in nature. The overarching vision of nature positive is becoming clearer as multiple initiatives, largely outside of intergovernmental processes, converge on common definitions. However, additional guidance is required to help companies measure their contribution to nature positive outcomes and substantiate their claims. This discussion paper aims to address a key knowledge gap in this space by summarising existing consensus and facilitating discussion on measuring corporate contributions to nature positive outcomes to provide initial guidance. In this discussion paper, challenges of measuring corporate contributions to nature positive have been turned into a set of key messages on how these could be addressed. These are intended to be an input to ongoing discussions on this topic as we move towards agreed principles for corporate action and measurement in the context of nature positive.

Key messages

A nature positive outcome is an observable improvement in the state of nature which can be measured using existing metrics, that has not resulted in a displacement of negative impacts elsewhere. The most relevant scale for observing and assessing these outcomes is across landscapes and seascapes (e.g. a river basin, an estuary, a mountain area, a coral reef system, or sufficiently large parts of it). Therefore, nature positive outcomes can be measured, the contributions of business to these outcomes can be measured and evaluated, but businesses themselves cannot become 'nature positive'.

In line with the state-based indicators of the Kunming-Montreal Global Biodiversity Framework (GBF), which are reflected in the Align recommendations[1], a measured nature positive outcome for biodiversity at the landscape level encompasses multiple metrics, for example showing:

- An increase in the extent and condition (composition, structure and function) of natural and semi-natural ecosystems, including reductions in fragmentation and increase in landscape connectivity;
- An increase in target species[2] population size and decrease in species local and global extinction risk;
- An increase in genetic diversity;
- An increase in the range and resilience of services and benefits to business and wider society (providing that 'stocks' of nature and services are sustainable used and managed)

Applying an ecosystem accounting framework to structure metrics is recommended to monitor progress over time for the above metrics. Biodiversity measurement organised via an accounting framework enables the provision of standardised, comparable and high-quality information. Accounting can be used for both internal management of biodiversity and disclosure of corporate biodiversity performance to stakeholders.

[1] UNEP-WCMC, Capitals Coalition, Arcadis, ICF, WCMC Europe (2022) Recommendations for a standard on corporate biodiversity measurement and valuation, Aligning accounting approaches for nature. Available at: https://green-business.ec.europa.eu/business-and-biodiversity/our-activities/project-align_en

[2] As it is not efficient to measure increase or decrease of every single species within a landscape, the focus of restoration and conservation efforts is usually limited to a few well-selected target species. Selection criteria can be sensitivity to certain pressures, rarity status, representativeness for a species group, feasibility of measurement, existing data, etc.

Business should take action to contribute to nature positive outcomes (defined by relevant national stakeholders) across their value chain where they have material impacts and dependencies on nature.

The identification of priority activities and locations to focus action should be based on a robust and transparent materiality assessment underpinned through credible approaches for screening potential impacts and dependencies, as highlighted by the Align recommendations.

Business should act towards nature positive outcomes through applying two leading frameworks: the mitigation hierarchy and the conservation hierarchy, which ensures minimization of negative impacts before additional conservation actions.

While the mitigation hierarchy provides a step-by-step approach for mitigating impacts, the conservation hierarchy goes beyond and includes actions to address historical, systemic and non-attributable biodiversity loss.

The most relevant scale for achieving nature positive outcomes is landscape level but business actions contributing to these landscape level outcomes can occur at multiple nested scales.

Nature positive outcomes only become visible in landscapes. In contrast to site level, landscape level approaches provide the required scale for improving species populations, the functional relationships between species and habitats, and the overall integrity of ecosystems (including connectivity). However, Biodiversity Net Gain (BNG) approaches at site level will contribute to landscape level outcomes.

Landscape level outcomes will contribute in turn to country level and global level nature positive outcomes, on the condition that negative impacts are not displaced elsewhere, especially not to areas of greater biodiversity importance. Business actions contributing to these landscape level outcomes can occur at site level, landscape level, value chain level, corporate level and sector level.

It is recommended that companies act at every scale they can meaningfully contribute to achieving nature positive outcomes. Moreover, acting at different scales will have a mutually reinforcing impact (e.g., supply chain level transformative action towards regenerative farming, combined with targeted actions in well-defined landscapes in the supply chain).

The credibility of a company's claim of contributing to nature positive outcomes relates to demonstrable actions that have resulted in positive impacts on nature at the landscape scale. Therefore, directly measured metrics of the state of biodiversity, organised in an accounting system, are considered best practice for evidencing contributions to nature positive outcomes, alongside metrics of pressures and responses. However, if state of nature measurements in the wider landscape are not possible, companies should seek evidence on how their actions lead to positive impact.

Nature positive outcomes are defined as improvements of the state of nature at landscape and seascape level, that haven't resulted in displaced negative impacts, and can be measured through a range of state-of-nature metrics. Measuring business contributions to these outcomes requires measuring different elements of the 'Pressure-State-Response' framework and a known causal chain between these three elements. This can be considered within an 'evidence hierarchy' in terms of assessing business contributions:

- response indicators only: the lowest robustness of evidence for outcomes are response indicators which describe or quantify actions taken, with no assessment of outcomes (e.g. detailing engagement with farmers in agrifood supply chains).
- pressure indicators: the next 'tier up' is measurement of the pressure reductions that result from the actions taken (e.g. nitrogen emissions reductions through reduced use of fertilizers).
- state indicators, alongside pressure and response- the most robust evidence for a nature positive contribution is through directly tracking improvements in the state of nature, alongside pressure and response indicators (e.g. increased soil biodiversity).

Contributions to transformative change, a characteristic widely established to be key for a nature positive strategy, need to be measured too, but likely require a different approach to measurement than the outcomes-based approach at specific sites and landscapes.

Transformative change refers to the need to fundamentally revise existing social and economic systems in order to obtain a substantial shift towards a much more sustainable production and consumption model. In a business context, this translates into the need to adapt a company's strategy and underlying business model to fully integrate nature. This will lead to potentially impactful avoidance and reduction measures (e.g. circular economy, regenerative farming) and might even lead to innovative investment approaches in ecosystem restoration (e.g. widespread implementation of nature-based solutions). Consensus on specifications of 'transformative change', and 'nature positive business models' are still evolving.

Nature positive outcomes at landscape level will only be achieved and measured by means of multistakeholder cooperation. The level of a business' accountability in this multi-actor and multi-scale effort depends on the scale of action and the specific context.

In a nature positive setting, four aspects are relevant in terms of responsibility and accountability:

- Target setting ('who is responsible for setting the target for nature positive outcomes?')
- Taking action: technical, financial, advocacy ('who should be responsible for taking action at this scale?')
- Measuring outcomes ('who is responsible for measuring and monitoring Nature Positive outcomes, and what should business be measuring?')
- Ultimate accountability for achieving outcomes ('who holds ultimate accountability if Nature Positive outcomes are not achieved?').

Tracking changes in state-of nature to evaluate nature positive outcomes will mainly be the responsibility of other actors given the scale required (public authorities, NGOs; except for large landowners) but business should take responsibility to contribute to this measurement, proportional to their accountability and influence.

Furthermore, as measurement approaches will vary according to the type of actions, it will be challenging to calculate aggregated figures on corporate contributions to nature positive outcomes. As the objective is not to become a nature positive company, but to contribute to nature positive outcomes, such aggregated figures make more sense at the landscape scale, where a net improvement of the state of nature should be achieved through joint action by all stakeholders.

Many measurement challenges for assessing contributions to nature positive action remain, notably the measurement of 'avoidance' actions, consensus around suitable reference conditions for assessing 'uplifts' in the condition of ecosystems and measuring the outcomes of actions that are not linked with specific locations and landscapes (such as moving towards more circular business models).

1. Introduction - The biodiversity crisis and the emerging concept of 'nature positive'

Nature continues to decline at an unprecedented rate, undermining our ability to achieve Sustainable Development Goals.[3] Addressing and reversing nature loss requires a whole-of-society approach in which business and financial institutions take a leading role. This concerted effort aims to pave the way for the full recovery of nature by 2050, with the overarching objective of transitioning towards a 'nature-positive', net-zero emissions and socially equitable world.

Recognising their dependency on the natural world, more and more companies are embedding a nature positive vision in their corporate strategy and commitments. Businesses and environmental organisations have started to coalesce into coordinated initiatives to develop thinking and guidance around the concept of nature positive[4], which has largely been developed outside of intergovernmental processes. These initiatives have resulted in increasing consensus on how to define or interpret this concept in a business context.[5]

However, while the overarching vision is becoming clearer as multiple initiatives converge on common definitions, additional guidance is required to help companies measure their contribution to nature positive outcomes and substantiate their claims. In line with its mandate to provide guidance on corporate biodiversity measurement, the Align project aims to address a key knowledge gap in this space by providing guidance to measure corporate contributions to nature positive outcomes.

This paper, intended for sustainability professionals in the business and NGO community but also for the wider 'nature positive community', aims to explore avenues to measure corporate contribution to a nature-positive society. It sets out a logical approach to measure these contributions at different scales and geographies. Building on the Align recommendations for corporate biodiversity measurement and valuation[6] it provides clarity on metrics and measurement approaches in the context of nature positive contributions to assess outcomes of corporate action and foster accountability.

