

INVESTOR ACTION ON BIODIVERSITY: DISCUSSION PAPER

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About this paper

Biodiversity loss is a systemic risk, requiring urgent action by investors. This paper highlights some emerging practices in this regard. To contribute to a discussion on how these practices can be taken forward, visit unpri.org/biodiversity

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EXECUTIVE SUMMARY

Biodiversity loss is a systemic risk. The COVID-19 pandemic had its origins in illegal wildlife trade and habitat destruction, which brought animal disease into contact with humans.¹ The likelihood of this occurring will only increase as the loss of biodiversity continues, reflecting the significance and urgent need for action by investors.

More than half of the world's gross domestic product (US\$44 trillion) is moderately or highly dependent on nature and its services – such as the provision of food, fibre and fuel – and the unprecedented loss of biodiversity places this value at risk.²

It is critical that institutional investors take action to halt the loss of biodiversity. Based on research and interviews with 11 investors, this report outlines some emerging approaches for integrating biodiversity into investment policies and strategies and highlights opportunities for investors to scale them up.

WHAT IS BIODIVERSITY?

Nature provides ecosystem services, which benefit businesses and society. The assets that underpin these services are called natural capital. Biodiversity is the variety of living components that make up natural capital. It has a role in ensuring the resilience of natural capital assets and securing them for the future. Its loss reduces the quantity, quality and resilience of ecosystem services³ and can present risks to investors across many sectors.

To date, investors have primarily focused on biodiversity loss due to acute events, including those linked to illegal activity. Less attention has been paid to how legal business activities are fundamentally reliant on biodiversity to produce goods and services, and their contribution to its decline.

WHY SHOULD INVESTORS TAKE ACTION ON BIODIVERSITY?

Biodiversity loss creates risks for society and business that can result in significant negative economic and social outcomes. Conversely, taking action against biodiversity loss offers opportunities.

Biodiversity and ecosystem service loss impacts businesses as a result of transition, physical, litigation and regulatory, and systemic risks, which have the potential to affect investment value in the short, medium and long term.

For investors, a clear understanding of the potential impact that biodiversity loss might have on the risk-return profile of investees, as well as an overall portfolio, will be important – exposure to some sectors may lead to those assets becoming stranded, if not properly managed.

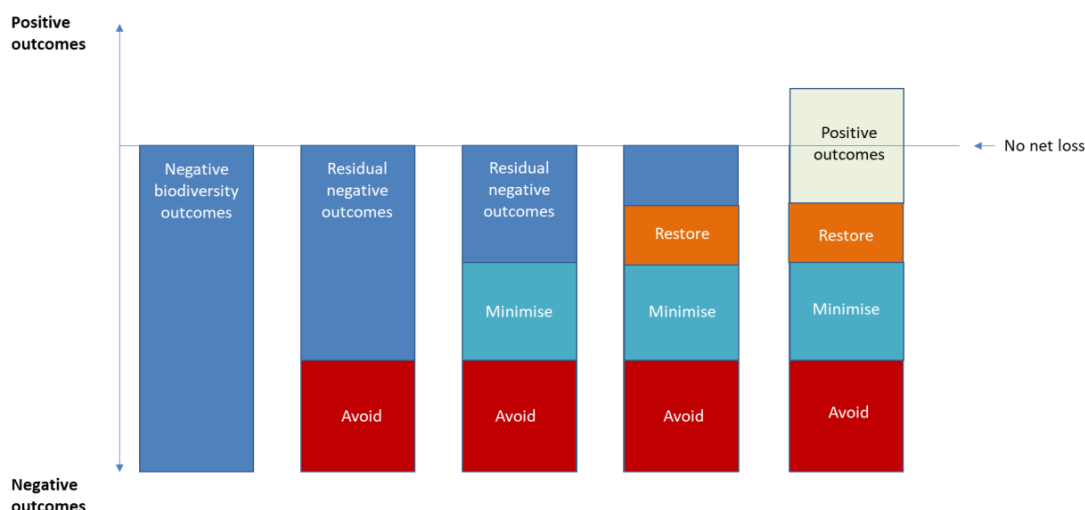
¹ [Tollefson \(2020\) Why deforestation and extinctions make pandemics more likely. Nature 584, 175-176 \(2020\)](#)

² [World Economic Forum in collaboration with PWC \(2020\) Nature Risk Rising: Why the crisis engulfing nature matters for business and the economy](#)

³ [Capitals Coalition \(2020\) Framing Guidance](#)

Investors can seek to drive positive biodiversity outcomes and reduce negative outcomes by encouraging their investees to implement the Mitigation Hierarchy, which guides users towards limiting the negative impacts on biodiversity from their activities. It includes the following steps: avoid and minimise impacts on biodiversity, restore biodiversity and adopt actions that result in positive biodiversity outcomes, which can create opportunities for value generation in investees.

Figure 1: The Mitigation Hierarchy. Source: Adapted from the Biodiversity Consultancy



INVESTOR ACTION ON BIODIVERSITY

AWARENESS, COMMITMENTS AND INITIATIVES

Some investors are trying to better understand how they can include biodiversity in their investment strategies and collaborate with others to tackle biodiversity loss. Others are indirectly addressing biodiversity-related risk through the adoption of specific sector policies such as on palm oil and deforestation. Despite these early actions, investors have limited awareness of, and few commitments and overall investment policies on, biodiversity.⁴

INVESTMENT ALLOCATION

Biodiversity-related risks and opportunities are being assessed through a combination of in-house ESG methodologies and information from third-party data providers as part of ESG integration processes, while biodiversity filters are being applied to negative screening to exclude companies based on various criteria, including those exposed to biodiversity-related controversies.

There are also a small but growing number of funds and bonds with specific biodiversity objectives.

STEWARDSHIP

There are a small number of investor engagements with a specific focus on avoiding and minimising biodiversity impacts, and several investor engagements that focus on companies whose activities are known to impact biodiversity (such as through deforestation).

⁴ [ShareAction \(2020\) Point of No Returns Part IV – Biodiversity](#)

The use of proxy voting on biodiversity-specific issues is not common but related issues such as plastic waste and deforestation increasingly feature within shareholder resolutions.

POLICY

Several biodiversity policies and legislation exist and there are important international and regional frameworks under development. These include the Convention on Biological Diversity's post-2020 global biodiversity framework and the EU's Biodiversity Strategy for 2030. Regulations pertaining to corporate disclosure and risk management which address biodiversity are less frequent in contrast to the climate agenda, where there are some frameworks emerging which are beginning to hold investors to account.

However, the development of the EU Taxonomy, and the amendment to France's Article 173 of the law on Energy Transition for Green Growth (2015) requiring investors to explain their contribution to biodiversity conservation and present their biodiversity-related risks, show that biodiversity is starting to be included in sustainable finance policy.

MEANINGFUL DATA

Investors should engage with companies and data service providers to encourage the provision of more meaningful and consistent biodiversity data. Access to better biodiversity data, relevant data sets and the harmonisation of indicators will help investors identify and assess their portfolios' biodiversity exposure.

Investors interviewed for this report cited a lack of access to appropriate asset and company-level data to assess company performance and evaluate fund or investment impact. Data is often not fit for purpose. Biodiversity is location specific and varies according to the actual asset at that location. Therefore, it can be challenging to aggregate biodiversity data at an enterprise level.