2. Overview of the methodology underpinning the study

This guidance was developed based on an in-depth literature review and a series of consultations with the Align community, including two workshops taking place in October and December 2023 focusing on corporate measurement solutions for nature positive. Individual consultations with specific organisations and coalitions focusing on measurement of nature positive contributions have also taken place in early 2024. The consultations culminated with a final workshop in May 2024 where the research results were tested, discussed and revised accordingly.

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[3] IPBES (2019) Global assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Brondízio, E. S., Settele, J., Díaz, S., Ngo, H. T. (eds). IPBES secretariat, Bonn, Germany. 1144 pages. ISBN: 978-3-947851-20-1.

[4] For example, the Nature Positive Initiative (NPI) represents conservation organisations, institutes, and business and finance coalitions coming together with the mission to "drive alignment around use of the term 'nature positive' and support broader, longer-term efforts to deliver nature-positive outcomes".

[5] EU B&B Platform (2022) Nature positive in a business context. Current working definition. Available at: https://circabc.europa.eu/ui/group/da655eff-acfa-4b21-a366-2795d0e7de39/library/e758f73e-c2bb-4b53-92ec-34c5af804a1e/details?download=true%3F

[6] UNEP-WCMC, Capitals Coalition, Arcadis, ICF, WCMC Europe (2022) Recommendations for a standard on corporate biodiversity measurement and valuation, Aligning accounting approaches for nature. Available at: https://green-business.ec.europa.eu/business-and-biodiversity/our-activities/project-align_en

3. What are nature positive outcomes?

The concept of nature positive is embedded in halting and reversing the global decline in nature. A nature positive outcome is therefore an observable and measurable increase in the state of nature[7] that has not resulted from displacing impacts elsewhere (see Figure 1). The most relevant scale for nature positive outcomes to be achieved is across landscapes and seascapes. Therefore, businesses contribute to nature positive outcomes, rather than themselves become 'nature positive'.

More concretely, in line with the state-based indicators of the Kunming-Montreal Global Biodiversity Framework (KM-GBF) which are reflected in the Align recommendations[8] on the state of nature, a measured nature positive outcome for biodiversity encompasses multiple metrics, for example showing:

- An increase in the extent and condition (composition, structure and function) in natural ecosystems, including reductions in fragmentation and increase in landscape connectivity;
- An increase in target species population size and decrease in species local and global extinction risk;
- An increase in genetic diversity;
- An increase in the range and resilience of ecosystem services and benefits to business and wider society, including Indigenous Peoples and local communities, women and girls and other groups of people who are considered vulnerable.

Box 1 Measuring nature positive outcomes according to key initiatives

The Nature Positive Initiative (NPI) are developing a framework identifying metrics to measure nature positive outcomes. These include nature metrics for 1) species, 2) ecosystems, and 3) natural processes at all scales.[9] This approach is consistent with the IUCN Commission on Ecosystem Management's Impact Mitigation and Ecological Compensation Thematic Group (IMEC). In their draft for consultation[10] the IMEC proposed pathways, metrics and mechanisms for setting and delivering targets on two aspects of the Nature-Positive global goal (i.e. extent and ecological integrity of habitats, and extinction risk of species). They recognised the difficulty to measure the other components of biodiversity (e.g. function of species in their ecosystems, extent and abundance of species and genetic diversity) in a way that companies can use to formulate and deliver contributions.

Measuring outcomes need to be based on responsive indicators (i.e., responding to actions) with consistent time-series to track change over time. Applying an ecosystem accounting framework to structure metrics is recommended to monitor progress over time.

The most relevant scale for achieving these outcomes occurs across whole landscapes and seascapes (e.g. a river basin, an estuary, a mountain area, a coral reef system, or sufficiently large parts of it). More guidance on how landscapes may be delineated in a nature positive context is provided in Section 7.2, but overall landscape level reflects the area needed for restoring species populations, the functional relationships between species and habitats, and the overall integrity of ecosystems (including connectivity). Note that in the case of species with moderate to large population sizes or migratory populations, both species population size and extinction risk must

[7] In this paper, the focus is on biodiversity specifically

[8] UNEP-WCMC, Capitals Coalition, Arcadis, ICF, WCMC Europe (2022) Op. Cit.

[9] NPI (2023) The Definition of Nature Positive. Available at: https://www.naturepositive.org/app/uploads/2024/02/The-Definition-of-Nature-Positive.pdf

[10] Impact Mitigation and Ecological Compensation Thematic Group (IMEC) (2023) Measuring Nature-Positive. Setting and implementing verified, robust targets for species and ecosystems. Available at: https://www.iucn.org/sites/default/files/2023-11/iucn-nature-positive-contribution-v1.0.pdf

be measured at ecologically relevant scales, which may be larger than a single landscape; in those instances, monitoring across multiple landscapes is necessary for accurate assessments. Landscape approaches also offer place-based strategies for integrated management of land, water and living resources that promotes the conservation and sustainable use of biodiversity in an equitable way, an objective pursued by the ecosystem approach of the CBD[11]. This is less the case at site level. Action at the site level is however important to achieving landscape level nature positive outcomes.

4. The role of businesses in achieving nature positive outcomes

Business has a key role to play in achieving positive outcomes in the state of nature. Across operations, businesses have negative impacts on biodiversity through exerting pressures, including land use, pollution and contributions to climate change through GHG emissions. Reduction in these pressures is fundamental to contributing to halting the current rates of biodiversity loss. Business can also then support improvements of the state of nature (‘reversing the curve of biodiversity loss’). Two leading frameworks capture these contributions: the mitigation hierarchy and the conservation hierarchy[12]. Both terms are very related. While the mitigation hierarchy provides a step-by-step approach for mitigating impacts and is typically applied at sites, the conservation hierarchy goes beyond and includes actions to address historical, systemic and non-attributable biodiversity loss. Both types of actions can be accounted for in the same framework to guide business strategies ‘the mitigation and conservation hierarchy’ (Figure 1).

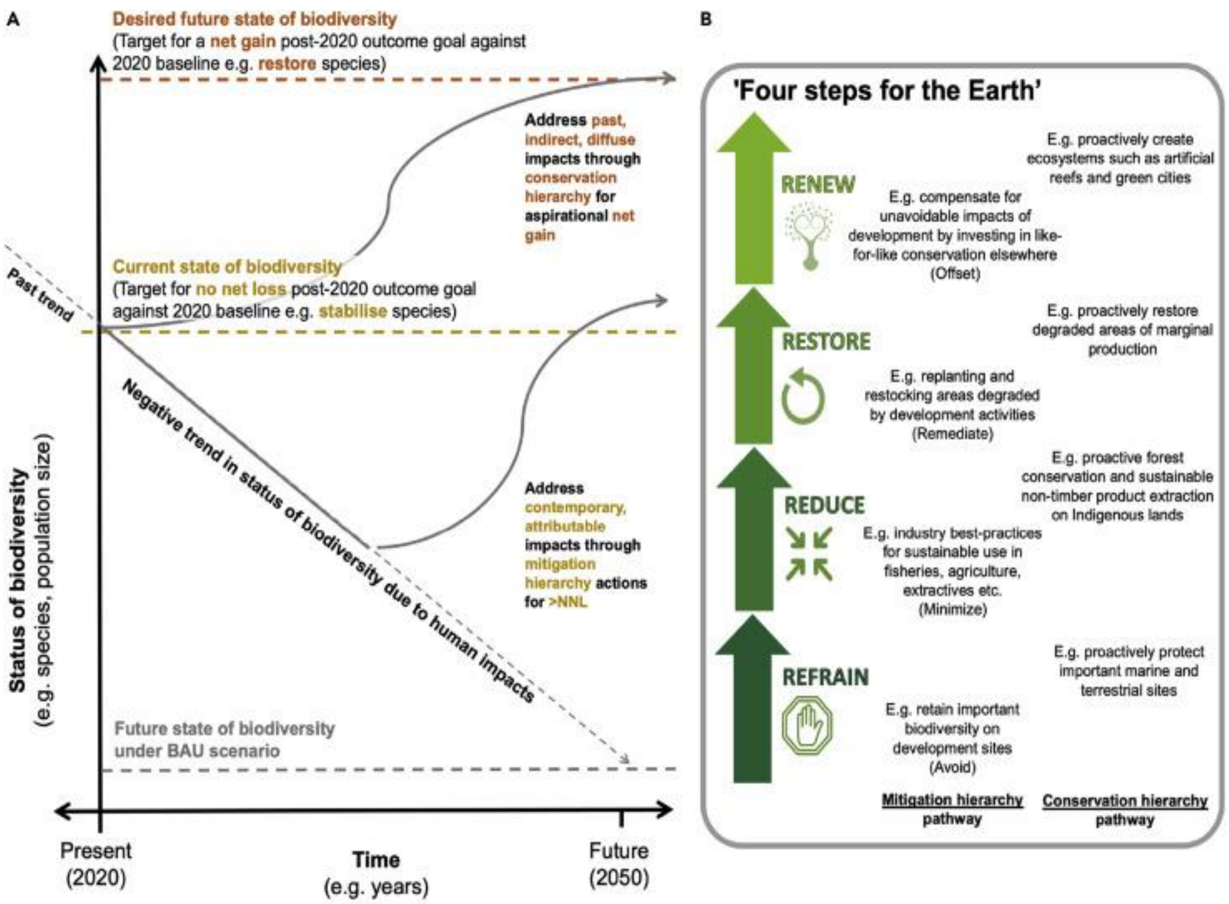

Figure 1: Mitigation and conservation hierarchy - Source Milner-Gulland, E.J., et al. (2021)

[11] CBD (2024) Ecosystem approach. Available at: https://www.cbd.int/ecosystem

[12] These two levels are explicitly mentioned in TNFD’s definition of mitigation hierarchy (TNFD Glossary)

- **Refrain - Retain Biodiversity, Avoid Impacts** are the foundation of the mitigation hierarchy and a first step to reduce negative impacts of a company's activities on biodiversity (e.g., avoided conversion of ecosystems).
- **Reduce,** Minimisation or **reduction measures** are a broad range of technical measures to mitigate impacts, i.e., decreasing their magnitude, frequency, severity, etc.
- **Restore and remediate-** are **reactive measures to restore environmental damage** due to the company's activities (e.g., habitat loss due to accidental pollution).
- **Renew**- **Offsets** can be implemented to compensate for residual impacts after application of avoidance, reduction and restoration measures and to achieve a no net loss (NNL) outcome e.g., at site level. Offsets are only acceptable as a last resort, i.e., after applying the preceding stages of the mitigation hierarchy.

The proper implementation of the mitigation hierarchy is fundamental to contribute to nature positive outcomes, but further action is also needed on top of the steps of the mitigation hierarchy: **proactive investment in conservation and restoration** of ecosystems is required too (which is an element that is more fully articulated in the conservation hierarchy). Site level net gain approaches are an illustration of this concept. Other examples are nature-based solutions, investments in nature restoration by means of investments in landscape-scale initiatives, or other conservation financing mechanisms including biodiversity credits, etc.

Applying the mitigation and conservation hierarchy will contribute to achieving nature positive outcomes across landscapes. This is fully in line with SBTN's AR3T approach[13] (Figure 2) which drew from the mitigation and conservation hierarchy while adding the notion of "transformative change" as part of nature positive concept.

Transformative change refers to the need to fundamentally revise existing social and economic systems to obtain a substantial shift towards a much more sustainable production and consumption model[14]. In a business context, this translates into the need to adapt a company's strategy and underlying business model to fully integrate the value of nature, thereby also contributing to wider societal transformation.

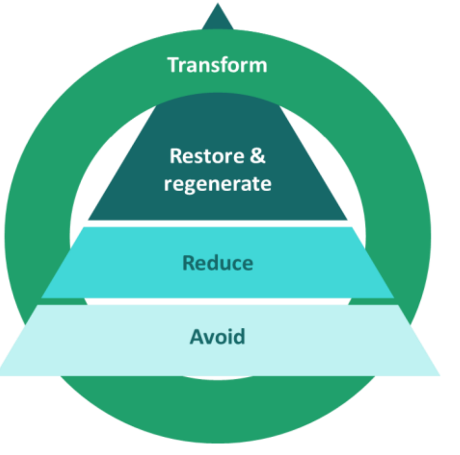

Figure 2: Nested levels of action, based on SBTN AR3T framework, can contribute to nature positive outcomes – Source: SBTN (2020)

While we do not seek to define transformative change in this report or define a 'nature positive business model', transformative actions are likely to lead to more impactful avoidance and reduction measures (e.g. circular economy, regenerative farming). Transformative change could also lead to innovative investment approaches in ecosystem restoration (e.g. widespread

[13] SBTN (2020) Initial guidance for business. Available at: https://sciencebasedtargetsnetwork.org/wp-content/uploads/2020/11/Science-Based-Targets-for-Nature-Initial-Guidance-for-Business.pdf

[14] IPBES (2024) Concepts. Available at: https://www.ipbes.net/ppdocuments/transformative-change

implementation of nature-based solutions). Transformative actions are however, inherently more challenging to measure using outcome-based metrics. Transformative change is rather measured by response indicators.

Many nature positive outcomes will become visible at landscape scale but business actions contributing to these landscape level nature positive outcomes can occur at multiple nested scales (Figure 3). Examples of actions at all these levels are discussed in Section 7. Positive trends in nature across landscapes will in turn contribute to positive trends at country and global levels.

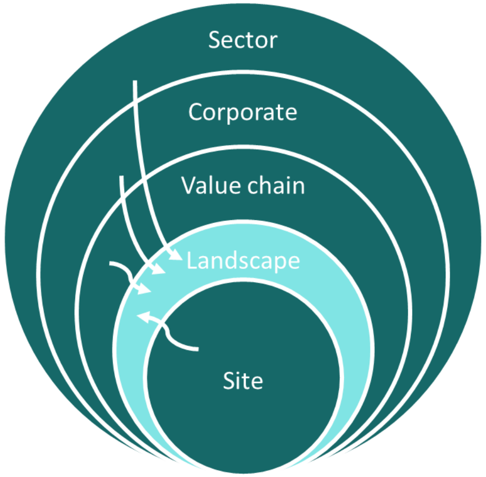

Figure 3: Nested scales of action can contribute to landscape level outcomes – Source: Own figure

Corporate nature positive roadmaps are the ideal instrument for describing these contributions and should include actions at multiple levels. Corporate nature positive roadmaps are prescribed by both regulatory and voluntary disclosure initiatives.[15]

5. Evidencing nature positive contributions

Once the priority biodiversity issues and locations have been identified throughout a company's value chain[16], it is important to measure the actions taken to address them and their outcomes. This in turn will allow an evaluation as to whether a business' contributions to nature positive outcomes are in line with the scale of their potential negative impacts.

Businesses should therefore **collect evidence on how their actions have contributed to nature positive outcomes**. Measuring business contributions to these outcomes, however, may be more derived than on-the-ground monitoring of state. Measuring different elements of the 'Pressure-State-Response' framework can therefore be considered within an '**evidence hierarchy**' in terms of assessing business contributions (Figure 4).

- Responses: the lowest robustness of evidence is relying only on response indicators which describe and/or quantify actions taken. They rely on an assumed or proven link between actions and outcomes which may be well known or highly uncertain. Descriptions of actions that lie outside of the mitigation and conservation hierarchy, such as additional advocacy actions, are the most far-removed from on the ground outcomes. Other examples are awareness raising or training of stakeholders (e.g. farmers in agrifood supply chains) or the use of other machinery or techniques which are supposed to have lower impacts on nature.
- Pressures: The next 'tier' up on the evidence hierarchy is measurement of pressures (pressure indicators), and demonstration of reductions in

[15] ESRS E4, TNFD and GRI 101 all refer to the concept of 'transition plan' which describes the actions to strengthen an undertaking's resilience to nature-related changes, developments and uncertainties and to achieve alignment of its business model and strategy with the vision of the Kunming-Montreal Global Biodiversity Framework

[16] In line with the suggested approaches by TNFD, SBTN, ESRS E4 (CSRD) and GRI 101

line with targets. This tier also includes using model-based approaches which estimate change of state of nature based on pressures. As outlined in the Align recommendations, such approaches estimate 'potential' impacts on state, and therefore are less accurate or spatially specific compared to directly measuring state outcomes on the ground.

- State: The most robust evidence for a nature positive contribution is through directly measuring the state of nature on the ground by means of state indicators. However, to allow attribution of outcomes to different actions, it is important to complement measurement of state with pressure and response indicators, and evidence of the causal link between them.

As a consequence, the credibility of a company's nature positive claim will be highly related to the evidence the company can demonstrate in terms of how its actions have resulted in positive impacts on nature. The most credible evidence 'backs up' response metrics with both pressure and state metrics. However, even if state of nature measurements 'outside the fence' are not always possible, companies should seek evidence on how their actions have positive impact on the ground.

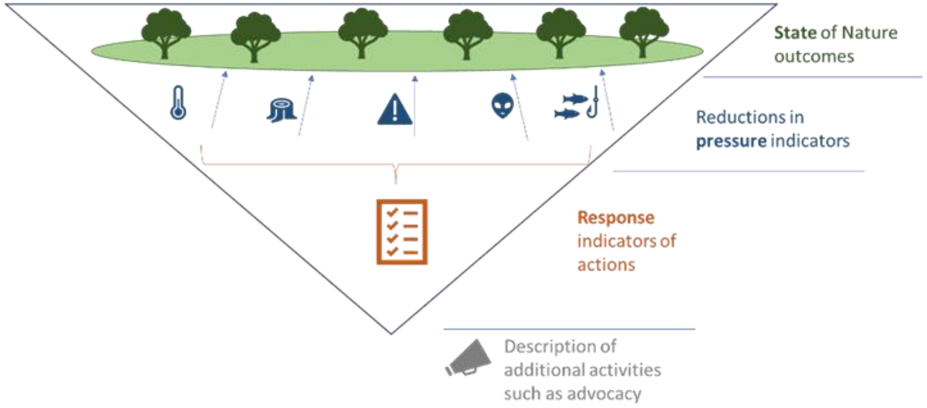

Figure 4. Evidence hierarchy presented in this discussion paper – Source: Own figure

6. Challenges related to measuring contributions to nature positive outcomes

Building from the mitigation and conservation hierarchy of actions, and the evidence hierarchy for outcomes presented above, particular technical challenges arise relating to measuring contributions. These include:

- Assessing in which cases business must demonstrate contributions through state indicators (species, ecosystems etc.) therefore assessing actual impacts or change of state or when measuring pressure and response-based indicators, thus contributing to the estimation of potential impacts, is sufficient.
- Measuring the outcomes of corporate decisions and actions that have no direct connection with specific landscapes. As an example, corporate actions aimed at reducing plastic waste for instance in the downstream part of the value chain might have positive impacts in many seascapes globally.
- Capturing the outcomes of 'avoidance' actions. Avoidance actions are the foundation of the mitigation hierarchy and are essential for halting biodiversity loss. However, they only support 'positive' outcomes against a counterfactual, rather than directly resulting in increases in the current state of nature.
- Defining appropriate and consensus-based 'reference conditions' for calibrating measures of uplift (i.e., uplift measured on a scale between the baseline and the 'targeted state' or 'reference state').
- Comparing the outcomes of actions taken by a business against the business' overall negative impacts at different levels. While a 'net positive' approach stems from site-level frameworks, aggregating 'net' contributions to nature positive outcomes across whole value chains and businesses is less likely to be feasible, justifiable, or able to be accounted

for robustly. Moreover, 'net positive' outcomes make much more sense at a landscape scale, where a net improvement of the state of nature should be achieved through joint action by all stakeholders.