RECOMMENDATIONS

Universal investors and asset owners working to deliver absolute returns should tailor their investment activities to manage biodiversity loss as a systemic risk, rather than just through individual holdings.

Investors need to address biodiversity loss at the sector, economic and global level. This entails working towards the post-2020 global biodiversity framework, which will be negotiated in Kunming, China in May 2021, and a focus on real-world outcomes.

Investors should:

- allocate capital to sectors or business models which are avoiding and reducing biodiversity loss and increase opportunities for positive outcomes on the ground, including restoration;
- engage investees on reducing negative biodiversity outcomes and design stewardship approaches to deliver positive biodiversity outcomes;
- engage policy makers on reforming incentives, including subsidies, to activities that drive biodiversity loss.

Investors should also address some of the underlying issues that prevent action on biodiversity, by:

- building internal capacity to ensure awareness of biodiversity's importance;
- testing new tools and measurement approaches to understand how investments shape biodiversity outcomes;
- engaging with companies and data service providers to provide meaningful, consistent data;
- engaging with green funds, bonds, commodities and certification schemes to integrate biodiversity into existing standards;
- collaborating with peers and stakeholders to enhance nature-related financial disclosures;

It is essential that investors play a role in meeting the goals of the post-2020 global biodiversity framework to prevent further degradation and to contribute to positive biodiversity outcomes. Failure to do this would create an array of mounting risks – not only to investors but to the real economy and, fundamentally, impact on our ability to remain within our planet's boundaries.

INTRODUCTION

In its [Global Risks Report](#), the World Economic Forum identified biodiversity loss as a top-five risk for the first time in 2020. More than half of the world's gross domestic product (US\$44 trillion) is moderately or highly dependent on nature and its services⁵, such as the provision of food, fibre and fuel.

The unprecedented loss of biodiversity places this value at risk. The populations of mammals, birds, fish, reptiles and amphibians, for example, declined by 60% between 1970 and 2014, according to the [World Wildlife Fund \(WWF\)](#). This is driven by the complex interaction of unsustainable consumption, pollution, climate change, alien invasive species and habitat conversion for economic and social endeavours.

Institutional investors have not fully integrated biodiversity into investment decision-making processes or assessments of sustainability performance. Only a small number are taking action to manage biodiversity. Investors need to recognise that biodiversity loss is a systemic risk for portfolios and beneficiaries, and act on that basis to prevent future impacts on the environment, society and the economy. Investors and investees have a role in shaping biodiversity outcomes.

This report is based on a literature review and interviews with 11 PRI signatories and a small number of environmental groups with finance programmes. It aims to highlight the importance of emerging biodiversity integration into investment policies, and strategies for institutional investors to do so.

⁵ [World Economic Forum in collaboration with PWC \(2020\) Nature Risk Rising: Why the crisis engulfing nature matters for business and the economy](#)

WHAT IS BIODIVERSITY?

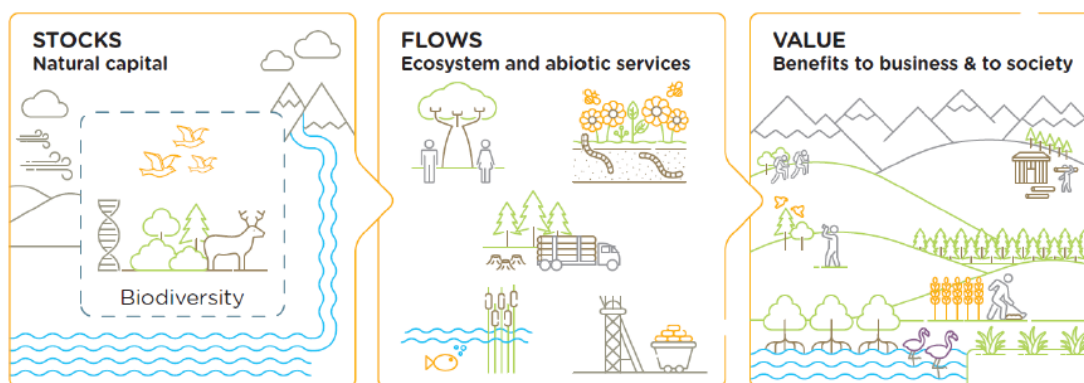
BIODIVERSITY, ECOSYSTEM SERVICES AND NATURAL CAPITAL

Biodiversity is the diversity of life on earth. It can occur at the species, ecosystem and genetic level, as defined in [Article 2 of the Convention on Biological Diversity](#). The terms biodiversity, natural capital, and ecosystem services are often used interchangeably, despite being different concepts.

Biodiversity is the variety of natural capital's living components (for example, species and habitats) and has a role in ensuring resilience of other natural capital assets and securing them for the future. Ecosystem services are the benefits that flow from nature to humans.⁶ Natural capital are the assets that underpin these services - the stock of renewable and non-renewable natural resources.⁷

The relationship between the different terms is described in Figure 2.

Figure 2: Relationship between natural capital, biodiversity and ecosystem services. Source: [Capitals Coalition](#)



Biodiversity is vital for stable ecosystem service provision – helping to maintain the functioning of healthy ecosystems and ensuring the delivery of future ecosystem services.⁸ Biodiversity loss and degradation can reduce the quantity, quality and resilience of those ecosystem services, if the ecosystem's capabilities or ability to adapt to change are damaged.⁹

Independent of its direct or indirect value to humankind, biodiversity has intrinsic value – it is part of the fabric of life on Earth.

⁶ Ecosystem services include: regulating services e.g. the use of ecosystems to maintain water quality and quantity through natural filtration or the ability of oceans to absorb carbon dioxide; material services e.g. access to pollination services from wild pollinators, access to fish stocks, and non-material services e.g. the value of a beautiful view to ecotourism or a particular species to spiritual well-being.

⁷ [Natural Capital Coalition \(2016\) Natural Capital Protocol](#)

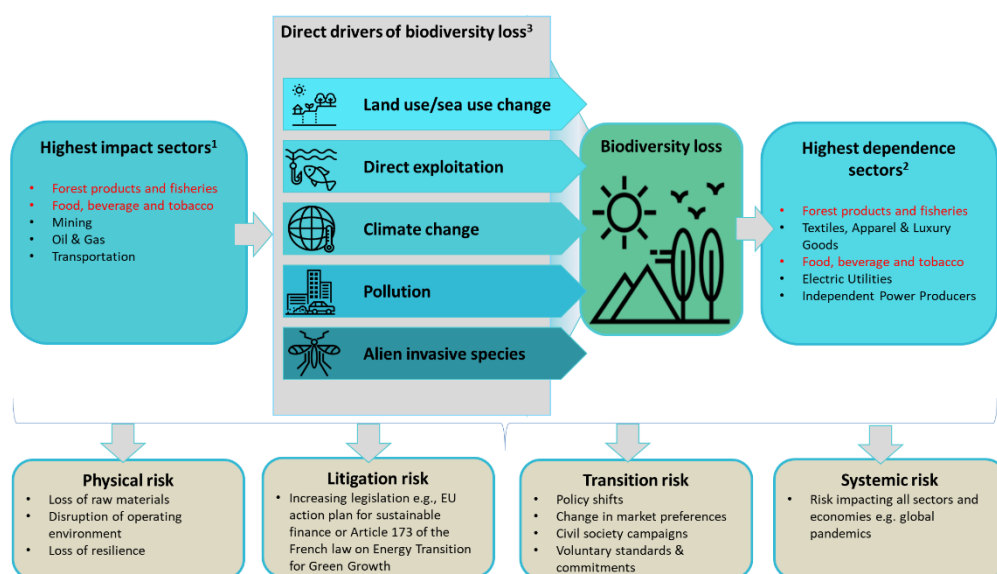
⁸ [European Commission \(2015\) Science for Environment Policy report: Ecosystem Services and Biodiversity](#)