- Many companies have low traceability within their value chains and often change suppliers over time. As a result, it can be challenging to assess outcomes even if improved practices are influenced through common mechanisms like supplier agreements or use of certification programs.
- Determining what is or are the target species to focus measurement around, as most businesses and landscapes interact with hundreds of species if not more, each with diverse values that may be of importance to both people and the ecosystem.[17]
- Defining and measuring impacts of 'transformative change'.

An individual company may only have a minor influence on achieving nature positive outcomes in landscapes. The success of achieving nature positive outcomes such as restored populations of target species is dependent on many factors (see Box 2). Most of them are within the spheres of control of landscape actors (such as local authorities, NGOs, farmers and businesses with a dominant role in the landscape) but some of them lie outside of spheres of control. For example, habitat loss or degradation along bird migration routes can result in decreasing populations. These external factors may compromise the outcomes of business actions to increase local bird populations in the specific landscapes where they are taking action.

[17] IPBES (2022) Methodological Assessment Report on the Diverse Values and Valuation of Nature of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Balvanera, P., Pascual, U., Christie, M., Baptiste, B., and González-Jiménez, D. (eds.). IPBES secretariat, Bonn, Germany. DOI: https://doi.org/10.5281/zenodo.6522522

Box 2 Examples of factors affecting state of nature outcomes in landscapes and seascapes

- **current state of nature and how this is expected to evolve in the future due to inherent ecosystem dynamics**
- **effects of pressures outside the landscape or seascape** (e.g. air pollution, water pollution and plastic pollution by broad range of terrestrial activities (households, agriculture, industrial) affecting the marine environment, water scarcity due to high water consumption of groundwater/surface water by stakeholders outside the landscape)
- **type of activities of other stakeholders in the landscape and cumulative impacts**
- **level of commitment of other stakeholders in the landscape to contribute to nature positive outcomes**
- **control and ownership of stakeholders in relation to crucial areas (e.g. who has control over land use policies? can they be influenced?)**
- **complexity in terms of stakeholders with conflicting interests (more stakeholders require more consultation and alignment efforts)**
- **shifting corporate operations and supply chains, and the standards, frameworks, and regulations influencing decisions**
- **availability of landscape level biodiversity strategy, targets, and appropriate indicators, their level of quality including alignment with best practice for conservation theory of change and monitoring, evaluation, and learning strategy, and stakeholder buy-in**[18]
- **institutional capacity of local authorities in terms of regulatory regime, skills (e.g. knowing how to define nature positive targets), resources and compliance monitoring (including means to impose corrective action to stakeholders);**
- **presence of NGO(s) with capacity to assist stakeholders to move towards nature positive outcomes (e.g. Water Stewardship initiatives)**
- **climate change**
- **level of donor funding for nature restoration**
- **availability of high quality, openly and freely accessible state of nature data to support collective decision making, and the existence of public data repositories to support adaptive management over time**

[18] Conservation Standards (n.d.) About Conservation Standards. Available at: https://conservationstandards.org/about/

7. A multi-level framework for measuring contributions to nature positive outcomes

7.1 Introduction

Taking action for and measuring contributions to nature positive outcomes is a **multi-actor and multi-level effort**. In a nature positive setting, we present four aspects that are relevant in terms of the **responsibility** and **accountability**:

1. Responsibility for **target** setting ('who should set the target for nature positive outcomes?'): defining the envisaged nature positive outcomes in priority landscapes (priority landscapes are those landscapes where priority locations have been defined during a business' materiality assessment).
2. Responsibility for **taking action** ('who should be responsible for taking action at this scale?'): different types of actions will contribute to nature positive outcomes to different extents, ranging from technical actions to funding actions (e.g., funding actions of local NGO) and advocacy actions.
3. Responsibility for undertaking **measurement** ('who is responsible for measuring and monitoring nature positive outcomes?'): this applies to both measuring pressures and measuring state and applies to baseline monitoring as well as to monitoring progress in terms of nature positive outcomes. Measuring state of nature 'outside the fence' is not common practice for businesses. This raises the question of who is responsible for measuring state and its changes at landscape scale.
4. Accountability for the **outcomes**, i.e., achieving nature positive outcomes (i.e. 'who holds ultimate accountability if nature positive outcomes are not achieved?').

Accountability applies to each of these four aspects, but the level of a business' accountability depends on the scale of action and the specific context. Similar thinking has taken place by ISEAL on business contributions to landscape level performance outcomes (Box 3).

This section is structured in four subsections corresponding to different levels of action. We focus on the first four levels of actions and do not cover sector-level transformations and measurement in this report. The different levels are clarified in Box 3.

Each subsection includes a table with a framing of the accountability issues (target-setting, taking actions - including funding actions, measuring, and achieving desired outcomes), followed by fictitious case studies and a discussion of measurement solutions ('recommendations'). These tables aim to address some of the measurement challenges presented above, acknowledging that many still remain.

Action should be taken by a business at all relevant levels where they have material impacts and dependencies on biodiversity. Importantly, actions should be built off the mitigation and conservation hierarchy (see Figure 1). Similarly, measurement recommendations at each level consider measuring outcomes of individual actions. This is separate from discussion on aggregating net contributions across value chains or companies

Box 3: Types of claims related to landscape level performance outcomes (ISEAL[19])

Companies can make different claims depending on how much ownership and responsibility they have for the outcome. By way of example, if a number of companies invest in riparian habitat restoration in a watershed, each company could potentially make one of the following three types of claims:

Collective claim – the company is part of a collective effort that contributed to this landscape performance outcome "Our investment in riparian zone restoration is part of a collective effort that has contributed to an increase in water quality in this landscape by 20% over 5 years."

Proportional claim – the company is claiming this part of the landscape performance outcome "Our investment in riparian zone restoration is part of a collective effort that has contributed to an increase in water quality in this landscape by 20% over 5 years. Our contribution enables us to claim 3% of the total water quality improvement."

Attribution claim – the company is responsible for this project-level outcome in line with shared landscape goals "Our investment in this watershed resulted in 10km of riparian habitat being restored, in support of the landscape initiative goal to improve water quality."

Source: ISEAL (2023)

[19] ISEAL (2023) Joint position paper by the Landscape and Jurisdictional Practitioner Community of ISEAL. Available at: https://www.isealalliance.org/sites/default/files/resource/2023-08/Effective-company-claims-about-contributions-to-landscape-outcomes_ISEAL_08-2023.pdf

Box 4 Clarification on the different levels

SITE LEVEL

Site level refers to sites of a company's direct operations (e.g. offices, manufacturing), and specific projects or programs (e.g. road infrastructure, renewable energy infrastructure, mine sites), which:

- already exist, are being developed or planned
- can be accurately delineated and fall within the responsibility of the company (e.g. owned, managed, leased)

Business activities at site level cause direct and indirect impacts[20] in a spatially defined area, within (on-site) and beyond (off-site) the boundaries of the site- referred to as the 'area of influence'[21]. Site level actions take place on-site, but can have impacts off-site.

LANDSCAPE LEVEL

The term 'landscape' is very broad and there are many different interpretations according to the specific context. A suitable definition is the following:
"A landscape is a socio-ecological system that consists of natural and/or human modified ecosystems, and which is influenced by distinct ecological, historical, economic and socio-cultural processes and activities. A "landscape approach" is a way of managing the landscape by long-term collaboration among multiple stakeholders, with the purpose of achieving sustainable landscapes. It involves convening key stakeholders to build consensus about landscape management and decision making."[22]

The assumption in this context (i.e. achieving nature positive targets) is that a pragmatic approach is required for defining a landscape, based on criteria such as:

- covering at least the area affected by local impacts ('Area of influence') but often extending beyond;
- covering at least the area providing the ecosystem services the business is dependent on (example: if you are dependent on surface water fed by glaciers, these glaciers should be part of the landscape);
- administrative unit (e.g., a county, a province, a municipality) or ecosystem type (e.g. boreal forest, wetland, temperate grassland); in some cases it is worth delineating a landscape on the basis of administrative boundaries as it might facilitate data collection (data are often available at the level of a province, a municipality, but often also by ecosystem types)

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[20] TNFD definition of direct impacts: A change in the state of nature caused by a business activity with a direct causal link. TNFD definition of indirect impacts: a change in the state of nature caused by a business activity with an indirect causal link (e.g. indirectly caused by climate change generated by greenhouse gas emissions).