⁹ [Capitals Coalition \(2020\) Framing Guidance](#)

THE STATUS OF BIODIVERSITY

Biodiversity has declined significantly – species’ extinction rates are between 100 and 1,000 times greater than historic rates, resulting in the loss of vital ecosystem services which underpin the continuity of society and business.¹⁰ Key drivers of biodiversity loss are outlined in Figure 3, with agricultural activity, overharvesting (e.g. through fishing or logging), urban development, energy production, transportation and associated pollution and climate change having the most significant impact.¹¹

Figure 3: Nature loss, risk and implications for investors. Source: Various¹²



Sources: 1) Calculated using IUCN Red List threat data as detailed in Maxwell et al (2016) and UN Environment Programme, UNEP Finance Initiative and Global Canopy (2020); sectors translated to GICS 2) from WEF (2020) and UN Environment Programme, UNEP Finance Initiative and Global Canopy (2020); sectors translated to GICS, 3) IPBES (2019) and 4) PWC and WWF (2020).

¹⁰ [Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services \(IPBES\) \(2019\): Global assessment report on biodiversity and ecosystem services \(Summary\)](#)

¹¹ See also: [Maxwell, Sl. Fuller, RA, Brooks, TM and Watson, JE \(2016\) Biodiversity: the ravages of guns, nets and bulldozers. Nature. 2016 Aug 11;536\(7615\):143-5](#)

¹² 1) Calculated using IUCN Red List threat data as detailed in Maxwell et al (2016) and UN Environment Programme, UNEP Finance Initiative and Global Canopy (2020); sectors translated to GICS 2) from WEF (2020) and UN Environment Programme, UNEP Finance Initiative and Global Canopy (2020); sectors translated to GICS, 3) IPBES (2019) and 4) PWC and WWF (2020).

WHY SHOULD INVESTORS TAKE ACTION ON BIODIVERSITY?

Conducting business as usual will continue to result in land-use change, climate change and pollution – factors which all drive biodiversity loss. Globally, between 1997 and 2011, an estimated US\$4 trillion - US\$20 trillion was lost annually in ecosystem services due to land-use change, and an estimated US\$6 trillion - US\$11 trillion annually from land degradation.¹³ The loss of biodiversity creates risks for society and businesses that can result in significant negative economic and social outcomes. Taking action on biodiversity, in turn, offers opportunities.

KEY RISKS FROM BIODIVERSITY LOSS

Biodiversity and ecosystem service loss is already impacting on businesses as a result of transition, physical, litigation and regulatory, and systemic risks, which have the potential to affect investment value in the short, medium and long term (see *Figures 3 and 4*).¹⁴

Companies impact and depend upon biodiversity. Risk exposure to biodiversity loss varies and depends on the following factors, among others:

- sector;
- geography;
- regulatory frameworks;
- market-capitalisation;
- operational arrangements;
- value chain position (upstream versus downstream);
- extent of dependence and impact on biodiversity; and
- ability to substitute raw materials.

For investors, a clear understanding of the potential impact that biodiversity loss might have on the risk-return profile of investee companies is important. It is also important to understand how this impact exposes an overall portfolio to risk – exposure to some sectors may lead to those assets becoming stranded, if not properly managed.

¹³ [Organisation for Economic Cooperation and Development \(2019\) Biodiversity: Finance and the Economic and Business Case for Action](#)

¹⁴ [PWC and WWF \(2020\) Nature is too big to fail. Biodiversity: the next frontier in financial risk management](#)

Figure 4: The implications of biodiversity risk for investors. Source: Adapted from PWC

	CREDIT RISK	MARKET RISK	OPERATIONAL RISK
Physical risk: physical impacts of biodiversity loss.	Revaluation of debt-servicing capacity and collateral for companies and governments.	Rating downgrades and share-price losses.	Biodiversity loss affects balance sheets through direct operations or indirectly through supply chains. Business continuity issues or opportunity costs linked to loss of access to raw materials and ecosystem services e.g. freshwater, fish, fertile soil, genetic diversity.
Litigation and regulatory risk: litigation and breach of underlying legal frameworks, and changes to regulations	<ul style="list-style-type: none"> ■ Reputational risk. ■ New regulatory rules/ trade agreements¹⁵ impose limitations on investing in activities that impact biodiversity. ■ Damages due to false reporting of biodiversity risks. ■ Damages due to greenwashing. ■ Costs from changes in licenses, permitting and compliance. 		
Transition risk: transition to an economy that conserves and restores biodiversity.	Investees face losses due to sanctions, stranded assets, damages, inability to access project finance or increased taxes related to negative impacts on biodiversity.	Long-term price increases as a result of biodiversity change. Market access impacted e.g. by failure to meet commitments on deforestation and consumer preferences.	Reputational loss resulting from failure to effectively manage biodiversity impacts or from NGO campaigns. ¹⁶
Systemic risk: systemic impacts of biodiversity loss.	Economy can no longer be insured at a reasonable cost. Risk to sovereigns dependent on natural resources – impacts can lead to default risk.	Market-threatening effects from biodiversity loss globally or regionally.	Reputational loss for entire industries/ markets. Operational risk to businesses across the economy.

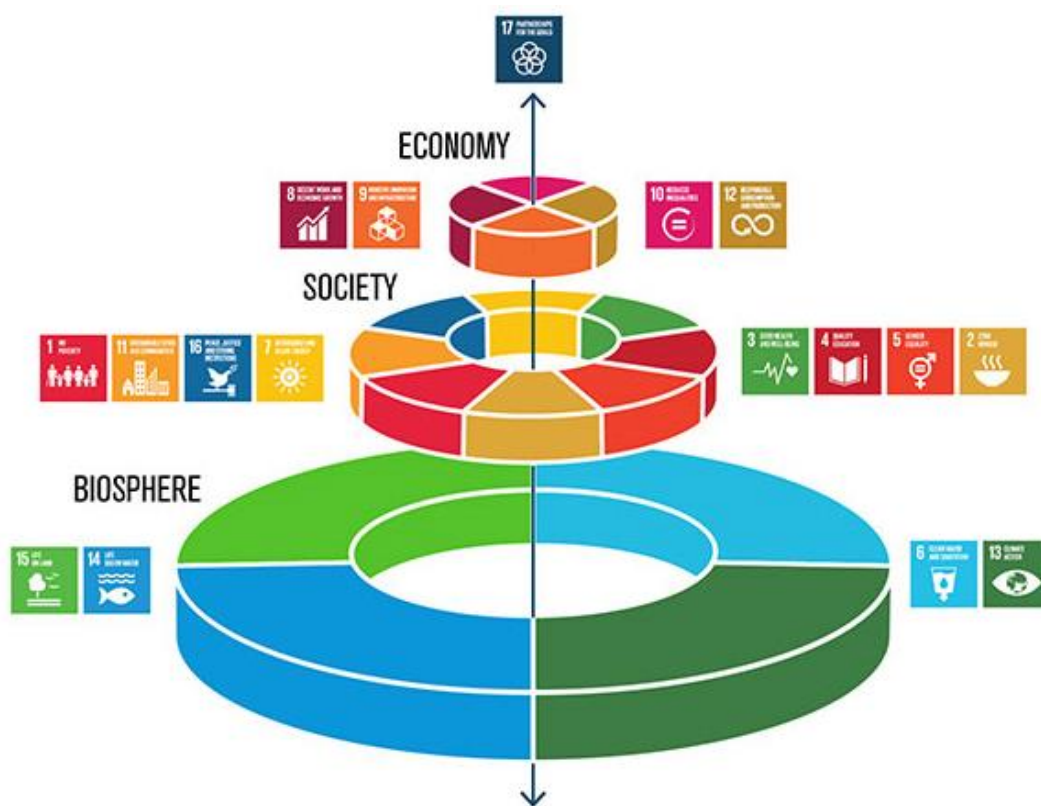
¹⁵ Changing regulations and trade agreements linked to biodiversity loss can potentially impact market access. When the Amazon fires raged in early 2019, over 230 investors with US\$16.2 trillion AUM signalled to their investee companies the expectations to manage their risks and meet their supply chain commitments on deforestation, or risk divestment.