[21] A full definition of 'area of influence' can be found in UNEP-WCMC's glossary of terms: UNEP-WCMC (2021) Biodiversity A to Z. Area of influence. Available at: https://www.biodiversitya-z.org/content/area-of-influence-aoi

[22] WWF (2024) Sustainable Landscapes. Available at: https://forestsolutions.panda.org/approach/sustainable-landscapes#:~:text=Landscapes%20are%20where%20WWF's%20work%20touches%20the%20ground.%20A

LANDSCAPE LEVEL (continued)

It is recommended to define the relevant boundaries of the local landscape through multi-stakeholder platforms that are business or NGO led (corporate landscape engagement), in particular where no government-defined nature positive targets are available.

The landscapes in scope here are priority landscapes throughout a company's value chain, i.e. landscapes in supply chains and landscapes surrounding identified 'priority locations'[23].

In contrast to site level actions, landscape level actions are always implemented off-site and require cooperation with other stakeholders. For instance, site level business activities might require high amounts of freshwater or groundwater – which affects state of nature in the area of influence which often extends into the wider landscape. In this case, actions to reduce this water extraction are covered under site level, while actions to increase water retention upstream (and in this way also benefitting the site) require a multistakeholder approach and landscape level action.

Figure 5 illustrates the landscape concept and how this differs from a site's operational area ('within the fence') and 'area of influence'. The figure also clarifies that business might take action in different landscapes (which do not have to be geographically connected) throughout their value chain.

VALUE CHAIN LEVEL

- Value chains comprise both the upstream (e.g. sourcing and production of raw materials, intermediate products, machinery) and downstream (e.g. transportation and distribution of products, products' use and end-of-life) parts of a company's activities.
- Action is prioritized in priority value chains, i.e. those with the highest impact on nature (e.g. high impact commodities).

Value chains include sites (direct operations e.g. extraction site, manufacturing of machinery) and landscapes (e.g. crop cultivation) but direct operations are covered under site level (see section 7.1) and landscape level actions in specific landscapes within supply chains are covered under landscape level (see section 7.2). Value chain level actions contributing to nature positive outcomes are therefore focused on systemic transformation of (parts of) the value chain. Examples are certification programmes, green procurement and supplier engagement, product labelling.

[23] TNFD uses the concept of priority locations which combines **material locations**, i.e. locations where the company has identified material nature-related issues, and '**sensitive location',** i.e. locations where the assets and/or activities in its direct operations – and, where possible, upstream and downstream value chain(s) – interface with nature in areas deemed to be ecologically sensitive, i.e./including: a) Areas important for biodiversity; b) Areas of high ecosystem integrity; c) Areas of rapid decline in ecosystem integrity; d) Areas of high physical water risks; e)Areas of importance for ecosystem service provision, including benefits to Indigenous Peoples, Local Communities and stakeholders

CORPORATE LEVEL
▪ Corporate level action in this multi-level nature positive context refers to transformative changes in the company's strategy or business model resulting in a substantial reduction (including avoidance) of pressures on biodiversity, and/or a substantial increase of ecosystem conservation and restoration. *As corporate level action is designed to influence their direct operations and value chains, there will be overlap with other scales. Corporate level action therefore includes, and goes beyond, the full suite of actions that companies take across portfolios of sites, landscapes, and value chains. e.g., switches to regenerative farming across key supply chains, decisions not to source raw materials in Key Biodiversity Areas.*

Figure 5: Sites and supply chains are embedded in wider landscapes – Source: Own figure

7.2 Site level

For most companies, site level action is the easiest way to start contributing to nature positive outcomes. Table 1 below describes the responsibility and accountability issues as well as the recommended measurement approaches which typically apply at site level.

Table 1 Responsibility, accountability and recommended measurement approaches for site level nature positive actions

Responsibility for **TARGET SETTING (who should set the target for nature positive outcomes?)**	Responsibility for **TAKING ACTION / FINANCING (who should be responsible for taking action at this scale?)**	Responsibility **on UNDERTAKING MEASUREMENT (who is responsible for measuring and monitoring NP outcomes?)**	**Accountability for the Nature Positive OUTCOME (who holds ultimate accountability if Nature Positive outcomes are not achieved?)**
Company sets targets for its site, aligned with broader landscape level targets if available and aligned with meaningful ecological thresholds	Company takes action at site level to reduce pressures and/or to enhance biodiversity	Company (measures of pressures and state)	Company fully accountable for outcomes within site boundaries and from offsets, with shared accountability for overall landscape-level outcomes where multiple actors may influence outcomes.[24]
Example 1: As part of its commitment to contribute to nature positive, a beverage company decides to reduce groundwater extraction in all sites, with more ambitious targets in water scarcity areas. This will also have positive impacts on biodiversity.			
Company sets targets unless stricter targets are imposed in permit; target setting should be locally specific and take both ecological thresholds and societal goals into account. Targets can be influenced by river basin processes (preferably in consultation with external parties (e.g. academia, NGO).	Company takes appropriate site-level actions e.g., internal reuse of water or switching to less water intensive production processes.	Company measures the volume of water used, and support monitoring of water availability in the wider basin., Company also measures financing provided to restoration projects in the landscape as a response indicator. While a site-level action, biodiversity outcomes will be achieved beyond the site boundaries. Business is not accountable for monitoring state outcomes but can actively contribute to a collective monitoring effort.	Company has full control over site level actions, including for pressures generated on site that impact the area of influence, but is not fully accountable for biodiversity outcomes off-site. However, if off-site landscape level outcomes are not achieved, company should reconsider appropriateness of on-site actions and whether more ambitious reduction targets are required. This might result in adaptive management of on-site measures and/or engagement with other stakeholders in the landscape.
Type of action	Reduce (water abstraction) – Restore (ground water tables)		
Measurement approach (company)	▪ Primary data (company data) on groundwater extraction (e.g. m^3/year), eventually split over dry season/wet season. ▪ A third party (e.g. local authority, NGO) measures the landscape level biodiversity outcomes for selected biodiversity indicators of all site level actions to reduce water extraction. ▪ Company is responsible for active follow-up of monitoring outcomes by third parties and potentially active follow-up of actions by other stakeholders (by means of process-based indicators).		

[24] Climate change impacts at site level are an exception, as this is out of control of any company; accidental pollution caused by neighbouring actors (e.g. other companies, farmers) are within scope as the site owner is accountable for taking action to remediate this, eventually by means of lawsuits against the polluters

Responsibility for **TARGET SETTING** **(who should set the target for nature positive outcomes?)**	Responsibility for **TAKING ACTION / FINANCING** **(who should be responsible for taking action at this scale?)**	Responsibility **on UNDERTAKING MEASUREMENT** **(who is responsible for measuring and monitoring NP outcomes?)**	**Accountability for the Nature Positive OUTCOME** **(who holds ultimate accountability if Nature Positive outcomes are not achieved?)**
Example 2: As part of its commitment to contribute to nature positive, a mining company decides to apply a Biodiversity Net Gain policy on all new sites beginning in 2025			
Company (corporate) defines target on Biodiversity Net Gain for all new sites beginning in 2025	Company takes site level actions (avoidance of habitat loss in planning process, pressure reduction[25], on-site reactive and proactive restoration if possible) and off-site reactive (offsets) and proactive restoration if needed or desirable. Company could also fund off-site restoration (offsets via habitat banking, credits via certification scheme) which may be regulated or unregulated.	Company is responsible for measurement of baselines and biodiversity losses and gains within site boundaries (with third party involvement in case of offsets and credits)	Company has high level of accountability for achieving net gain (credibility of offsets and credit schemes – whether government-administered, regulated, or unregulated – is responsibility of company). Shared accountability for wider landscape-scale outcomes.
Type of action	Refrain (avoid habitat loss)– Reduce (pressure reduction measures) - Restore (on-site restoration measures) – Renew (on-site or off-site restoration actions which result in biodiversity gains)		
Measurement approach (company)	▪ State-based approaches, relying on primary data collection (site level survey) and allowing for identification of baseline, calculating losses and demonstrating gains. Measurement of pressures and responses can support attributing state changes to actions. ▪ Measurement outcomes can be applied in a biodiversity accounting approach.		

Key Considerations

Key considerations related to site level measurement of nature positive contributions are the following:

- At site level, Biodiversity Net Gain (BNG) can be achieved through effective implementation of the mitigation hierarchy, which in turn contributes to landscape level outcomes. Best practice according to the Align Recommendations for measuring site-level net gain is measurement based on a biodiversity accounting approach and making use of asset inventories and metrics which can compare gains and losses. Also, the Standard on Biodiversity Offsets[26] provides best practice. Actions at this level need to be informed by landscape level objectives, defined by relevant stakeholders, to effectively contribute to nature positive outcomes.
- Measurement of state of nature indicators based on primary data collection is the recommended approach for measuring outcomes of site-based actions. Off-site measurement will be required in the case of offsets for achieving net gain. Offsets are only acceptable as a last resort,

[25] For instance 'bird safe wind farms' implementing measures such as painting one blade of a turbine black, which can increase visibility and can reduce bird fatalities by 70 percent, or using artificial intelligence to sense a bird's approach, powering turbines down to avoid collisions

[26] Business and Biodiversity Offsets Programme (BBOP) (2012) Guidance Notes to the Standard on Biodiversity Offsets. BBOP, Washington, D.C. Available from http://bbop.forest-trends.org/guidelines/Standard_Guidance_Notes.pdf

i.e. after applying the preceding stages of the mitigation hierarchy. Many jurisdictions have existing policies and programs related to compliance mitigation which should be followed and could also serve as a foundation for making additional contributions to achieve overall gains.