¹⁶ There are pivotal campaigns/reports highlighting issues such as deforestation that investors point to as being the turning point in their awareness, such as the Greenpeace report [Slaughtering the amazon](#).

BIODIVERSITY AND THE SDGs

Halting biodiversity decline is critical to achieving the Sustainable Development Goals (SDGs) and achieving real-world outcomes.¹⁷ More than 80% of the SDGs are reliant on biodiversity for their delivery (see Figure 6).¹⁸ It underpins human health, wellbeing and livelihoods – nearly half of the Earth’s population depend directly on natural resources for their livelihoods.¹⁹ Thus, biodiversity loss will have significant societal impacts. For example, a decline in pollinators will significantly impact agricultural production²⁰ which, in turn, will impact food production and security. The societal risks caused by biodiversity loss can impact global trade, gender equity, economic development, global health and global peace.²¹

Figure 6: Biodiversity underpins the delivery of the SDGs. Source: Ecology and Society²²



¹⁷ [IISD \(2019\) Why biodiversity matters: Mapping the linkages between biodiversity and the SDGs](#)

¹⁸ [IPBES \(2016\) Assessment Report on Pollinators, Pollination and Food Production](#)

¹⁹ [Convention on Biological Diversity \(2019\) Biodiversity and the 2030 Agenda for Sustainable Development](#)

²⁰ [IPBES \(2016\) Assessment Report on Pollinators, Pollination and Food Production](#)

²¹ [World Economic Forum in collaboration with PWC \(2020\) Nature Risk Rising: Why the crisis engulfing nature matters for business and the economy](#)

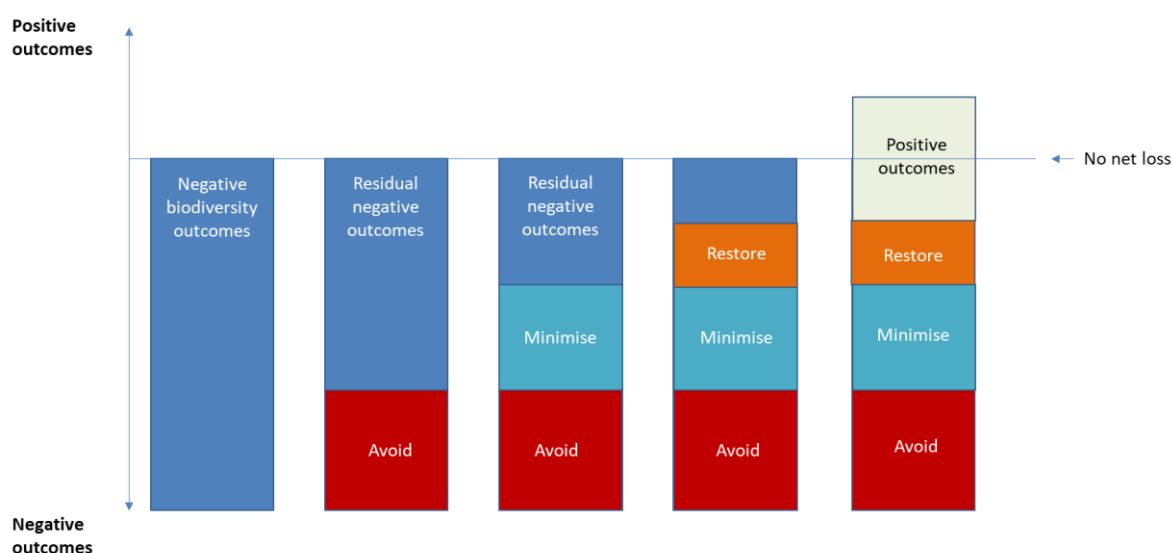
²² [Folke, C, Biggs, R, Norström, AV, Reyers, B & Rockström, J \(2016\) Social-ecological resilience and biosphere-based sustainability science. Ecology and Society 21 \(3\): 41](#)

OPPORTUNITIES TO SHAPE BIODIVERSITY OUTCOMES

Investors can seek to drive positive biodiversity outcomes and reduce negative outcomes by encouraging their investees to implement the Mitigation Hierarchy²³, which guides users towards limiting the negative impacts on biodiversity from their activities. It includes the following steps:

- **Avoid:** Avoid negative outcomes from the outset (preferred option).
- **Minimise:** Minimise negative outcomes that cannot be avoided.
- **Restore:** Take measures to improve or re-establish degraded or removed ecosystems, where impacts could not be avoided or minimised.
- **Actions for positive outcomes:** Only after avoidance, minimisation and restoration have been robustly applied, can approaches to compensate for negative impacts occur. These are often referred to as biodiversity offsets, which should only be applied in certain circumstances.²⁴ Beyond compensation for negative outcomes, actions can be undertaken to deliver additional positive outcomes that would not have otherwise been achieved.

Figure 5: The Mitigation Hierarchy. Source: Adapted from the Biodiversity Consultancy



Investors taking this approach can deliver positive outcomes for biodiversity whilst creating opportunities for value generation in their investees, through:

- enhanced long-term viability of business models;
- cost savings;
- increases in operational efficiency;
- increased market share;
- development of new business models; and
- better stakeholder relations.²⁵

The next section outlines how investors can include biodiversity as part of their wider ESG incorporation activities and seek to shape sustainability outcomes.

²³ See for example [The Biodiversity Consultancy](#)

²⁴ [IPBES \(2019\): Global assessment report on biodiversity and ecosystem services \(Summary\)](#)

²⁵ [OECD \(2019\) Biodiversity: Finance and the Economic and Business Case for Action](#)

INVESTOR ACTION ON BIODIVERSITY

AWARENESS, COMMITMENTS AND INITIATIVES

Some investors are trying to better understand how they can include biodiversity in their investment strategies and collaborate with others to enhance the biodiversity agenda, by joining initiatives such as [Business for Nature](#) and the [European Business @ Biodiversity Platform](#) (see *Box 1 for detail*).

Investors are also indirectly addressing biodiversity-related risks through the adoption of specific policies related to sectors that impact, or are dependent on, biodiversity. For example, the production of palm oil, soy and beef is a key driver of land conversion in critical habitats. Some investors have adopted policies to de-risk their exposure to these activities through divestment or screening, while others have joined collaborative engagements such as the [Investor Initiative for Sustainable Forests](#), which engages with companies on deforestation within cattle and soybean supply chains. [BNP Paribas Asset Management](#) has committed to supporting global efforts to halve forest loss by 2020 and end it by 2030, with a portfolio target to be met by 2020 for agricultural commodities (palm oil, soy, paper, timber and beef products) and by 2030 for non-agricultural sectors (mining, metals, infrastructure, etc.).

Box 1: Investor initiatives on biodiversity

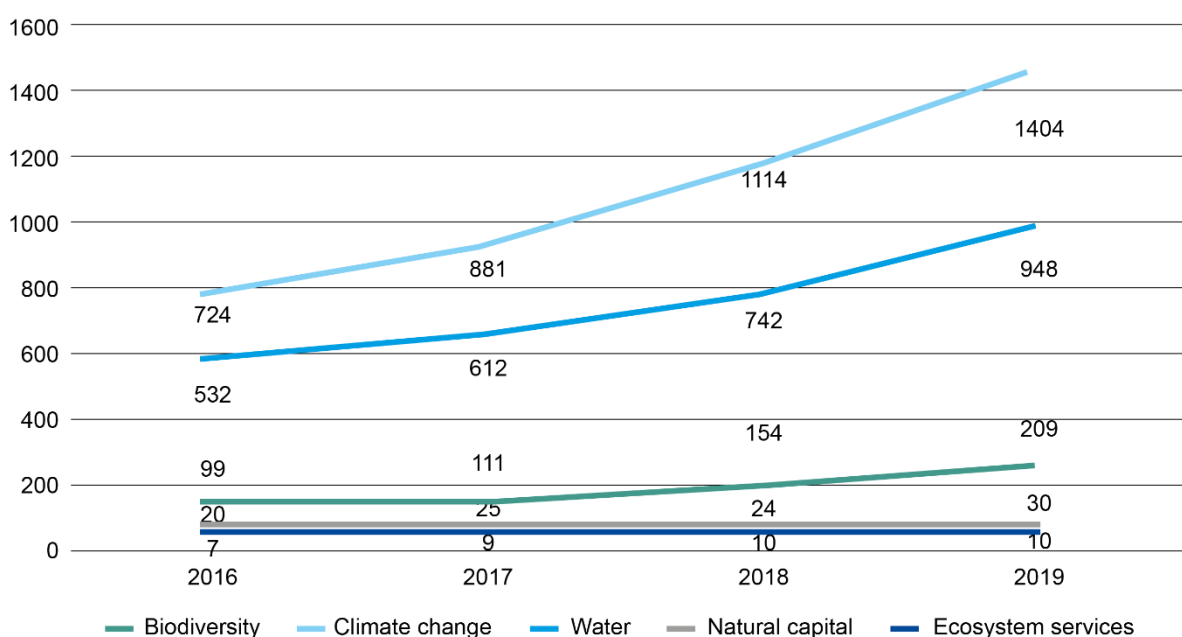
In the lead up to 2020, several business coalitions formed to drive greater action to halt biodiversity loss. The following initiatives, which interviewees are participating in, target multiple biodiversity objectives:

- [Act4Nature](#) – A French initiative which requires supporters to make commitments to, and take action on, biodiversity. Its supporters include AXA Investment Managers (AXA IM) and Natixis.
- [Business for Nature](#) – An organisation which aims to convene members of various platforms, including Act4Nature and the New York Forests Declaration, to share best practice, integrate biodiversity into corporate decision making and influence policy.
- [De Nederlandse Bank Sustainable Finance Platform](#) – A platform set up by the Dutch Central Bank to promote and increase awareness of sustainable funding in finance. It brings together the financial sector, supervisory authorities and government ministries and has a biodiversity working group.
- [European Business @ Biodiversity Platform](#) – A finance community of practice that has focused on good practice, tools to identify sector risk and biodiversity-related disclosure and metrics in finance institutions and companies. It is developing the 'Finance for Biodiversity Pledge', committing finance institution signatories to engagement, impact assessment and reporting on measures to address biodiversity. Members include AXA IM, CDC and Actiam.
- [Finans Norge](#): A working group for investors and banks on nature risk, set up by the Norwegian finance industry body.
- [Natural Capital Finance Alliance](#): A partnership between UNEP FI and Global Canopy, which provides knowledge and tools to help the financial sector and other partners collaborate to reduce and manage nature impact risks and dependencies. Members include Robeco and Sumitomo Mitsui Trust Holdings.

Nonetheless, many investors have limited awareness of, and few commitments and overall investment policies on, biodiversity. An assessment of asset managers by [ShareAction](#) found that none had a dedicated policy on biodiversity covering all portfolios under management, while responsible investment policies lacked specific commitments on biodiversity.

Action on biodiversity is also far less common than climate change action – mentions of biodiversity, ecosystem services and natural capital by PRI signatories in their reporting are low in comparison to climate and water (see *Figure 7*).

Figure 7: Mentions of biodiversity, climate change and water by PRI signatories in their reporting from 2016 – 2019



INVESTMENT ALLOCATION

ESG INTEGRATION

Biodiversity-related risks and opportunities are assessed through a combination of in-house ESG methodologies and information from third-party data providers on companies and breaches. The information available often reflects the quality of management responses, rather than the actual impact. Additional metrics are required to facilitate the integration of biodiversity criteria into investment decision making (see *Meaningful data section*).

Annex 1 outlines tools that can be used to understand the potential impacts and dependencies of different sectors on biodiversity and that provide insight into company performance in specific sectors on biodiversity-related issues, such as deforestation.

Some investors cited using the [Sustainability Accounting Standards Board \(SASB\) materiality map](#) to identify sectors for which biodiversity may be financially material. They see an opportunity for SASB to update this to identify all sectors with known biodiversity issues that could translate to financial risks, including:

- biofuels (deforestation and habitat conversion);
- apparel (fibre sourcing);
- tobacco (use of native forest); and
- agricultural products (deforestation, habitat conversion, loss of pollinators, declining soil health).

Although some of the standards mention biodiversity briefly, the information provided on potential impacts and issues lacks detail and, in some cases, is missing.

Biodiversity integration is relevant to multiple asset classes but how biodiversity is assessed within them varies.

Biodiversity in private equity

Integrating biodiversity into private equity can be more straightforward compared to listed equity as almost all investments involve controlling, or influential, minority stakes in the underlying portfolio companies; therefore, investors should have better access to information. Integration can be more impactful if investors use project-based safeguards, such as the [International Finance Corporation's Performance Standard Six on Biodiversity Conservation and the Sustainable Management of Living Resources](#)²⁶, to set minimum requirements regarding biodiversity risks.

Some limited partners, particularly Development Finance Institutions that invest in private equity in emerging markets – where biodiversity loss is often most acute – insist on their general partners adopting these standards.

In general, the assessment of biodiversity risks in private equity is not advanced. However, the timeframe for deal sourcing, investment decision making, and review could allow for consideration of biodiversity issues if the expertise is available. In some cases, investors have increased their technical capacity to better understand and manage their biodiversity risks. Some private equity funds have developed to focus on single or multiple biodiversity-related issues, for example, AXA IM's Climate and Biodiversity Funds.