- The company is fully accountable for the actions, the measurement, and the outcomes in terms of whether net gain at site level is achieved. While measurements on-site can be done by the company itself (or subcontracted), off-site measurements related to offsets are often done by an external party who is in charge of implementing offsets on behalf of the company (e.g., an NGO, an accredited habitat banking organisation, or government entity).
- Biodiversity No Net Loss (NNL) and Net Gain (BNG) approaches are usually only based on changes in state of biodiversity, driven by direct localised pressures such as land use change e.g. direct habitat destruction. Changes in biodiversity state due to other more indirect off-site pressures generated at site-level, such as GHG emissions or water extraction, are not captured in such approaches. Here, model-based biodiversity footprinting approaches (which translate some of these pressures into a biodiversity footprint score) and/or water modelling can support a more comprehensive picture of the overall biodiversity impact related to a site (impacts both on-site and off-site). Taking into account these more indirect off-site pressures can lead to a more ambitious NNL/NG approach although NNL/NG outcomes will be more challenging to measure accurately.
- Biodiversity offsets to achieve net gain outcomes at site level, will need to be applied in the surrounding landscape, which is in line with the principle of ecological equivalence[27]. In a nature positive context, these offsets should not only compensate for lost habitat at site level but should also support landscape level nature positive goals. The success of biodiversity compensation programs depends on local conditions and policy design and can be improved by public national biodiversity offset registers, jurisdictional biodiversity target approaches, and landscape-level planning[28] [29] [30] [31].
- Measuring changes in ecosystem service provision resulting from a change in the state of biodiversity is often supported through valuing the benefits provided by ecosystem services. This includes qualitative, quantitative and monetary valuation approaches[32]. Valuing ecosystem services requires an understanding of who the beneficiaries of ecosystem service flows are. Therefore, ecosystem services valuation is more appropriate at a wider landscape level than at site or project level.

[27] Business and Biodiversity Offsets Programme (BBOP) (2012) Op. Cit.

[28] Heiner, M. et al. (2019) Making space: Putting landscape-level mitigation into practice in Mongolia. *Conservation Science and Practice*. Available at: https://conbio.onlinelibrary.wiley.com/doi/pdfdirect/10.1111/csp2.110

[29] Simmonds, J.S. et al. (2019) Moving from biodiversity offsets to a target-based approach forecological compensation. *Society for Conservation Biology*. Available at : https://conbio.onlinelibrary.wiley.com/doi/epdf/10.1111/conl.12695

[30] Sonter, L.J., et al. (2020) Local conditions and policy design determine whether ecological compensation can achieve No Net Loss goals. *Nature Communications*. Available at: https://www.nature.com/articles/s41467-020-15861-1

[31] Kujala, H. et al. (2022) Credible biodiversity offsetting needs public national registers to confirm no net loss. *One Earth*. Available at: https://www.sciencedirect.com/science/article/pii/S2590332222002664

[32] UNEP-WCMC, Capitals Coalition, Arcadis, ICF, WCMC Europe (2022) Recommendations for a standard on corporate biodiversity measurement and valuation, Aligning accounting approaches for nature. Available at: https://green-business.ec.europa.eu/business-and-biodiversity/our-activities/project-align_en

7.3 Landscape and seascape level

Landscape level is the most relevant scale for achieving and observing nature positive outcomes. At whatever level businesses are taking action, the outcome in terms of nature positive occurs at the level of landscapes and seascapes. Businesses can however take action at the landscape level directly. As landscape level action requires cooperation with (many) other stakeholders, responsibility and accountability issues as well as measurement approaches are different compared to site level action (Table 2). This is illustrated with two case studies.

Table 2. Responsibility, accountability and recommended measurement approaches for landscape level nature positive actions

Responsibility for **TARGET SETTING (who should set the target for nature positive outcomes?)**	Responsibility for **TAKING ACTION/FINANCING (who should be responsible for taking action at this scale?)**	Responsibility for **UNDERTAKING MEASUREMENT (who is responsible for measuring and monitoring NP outcomes?)**	**Accountability for the Nature Positive OUTCOME (who holds ultimate accountability if Nature Positive outcomes are not achieved?)**
Where possible, businesses should act towards government-defined (e.g. local authority) landscape targets. Where no government-defined targets are available, targets can be defined through multi-stakeholder platforms that are business or NGO led.	All landscape actors, including company (based on well-defined actions/financial contributions)	Company responsible for measuring their own pressures and response indicators. Where government have set landscape targets, government responsible for monitoring landscape level biodiversity outcomes	Where targets are government led, ultimate accountability for landscape outcomes lies with governments, but business has responsibility and shared accountability for outcomes being achieved.
Example 1: An agrifood company is implementing a regenerative farming program across several priority landscapes in their supply chain. Local landscape level nature positive targets are not available, apart from a country-wide wild cats recovery plan, led by an international NGO.			
As the wild cats recovery plan includes defragmentation measures, the company sets targets to establish wildlife corridors through its croplands. As overall habitat condition is an important precondition for achieving nature positive outcomes, the company sets specific targets on soil and water quality on their lands. Target setting should be science-based and preferably takes place in consultation with external parties (e.g. academia, NGO).	The company establishes wildlife corridors or funds their deployment on its land. Regenerative or agro-ecological agricultural practices can be implemented.	The company can measure their efforts to establish a network of corridors (budget spent) and can apply a landscape connectivity metric. It is most likely that the NGO in charge of the wild cats recovery plan will measure the effective use of the corridors (e.g. camera traps). The company is in charge of measuring the baseline and monitoring both soil and water quality and outcomes for species and ecosystems on their land. Outcomes could be structured in natural capital accounts.	The company is accountable for achieving soil and water quality targets on their land, and for outcomes for biodiversity. As an actor in the landscape, the outcomes of the wild cat recovery plan can support evaluating their nature positive contributions. While the company does not have full accountability for the outcome of the recovery plan, it should inform adaptive management by the company

Type of action	Reduce (corridors reduce fragmentation) - Restore (corridors include habitat restoration measures)– Renew (regenerative agriculture)
Measurement approach (company)	▪ Measurement based on primary data collection on soil and water quality as well as species and ecosystems, on lands under control of the company. Outcomes could be structured in natural capital accounts ▪ Measurement of actions based on spent budget and/or staff working hours (co-funding of restoration plans such as species recovery plans)

Responsibility for **TARGET SETTING (who should set the target for nature positive outcomes?)**	Responsibility for **TAKING ACTION/FINANCING (who should be responsible for taking action at this scale?)**	Responsibility for **UNDERTAKING MEASUREMENT (who is responsible for measuring and monitoring NP outcomes?)**	**Accountability for the Nature Positive OUTCOME (who holds ultimate accountability if Nature Positive outcomes are not achieved?)**
	▪ Requirement for NGO to provide data to track progress of funded work		
Example 2: A company located in an industry hub of an international seaport, decides to fund the local estuary restoration project			
The estuary, encompassing 2 countries, is subject to the development and implementation of an international "room for the river" plan with the aim to restore natural processes and to reduce risk of flooding. Target setting is done by a dedicated commission of organizations and experts.	Actions will be taken by all stakeholder groups, such as government, NGOs and different private sector groups (such as farming, tourism). Funding by means of public-private financing with beneficiaries' contributions, such as industry in harbor (as reduced flooding risk).	Company measures funding as a response indicator. Company should embed this funding information in a clear narrative on how this is contributing to the estuary restoration project Company measures funding as a response indicator. Company should embed this funding information in a clear narrative on how this is contributing to the estuary restoration project,. To support claims of contributing to nature positive outcomes, the biodiversity outcomes of the restoration project should be monitored. This could be done either by the company or third parties.	Governments of both countries accountable for outcome, with business responsible to helping ensure outcomes are achieved. While business may not be accountable for the biodiversity outcomes of the project, they require the positive outcomes to be demonstrated to claim they have contributed to nature positive
Type of action	Restore (estuary restoration)		
Measurement approach (company)	▪ Measurement of actions based on spent budget (co-funding of estuary restoration plan)		

Key considerations

Taking action to contribute to nature positive outcomes in landscapes by individual companies, can be challenging due to the absence of landscape level nature positive targets, the lack of insight on how to set company level targets towards nature positive outcomes in landscapes[33], the lack of baseline[34] data on state of nature in the landscape, and the outcomes being dependent on the actions of other actors in the landscape.

Key considerations related to landscape level measurement of nature positive contributions include:

- Measuring state of nature at a landscape level by means of primary data collection is best practice for monitoring nature positive outcomes but this is typically the responsibility of local authorities. However, individual companies should take responsibility for measuring state in landscapes where the two following conditions are met: 1. landscape level nature positive targets and monitoring efforts are not available, and 2. an individual company is the dominant landscape actor in the sense that landscape level state of nature is mainly influenced by the activities of that company; this is sometimes the case for the extraction sector

[33] SBTN is developing guidance on science-based target setting

[34] The baseline (or reference) is the state against which change is measured, e.g. degraded.