Challenges still exist around biodiversity metrics and data and tracking sustainability performance, but some private equity funds are beginning to do this, as outlined below in the *Funds and bonds with biodiversity objectives* section.

Sovereign debt

Countries vary in their exposure to biodiversity-related risks and ecosystem service degradation.²⁷ Declining biodiversity and ecosystem services can impact a country's growth prospects and credit rating and the risk exposure of its bondholders.²⁸ It will become increasingly important for investors to understand how differences in countries' risk exposure might impact on sovereign debt.

²⁶ The International Finance Corporation's Environmental and Social Performance Standards define IFC clients' responsibilities for managing their environmental and social risks.

²⁷ [Johnson, JA, Baldos, U, Hertel, T, Liu, J, Nootenboom, C, Polasky, S, and Roxburgh, T \(2020\) Global Futures: Modelling the global economic impacts of environmental change to support policy-making](#)

²⁸ [UNEP FI and Global Footprint Network \(2016\) ERISC Phase II: How food prices link environmental constraints to sovereign credit risk](#)

A natural capital loss exposure analysis of the G20 countries identified Argentina and Brazil as most dependent on natural capital due to their dependence on soft commodity exports.²⁹ Larger economies (e.g. China, USA and the EU) are also exposed to risk – although their proportion of high exposure to nature-dependent sectors is lower, they have the highest absolute amounts of GDP in such sectors.³⁰

The consideration of biodiversity in country risk assessments is currently rare, according to interview participants. Nonetheless, sovereign debt investors have access to a range of publicly available cross-country datasets compiled by international institutions, which track risks and produce metrics (including indices which can be integrated into investment analysis), as highlighted in the PRI report [A practical guide to ESG integration in sovereign debt](#).

Advances in technology are also enabling greater access to sovereign risk data.³¹ UNEP FI has spearheaded efforts to quantify natural resource and other environmental risks through its [E-RISC methodology](#). The tool assesses country-level risks of sovereign bonds held by insurance companies, investors and rating agencies. For more information on the tools available for assessing biodiversity risks, see *Annex 1*.

NEGATIVE SCREENING

Some investors are using biodiversity as a filter in negative screening; by excluding companies exposed to biodiversity-related controversies, they seek to avoid negative outcomes. For example, BMO excludes companies if they have a high negative impact on biodiversity, while some companies in the extractive sector have committed to not explore or mine in World Heritage Sites (WHS) and other important areas of biodiversity (see *Box 2*). [Sycomore Eco Solutions](#) focuses on companies with business models that contribute to the environmental and energy transition across five key areas: mobility, energy, renovation and construction, circular economy and ecosystem-stewardship. The fund excludes companies that destroy natural capital or exhibit weak ESG ratings.

Areas of exclusion across the signatories interviewed for this report fall into four categories (see *Table 1 for more detail*):

- commitments to not operate in ecologically sensitive sites;
- corporate biodiversity action;
- deforestation commitments; and
- commodity-specific commitments.

Overall, there is significant variation among investors regarding the screening criteria used, the nature of the exclusions made, and the level of transparency provided. Exclusion and divestment are considered actions of last resort, with engagement being preferred to incentivise changes in corporate behaviour.

Table 1: Types and examples of screening criteria and exclusions

²⁹ [Pinzón, A, Robins, N, McLuckie, M and Thoumi, G \(2020\) The sovereign transition to sustainability: Understanding the dependence of sovereign debt on nature](#)

³⁰ [World Economic Forum in collaboration with PWC \(2020\) Nature Risk Rising: Why the crisis engulfing nature matters for business and the economy](#)

³¹ [Ninety One \(formerly Investec\) and WWF \(2020\) Satellites and sustainability: New frontiers in sovereign debt investing](#)

EXCLUSION TYPE	EXAMPLE
<p>Commitments not to operate in ecologically sensitive sites</p> <p>These are less frequently made and often limited to a single sector such as mining or oil and gas.</p>	<p>Aviva Investor’s Stewardship Funds exclude oil and gas companies operating in the Arctic. They were part of an initiative, led by WWF in collaboration with Ninety One (formerly Investec), highlighting the importance of protecting WHS (see <i>Box 2 for details</i>.) WWF and Swiss Re produced a similar assessment in 2020.</p> <p>The National Investing Bodies of the Church of England expects companies to make “no-go” commitments not to enter highly protected areas. They have identified a need for a transparent monitoring system like the Sustainability policy transparency toolkit (SPOTT), developed for palm oil, to support investor engagement with companies.</p>
<p>Exclusions based on corporate biodiversity action</p> <p>Incorporating biodiversity within ESG screening criteria and excluding companies that score poorly against those criteria or that fail to meet engagement requests.</p>	<p>BMO excludes companies if they have a high negative impact on biodiversity, do not demonstrate an understanding of that impact and do not intend to reduce it to acceptable levels in line its internal criteria.</p>
<p>Deforestation commitments</p> <p>Commitments relating to avoidance of investment in companies with illegal logging in their supply chain, zero deforestation or deforestation-free supply chains.³²</p>	<p>Norway’s Government Pension Fund excluded four agricultural companies in 2018 due to their deforestation links.³³ This followed divestment of 11 companies spanning palm oil, pulp and paper and coal sectors in 2015.</p> <p>Nordea Asset Management suspended purchases of Brazilian sovereign bonds in response to the Amazon fires in 2019.</p> <p>Storebrand excludes companies that contribute or cause environmental damage, including those with high impact on deforestation, such as the palm oil sector.</p>
<p>Commodity-specific commitments</p> <p>Exclusions relating to commodities such as palm oil and seafood.</p>	<p>Robeco excludes companies that have less than 20% of their palm oil certified against the Roundtable on Sustainable Palm Oil requirements.</p>

³² An analysis of commodities exposed to deforestation risk undertaken by the [Global Canopy Programme](#) in its annual review of Forest 500 companies showed limited uptake of commodity-focused deforestation policies across the investment community and, in some cases, relatively weak commitments. Only 19% of the finance institutions reviewed (primarily asset managers, pensions funds, insurers and banks) had policies for all deforestation-risk commodities, while 68% had no policies at all.

³³ See also [Rainforest Foundation Norway \(2019\) Norway’s Government Pension Fund acts against deforestation: divests major agricultural companies](#)

Box 2: Exclusions relating to World Heritage Sites and other ecologically sensitive sites

The issue

WHS, key biodiversity areas and other legally protected areas are critical for the conservation of biodiversity. The high-profile case of Soco International's proposed oil exploration of the Virunga National Park in the Democratic Republic of Congo, home to the endangered mountain gorilla, and its withdrawal subsequent to concerted investor and NGO action, demonstrates the reputational risks a company can be exposed to if it develops a project in such areas. Regulatory risk, permitting delays and increased operational costs can also arise. Therefore, several companies, particularly in the extractive sector, have committed to not explore or mine in WHS and other important areas of biodiversity.

Investor action

Ninety One (formerly Investec) and Aviva worked with WWF to highlight the potential overlap between extractive companies and WHS. In a [joint report](#), they recommended that investors:

- become aware of extractive companies in their portfolios operating in or near to natural WHS;
- engage with these companies to:
 - encourage a change in strategy; and
 - encourage disclosure of concessions.
- adopt no-go and no-impact commitments for natural WHS; or
- consider divestment.

The challenge

There is no mechanism for an institutional investor to rapidly and cost effectively identify where, and to what extent, the companies in which they invest overlap with these areas. Data on the location of important biodiversity areas and on asset location are not held together in a single database. The [Integrated Biodiversity Assessment Tool](#) is working with financial information service providers to create a simple means of assessing company exposure to this issue to integrate into ESG analysis.

FUNDS AND BONDS WITH BIODIVERSITY OBJECTIVES

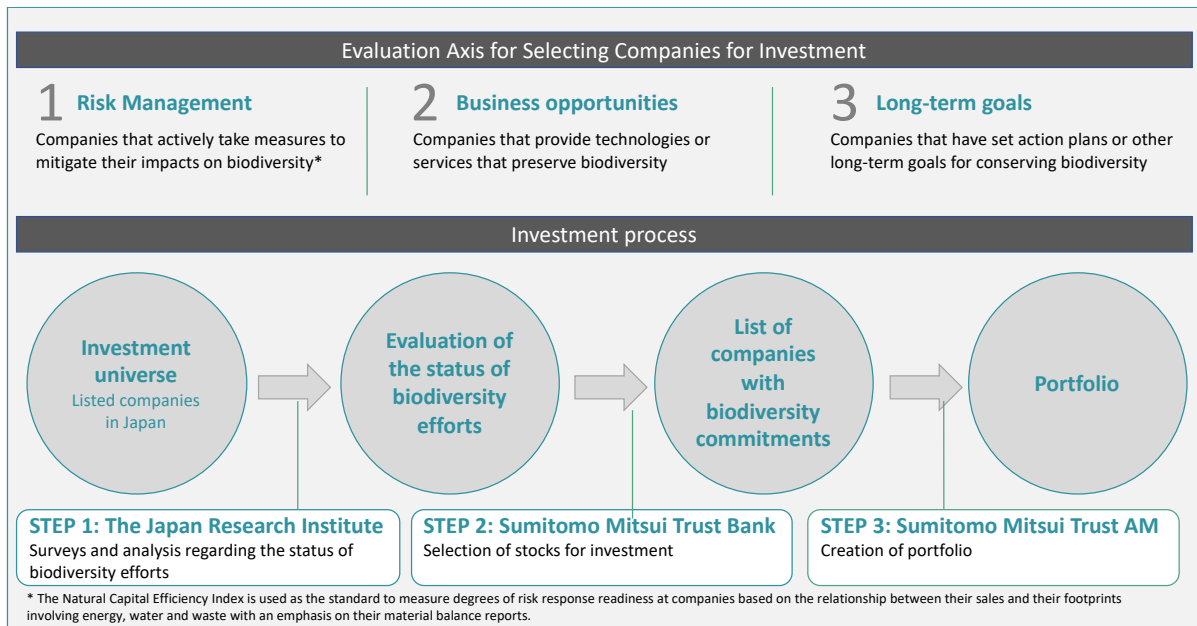
Biodiversity-related investments are relatively immature, with a limited track record compared to climate-related investments. Therefore, the proposition looks risky for investors and the rationale for investment weak.

The lack of readily available data, metrics and company research means that investors wishing to understand the risk exposure and opportunities linked to biodiversity have to develop in-house, bespoke tools. This also creates higher entry costs into, for example, biodiversity-themed funds.

One of the first biodiversity funds was developed by the Sumitomo Trust Group in 2010 in Japan. The Biodiversity Companies Support Fund invests in Japanese companies meeting certain biodiversity criteria and working to conserve and sustainably use biodiversity.³⁴

³⁴ See [Sumitomo MitSui Trust Holdings \(2015\) CSR Report and SuMi Trust Holdings \(2016\) Natural Capital CSR Report](#)

Figure 8: The Biodiversity Companies Support Fund. Source: [SumiTrust](#)



A survey³⁵ of 62 asset owners and managers with US\$3 trillion assets under management highlighted a small but growing number of investors financing the conservation of natural capital. Investments spanned:

- forestry and land use;
- sustainable agriculture;
- freshwater resources (e.g. wetlands, peatlands);
- coastal resilience (e.g. coral reefs, mangroves);
- fisheries and oceans; and
- natural flood defences.

Mirova, for example, has created a sustainable ocean fund to channel private investment into the ocean economy and Agriculture Capital invests in farmland and food processing assets to deliver regenerative agriculture at scale (see boxes 3 and 4).

A more common approach is for biodiversity to form one element of a broader thematic fund. Pictet Asset Management uses biodiversity as a screening criterion for an environmental solutions fund, using the [Planetary Boundaries framework](#) to define the investment universe and assess investment impacts. Using the same approach, biodiversity is also integrated into environmental impact reporting across its thematic equity funds.

In fixed income, blue and green bonds provide an opportunity to fund projects that deliver benefits for biodiversity.³⁶ Many green bond issuances relate to climate adaptation and mitigation, which may include biodiversity-related issues (e.g. sustainable land use and reforestation). Public sector issuers have a bigger presence in biodiversity financing than those in the private sector.

³⁵ [Cooper, G and Tremolet, S \(2019\) Investing in Nature: Private Finance for Nature-based Resilience. The Nature Conservancy and Environmental Finance](#)

³⁶ [Cooper, G and Tremolet, S \(2019\) Investing in Nature: Private Finance for Nature-based Resilience. The Nature Conservancy and Environmental Finance](#)

In Germany, the NRW Bank earmarked 30% of a €4.6 billion green bond issuance for climate change adaptation, part of which included river restoration. It tracked performance by monitoring the number of river species and areas of wetlands.³⁷ The [European Bank of Reconstruction and Development](#) launched a climate resilience bond in 2019, raising US\$700 million and including projects that address ecological resilience to climate change. Morgan Stanley was the bond distributor for US\$10 million worth of blue bonds aimed at addressing plastic waste pollution in oceans.³⁸

Box 3: Reversing the decline in marine ecosystems

A healthy ocean – supporting fisheries and aquaculture, energy production, trade and tourism – contributes around US\$3 trillion to the global economy annually. Expanding coastal populations and climate change have led to a significant decline in marine ecosystems, according to the [International Union for Conservation of Nature](#) (IUCN). Mirova's [Althelia Sustainable Ocean Fund](#) focuses on emerging markets and small island states to channel private investment into the ocean economy and help reverse this decline.

As of August 2020, the fund had raised US\$132million³⁹ to provide growth capital to companies in developing countries in Asia, Africa and Latin America that harness the ocean's natural capital, focusing on sustainable fisheries and aquaculture. A sovereign downside guarantee from USAID aims to reduce the investment risk and significant institutional co-investment commitments have also been made.

Mirova requires that funds:

- meet the IFC Social and Environmental Performance Standards;
- secure certification under “credible schemes”;
- drive conservation of locally and internationally important natural habitats, wild species and IUCN Red List-threatened species⁴⁰;
- involve no net loss of biodiversity; and
- are not involved in the trade of wild animals and plants listed by Convention on International Trade in Endangered Species.

Collaboration with environmental organisations is in place to ensure the fund upholds high environmental standards and facilitates stakeholder engagement.

The portfolio includes investments in the following categories:

- **Sustainable seafood** – seafood production and supply chains that increase efficiency and sustainability and enable best practice, aquaculture and wild-caught seafood businesses that can be certified as sustainable and access high-value global markets.
- **Circular economy** – key coastal infrastructure and businesses that deliver value from waste and pollution, focusing on plastics and waste-water management to avoid impacts to the ocean.