(minerals extraction, O&G exploitation) and for the agrifood and forestry sector. In such cases, these companies have a high level of influence at landscape level, which means they can lead a multi-stakeholder process to define targets, take appropriate nature positive actions and monitor their outcomes.

- Measuring pressures instead of state is therefore an acceptable approach for most companies at landscape level. Model-based footprinting approaches aid in high-level estimates of the state outcomes of pressure reductions where direct measurement based on monitoring species and ecosystems is not available or feasible. Ideally, this is combined with a narrative referring to state of nature in the landscape (e.g. biodiversity significance based on secondary data) and clarifying the level of contribution of company pressures to state of nature.
- Ecosystem accounting[35], based on records of how natural capital stocks (ecosystem assets described by extent and condition indicators) and flows (ecosystem services described in physical and monetary terms) are evolving over time, is the best practice approach for recording landscape level data in a structured way.
- At a landscape level, nature positive targets are often set by local authorities or NGOs, and these are well placed to define the required actions for achieving nature positive outcomes. Therefore, co-funding of these actions by individual companies is a fully acceptable way of taking nature positive action. Corporate measurement in such case can be limited to measuring the annual funding and seeking evidence of biodiversity state improvement or avoided threat, combined with a narrative on overall progress in terms of achieving nature positive goals in the landscape and how company funding has contributed.
- Multistakeholder cooperation is a best practice approach for achieving and measuring nature positive goals in landscapes. In the absence of such initiatives, individual companies should consider taking action to establish such cooperation (corporate landscape engagement).

[35] United Nations (n.d.) System of Environmental Economic Accounting. Available at: https://seea.un.org/ecosystem-accounting/

7.4 Value chain level

Value chain level actions contributing to nature positive outcomes are focused on systemic transformation of (parts of) the value chain. Examples are certification programmes, integrating nature-related risks into procurement decision making, supplier engagement and product labelling. Table 3 below describes the responsibility and accountability issues which typically apply at value chain level. Two case studies are provided that cover upstream contributions to nature positive outcomes. An example which applies to downstream is included under 'corporate level' (change of business model with substantial consequences for downstream).

Table 3.Responsibility, accountability and recommended measurement approaches for value chain level nature positive actions

Responsibility for **TARGET SETTING (who should set the target for nature positive outcomes?)**	Responsibility for **TAKING ACTION / FINANCING (who should be responsible for taking action at this scale?)**	Responsibility for **UNDERTAKING MEASUREMENT (who is responsible for measuring and monitoring NP outcomes?)**	**Accountability for the Nature Positive OUTCOME (who holds ultimate accountability if Nature Positive outcomes are not achieved?)**
Company defines targets and ensures that these targets are applied by their suppliers	Companies support nature positive management of production and primary processing sites commensurate with their roles in the supply chain.	Companies measure impacts of their actions across their supply chain relying, for example, on extent of land, proportion of sourcing area, proportion under certifiers agreement transformative action applies. Companies are most directly responsible for monitoring drivers of biodiversity loss of their tier 1 suppliers (the ones selling directly to the company) than their tier 2 suppliers (i.e., the suppliers of one's tier 1 supplier), although should assess where in the full value chain impacts are most significant and work towards measurement of those.	Businesses have responsibility for contributing to nature positive outcomes across their value chains, but accountability for outcomes depends on spheres of control in supply chains. Companies that own, control, or manage commodity production or primary processing operations are most directly accountable for achieving nature positive outcomes, as this falls under 'site-level'.
Example 1: An agrifood company decides to apply regenerative agriculture in some of their supply chains			
Regenerative agriculture targets are set for selected commodities	Company takes all required actions to transform existing farming practices of suppliers to regenerative farming practices.	Company measures extent of land ecosystem that is under regenerative practices (km^2) by type of ecosystem and type of commodity, as well as proportion of this area compared to total estimated sourcing area, which is calculated by modelling or by means of own company data or data requested from third parties through, as the company has limited supply chain transparency. Information on ecosystem type is unavailable for those volumes with low transparency.	Company is partially accountable for outcomes in selected supply chains for selected commodities. Partially as 1/ the company is sourcing from third parties and their level of influence might be limited or large (e.g. the only customer), and 2/ where the company is directly sourcing (no intermediaries), it is often not the only actor in the landscapes of the supply chain.
Type of action	Reduce (pressure reduction such as reducing fertilizer and pesticide use) – Restore and renew (regenerative agriculture)		
Measurement approach	▪ Measurement (own company data or data requested from third parties) of extent of land ecosystem that is under regenerative farming (km2) by type of ecosystem, type of commodity, or compared to total sourcing area. ▪ Modelling of total sourcing area completed with expert support based on knowledge of volumes sourced, due to low transparency in much of the value chain. When reporting progress, the company is transparent about which land area values are modelled vs. measured, and the level of transparency it has across the selected commodities (e.g. X% to country level, X% to province level, X% to supply shed, X% to producer). ▪ Measurement of nature positive outcomes in supply chains needs to happen at landscape level (see section 6.2 on landscape level)		

Responsibility for **TARGET SETTING (who should set the target for nature positive outcomes?)**	Responsibility for **TAKING ACTION / FINANCING (who should be responsible for taking action at this scale?)**	Responsibility for **UNDERTAKING MEASUREMENT (who is responsible for measuring and monitoring NP outcomes?)**	**Accountability for the Nature Positive OUTCOME (who holds ultimate accountability if Nature Positive outcomes are not achieved?)**
Example 2: A retailer decides to phase out non-certified food commodities and replace by those commodities for which credible certification systems are in place that result in improved outcomes for nature			
Gradual phase out of non-certified food commodities where alternatives are available (procurement)	Purchasing policy at corporate level Requirements In supplier contracts Traceability systems	Company measures proportion of certified/non-certified commodities (proportion based on turn-over, weight, …)	Company is partially accountable for outcomes in selected supply chains for selected commodities. Partially as the company is most likely not the only actor in the landscapes of the supply chain. Certification organisation is accountable for ensuring that the criteria for the program is met where certificates are provided
Type of action	Refrain (phasing out use of no-certified commodities)		
Measurement approach	• Measurement of proportion of certified vs non-certified per commodity (as a high-level proxy). • Modelling of nature positive outcomes in supply chains needs to happen at landscape level (see section 6.2 on landscape level)		

Key Considerations

- Taking action to contribute to nature positive at the level of value chains by individual companies requires supply chain level or commodity level-wide action, which goes beyond specific actions in a small set of well-selected landscapes. A credible contribution to nature positive outcomes at the level of supply chains therefore assumes transformative action applied at scale, i.e., over substantial parts of the supply chain. The same applies to downstream.
- A key challenge is the lack of detailed information available across supply chains. Many companies have limited transparency into their sourcing, e.g., to the country level at best, in some cases. Even for companies with high levels of transparency, they may only have visibility to the first point of aggregation, or the supply shed, and therefore having site-specific values, e.g. on area of production, and state of nature within that area, is often unlikely. Understanding of downstream biodiversity impacts is largely underdeveloped across the board. There is also a lack of data on state of nature, and the existence of nature positive targets, in the specific landscapes that all together make up the upstream and/or downstream parts of the value chain.
- At a value chain level, businesses taking nature positive action can be held fully accountable for the decisions on transformative action and their implementation on the ground, but again are only partially accountable for achieving nature positive outcomes as at landscape level they are only one of the actors (limited level of influence).
- In terms of measurement, aggregated outcomes over an entire supply chain can best be measured by using proxy-indicators such as proportion of land under regenerative farming, proportion of sourced commodities under certification systems, proportion of sourced material in protected areas, etc. Companies should be transparent as to the certainty in the data they are reporting, e.g., whether it is directly measured or modelled, and whether any volumes or portions of the business are excluded – due to limited information, or otherwise. Moreover, certification systems are

not a label for nature positive as they are likely to only address one element of nature or partial issues relating to it (e.g., deforestation free).

- Measuring ‘avoided’ negative impact in supply chains (Refrain) is challenging; biodiversity impacts are always location-specific and the exact locations of ‘avoided' impacts in supply chains are not always known. For example, a company decides not to source raw materials like iron or bauxite from new extraction sites in biodiversity sensitive areas. Implementing this policy means that suppliers will not propose sourced materials from biodiversity sensitive sites anymore to the company, which means that the company won’t know which locations exactly have been avoided. Although this company policy definitely contributes to achieve nature positive outcomes in these biodiversity sensitive areas where sourcing is avoided or reduced, the company will not be able to measure the exact level of avoidance and the resulting contributions to local nature positive outcomes, as the company does not know the location of these ‘new’ extraction sites.

7.5 Corporate level

Finally, also at corporate level companies have a range of options for taking action contributing to nature positive outcomes. Table 4 below describes the accountability issues which typically apply at corporate level.

Table 4. Responsibility, accountability and recommended measurement approaches for corporate level nature positive actions

Responsibility for **TARGET SETTING (who should set the target for nature positive outcomes?)**	Responsibility for **TAKING ACTION / FINANCING (who should be responsible for taking action at this scale?)**	Responsibility for **UNDERTAKING MEASUREMENT (who is responsible for measuring and monitoring NP outcomes?)**	**Accountability for the Nature Positive outcome (who holds ultimate accountability if Nature Positive outcomes are not achieved?)**
The company is responsible for setting targets at corporate level. Target setting at corporate level will require a transition plan which includes one or more of the following scales: corporate (changing business model, advocacy), site (priority sites), landscape (priority landscapes), value chain (priority value chains e.g. high impact commodities), sector.	The company is responsible for taking actions related to resource efficiency, circular economy, advocacy. This is steered by corporate level. At other levels: see site, landscape, value chain sub tables	At corporate level, the company is responsible for measuring the reduced corporate biodiversity footprint At other levels, see site, landscape, value chain sub tables	Company is only accountable for achieving nature positive outcomes at scales where they have full control. This is only site level.
Example 1: A furniture company is changing its business model from selling office furniture to leasing office furniture and equipment			
Target setting by company in terms of lower footprint of land use, water extraction, pollution, etc.	Switch to a circular economy-based business model	The company can measure the volumes of materials sourced in its business operations over time, and the rate of re-use of products through the leasing program. Product level footprint approach (LCA) can be used to model potential benefits of different business models. LCA analysis allows for more accurate input of data on impact drivers	Company can only claim to contribute to achieving global nature positive goals through more sustainable production and consumption. These actions may ultimately improve biodiversity in supply chain landscapes as circular economy approach reduces extraction of raw materials, but this requires collective action. Therefore only pressures can be estimated as evidence of nature positive contributions and actions are not robustly linked to tangible state outcomes in specific landscapes.
Type of action	Refrain - Reduce		
Measurement approach	Impacts of meaningful transformative action at corporate level may contribute to achieving nature positive outcomes in several landscapes but it is not always clear in which landscapes, and it's also possible that production may continue in those landscapes and producers will sell to other buyers. Therefore, measuring change in impact drivers throughout a company's full operations will be a useful measurement approach at corporate level.		

Key Considerations

- At corporate level, key types of actions to contribute to nature positive are changes to the company's strategy or business model and playing an advocacy role. In addition, corporate level decisions will be instrumental for taking nature positive action at site, landscape, value chain and sector level.
- Measuring the contributions of corporate action to nature positive in terms of pressures and responses depends on the type of action. The impact of a substantial increase in materials or products reuse and recycling (circular economy) can best be expressed by measuring the change in impact drivers (pressure-based approach rather than state-based approach). Life Cycle Analysis is a recommended approach, for example, some methodologies can demonstrate the change by using modelled biodiversity footprint approaches (e.g. may expressed in pdf - potentially disappeared fraction of species). The impacts of regenerative farming are discussed under value chain (section 6.3) and landscape level (section 6.2).
- A further type of action at corporate level is advocacy, which is a type of response that cannot be directly attributed to outcomes in any particular place.
- Corporate measurement of its contributions to NP can in theory be based on aggregate measures across sites and value chains. However aggregation is challenging for two reasons. First, companies are highly unlikely to have complete information. Second, nature positive outcomes cannot be easily aggregated across scales and geographies as biodiversity and nature are non-fungible.
- It is recommended that companies act at every scale where they meaningfully contribute to achieving nature positive outcomes. Moreover, acting at different scales will have a mutually reinforcing impact (e.g. supply chain level action towards regenerative farming, combined with targeted actions in well-defined landscapes in the supply chain). In terms of presenting the company's joint actions towards nature positive, it is recommended to do this by means of a nature positive roadmap[36] or nature-related transition plan. As measurement approaches will vary according to the type of actions, it will be hard to come up with aggregated figures. Tracking changes in state-of nature to evaluate nature positive outcomes at meaningful scales will be the responsibility of multiple actors given the scale required (public authorities, NGOs) and business should take responsibility to contribute to this measurement, proportional to their accountability and influence.

[36] See examples of sector level nature positive roadmaps: WBCSD (2024) Nature Action. Available at: https://www.wbcsd.org/Imperatives/Nature-Action/Nature-Positive/Roadmaps-to-Nature-Positive and WEF (2024)Sector Transitions to Nature Positive. Available at: https://initiatives.weforum.org/sector-transitions-to-nature-positive/home

8. Conclusion

'Nature positive' is an emerging concept aiming to galvanize multiple actors to take action to halt and reverse the global decline in nature. However, while the overarching vision is becoming clearer as multiple initiatives converge on common definitions, additional guidance is required to help companies measure their contribution to nature positive outcomes and substantiate their claims.

This discussion paper, through input from the Align project's Technical Hub, and building on key initiatives related to the concept of Nature Positive and the Align Recommendations, has explored pathways on how businesses at different levels of action (site, landscape, value chain, corporate) can measure their contributions to achieving nature positive objectives. This has resulted in a series of key messages which are summarized below (full version in Executive Summary):

- A nature positive outcome is an observable improvement in the state of nature which can be measured using existing metrics.
- The most relevant scale for achieving and observing nature positive outcomes is landscape level but business actions contributing to these landscape level outcomes can occur at multiple nested scales.
- Business should take action to contribute to nature positive outcomes across their value chain where they have material impacts and dependencies on nature.
- Business should act towards nature positive outcomes through applying two leading frameworks: the mitigation hierarchy and the conservation hierarchy, which ensures minimization of negative impacts before additional conservation and restoration actions.
- The credibility of a company's claim of contributing to nature positive outcomes relates to demonstrable actions that have resulted in positive impacts on nature at the landscape scale. Therefore, directly measured metrics of the state of biodiversity, organised in an accounting system, are considered best practice for evidencing contributions to nature positive outcomes.
- Contributions to transformative change, a characteristic widely established to be key for a nature positive strategy, need to be measured too, but likely require a different approach to measurement than the outcomes-based approach at specific sites and landscapes. Response indicators measuring changes in the company's business model might be the preferred route.
- Nature positive outcomes at landscape level will only be achieved and measured by means of multistakeholder cooperation. The level of a business' accountability in this multi-actor and multi-scale effort depends on the scale of action and the specific context.

While consensus emerged on these key messages, many measurement challenges for assessing contributions to nature positive action remain, notably the measurement of 'avoidance' actions, consensus around suitable reference conditions for assessing 'uplifts' in the condition of ecosystems and measuring the outcomes of actions that are not linked with specific locations and landscapes (such as moving towards more circular business models).

This discussion paper hopes to contribute to ongoing discussions on this topic as we move towards agreed principles for corporate action and measurement in the context of nature positive outcomes.

Next steps in terms of measuring corporate contributions to nature positive objectives could focus on the following:

- Defining a pragmatic set of metrics, building from established principles such as those set out by the Align recommendations, that allows for measuring progress towards nature positive goals which is applicable across different levels (from sites to landscapes, from landscapes to countries and to global) and by all stakeholders. This important step is currently being addressed by the work of the Nature Positive Initiative.

- Measurement of corporate contributions to nature positive targets would benefit from increased clarity on what these targets are, for instance in the different landscapes where businesses are operating. In a more advanced stage, such landscape level nature positive plans could provide indications on the respective contributions of different actors in the landscape to the current pressure levels, which would allow individual actors to estimate their required level of contribution to nature positive goals. There is an important role for multi-sectoral stakeholder dialogue, including the public sector.
- Piloting these key messages in real-life case studies. Ideally, this involves multistakeholder cooperation at landscape level, and preferably joint action by public and private sector stakeholders.
- Transition plans by businesses, as required under ESRS E4[37] which aim to align activities with nature positive goals, should include a section on how outcomes will be measured.

Importantly, here we place business measurement and reporting within the context of wider-scale biodiversity monitoring by multiple actors. While consensus emerged on many key messages, many challenges remain (see Section 6). In this way, this discussion paper hopes to contribute to ongoing discussions on this topic as we move towards agreed principles for corporate action and measurement in the context of nature positive outcomes.

[37] ESRS E4 is the topical standard on biodiversity, within the CSRD.

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Annex 2 Key terms and definitions used in this discussion paper

Baseline: The baseline is the initial state against which change is measured.[38]

Biodiversity: The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.[39]

Ecosystem: A dynamic complex of plants, animals, and microorganisms, and their non-living environment, interacting as a functional unit (e.g. deserts, coral reefs, wetlands, and rainforests).[40]

Ecosystem extent: The size of an ecosystem asset in terms of spatial area.[41] [42]

Ecosystem condition: The quality of an ecosystem measured in terms of its abiotic and biotic characteristics. Condition is assessed with respect to an ecosystem's composition, structure and function which, in turn, underpin the ecological integrity of the ecosystem, and support its capacity to supply ecosystem services on an ongoing basis. Measures of ecosystem condition may reflect multiple values and may be undertaken across a range of temporal and spatial scales.[43] [44]

Nature: Nature includes land, freshwater, oceans and atmosphere with biodiversity representing the living part of it. Biodiversity is considered a subset of nature - and hence nature positive goes beyond biodiversity positive.[45]

Nature positive: Nature Positive is a global societal goal defined as 'Halt and Reverse Nature Loss by 2030 on a 2020 baseline, and achieve full recovery by 2050'. (Nature Positive Initiative)

Landscape: A human-defined area ranging in size from c. 3 km^2 to c. 3000 km. Landscape is spatially heterogeneous in at least one factor of interest and often consists of a mosaic of interacting ecosystems.[46]

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[45] In this report, however, the term nature and biodiversity are used interchangeably.

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