³⁷ [Cooper, G and Tremolet, S \(2019\) Investing in Nature: Private Finance for Nature-based Resilience. The Nature Conservancy and Environmental Finance](#)

³⁸ See [World Bank \(2019\) World Bank Launched Bonds to Highlight the Challenge of Plastic Waste in Oceans](#)

³⁹ See [Mirova's sustainable ocean fund achieves \\$132m close](#)

⁴⁰ The IUCN Red List of threatened species includes those considered vulnerable (VU), endangered (EN) or critically endangered. Evolutionarily distinct and globally endangered species are threatened and of national importance. See [Althelia Funds/Mirova \(2019\) Impact Report](#) for more detail.

- **Conservation investment** – coastal protection and management to improve biodiversity and resilience in coastal communities, create business opportunities through tourism/eco-tourism, payments for ecosystem services and blue economy infrastructure.

Mirova has set the following impact indicators, which are used alongside other environmental and social measures:

- **Sustainable landscape/seascape management** – hectares of land and seascape under sustainable management.
- **Sustainable production** – percentage of enterprises meeting sustainable certification standards.⁴¹
- **Biodiversity conservation habitat** – hectares of land and seascape under strengthened conservation.

Box 4: Delivering impact through regenerative solutions

Agriculture Capital (AC) invests in farmland and food processing assets to deliver regenerative food production agriculture at scale. It sets out the metrics used to monitor the impact of its investments in a framework called the [AC Way](#). AC tracks the health of its assets and the ecological and human communities it is part of. Data tracking is systemised to allow real-time decision making.

AC measures biodiversity, habitat quality, and greenhouse gas emissions on its farms using metrics and guidance from other initiatives, including the [Stewardship Index for Speciality Crops](#), and not-for-profit organisations, [Xerces Society](#) and [Project Drawdown](#). One of AC's key interventions for increasing biodiversity is planting and regenerating native hedgerows, which creates optimal conditions for wild pollinator activity when its core crops bloom. Wild bee conservation efforts can boost harvest yields and reduce farm operating expenses (such as from contract pollinator services), thus elevating ecosystem services. Since 2016, AC has measured a 232% increase in wild pollinator activity on the Oregon farms managed by its teams. By improving the abundance and richness of wild pollinator species, the operators can reduce the cost of imported honeybees, which can be as high as US\$900 per acre.

⁴¹ Such as Marine Stewardship Council, Aquaculture Stewardship Council, Climate Community Biodiversity Alliance or IFC performance standards.

STEWARDSHIP

ENGAGEMENT

There are a small number of investor engagements with a specific focus on avoiding and minimising biodiversity impacts.

[Aviva](#) has engaged agribusinesses on the topic of pollinators, recognising the dependence of agriculture supply chains on pollination. This included requests for information about governance, strategies, risk management approaches, metrics and targets in place to assess and address pollinator decline.

[Mirova](#) engaged with mining and metals companies to avoid operations in biodiversity hotspots and with oil and gas companies to avoid extraction in the Arctic.

[AXA IM](#) is engaging companies with activities known to impact biodiversity, or those companies most vulnerable to nature-related risks (see *Box 5*). It had a dialogue with 33 companies in 2019 and will continue engaging, requesting the following:

- **Biodiversity management and oversight** – having board and senior management expertise and oversight, company-wide assessment of impact and dependence.
- **Biodiversity operational impact management** – policies addressing biodiversity, direct and indirect supply chain biodiversity impact management programmes, external assurance.
- **Biodiversity transparency** – reporting of KPIs and setting targets.
- **Engagement response** – willingness to discuss biodiversity, responding to engagement over time, participating in external stakeholder initiatives.

Despite these examples, investor expectations on what constitutes good practice on biodiversity are not aligned or consistent, thus preventing companies from understanding what investors require. Existing guidance on biodiversity management good practice needs to be interpreted and consolidated into clear investment criteria or engagement requirements.

NGOs – which identify and raise the profile of emerging biodiversity issues, associated company practices and good practice – are also a driver for engagement. NGO assessments and campaigns on corporate behaviour and their impact on biodiversity can inform investors and raise reputational risks for companies.

Examples include the Ninety One and Aviva engagement with the extractives sector on adopting no-go and no-impact commitments for WHS following a WWF campaign (see *Box 2*), the Natural Value Initiative engagement led by Fauna & Flora International on biodiversity and ecosystem services⁴² and the Zoological Society of London's [SPOTT](#), which highlights sustainability risks and performance of companies in the palm oil sector that investors are engaging with.

Statements on biodiversity-related topics also outline investor expectations for companies and governments. For example, an investor-led statement on deforestation in the Amazon, released in September 2019, called on companies to take urgent action in relation to deforestation-linked forest fires in Brazil and Bolivia and to tackle the material financial deforestation risks within their operations

⁴² See [Fauna & Flora International, Nyenrode Business University, VBDO and UNEP Finance Initiative \(2011\) Tread Lightly: Biodiversity and ecosystem services risk and opportunity management within the extractive industry](#) and [Fauna & Flora International, FGV and UNEP Finance Initiative \(2009\) The Natural Value Initiative: Linking shareholder and natural value.](#)

and global supply chains. It was endorsed by 254 investors representing US\$17.7 million assets under management. A follow-up letter was sent by 29 investors to the Brazilian government in June 2020 to express their concerns on deforestation and environmental destruction and the exposure of companies in their portfolios and Brazilian bonds to these risks.⁴³ As there is ongoing uncertainty as to whether these risks, and the conditions for investing, will improve, some investors are threatening to divest from the country.

In addition to those biodiversity-specific engagements and statements, there are several investor engagements that focus on biodiversity-related topics, such as:

- sustainable seafood
- deforestation
- plastic pollution
- ecologically sensitive sites
- pollination
- neonicotinoids
- deforestation
- palm oil
- natural capital

For more detail on these, see *Annex 2*.

Box 5: Identifying and managing nature-related risks in the food sector

AXA IM identified biodiversity loss as a key research and engagement area. Based on their reliance on natural capital, the food and agriculture sectors were recognised as the most exposed to risk, alongside related consumer, materials, utilities and energy companies.

Food production is dependent on biodiversity, soil health and pollination services, and is a significant driver of biodiversity loss through its use of fertilisers, pesticides and plastic pollution. It also drives the exploitation of natural resources in the supply chain and the conversion of habitats for cattle or crop expansion. Implementing good biodiversity management practices can lead to security of supply, improved operational efficiency, avoidance of legal penalties or reputational issues and access to markets.

Companies were assessed for controversies, third-party data and an in-house ESG scoring methodology which considered natural resources and ecosystems. These companies became part of a targeted engagement programme to protect biodiversity and reduce investment risk. In 2019, AXA IM engaged with over 30 companies, of which one-third were related to the food sector, making the following recommendations:

⁴³ See [Financial Times \(2020\) Investors warn Brazil to stop Amazon destruction](#)

**Policy,
strategy &
management**

- Have a dedicated policy to ensure responsible agricultural practices, protect vulnerable ecological habitats/species, and target zero clearing of virgin forest in supply chains.
- Identify direct and indirect business dependencies on biodiversity and ecosystem services, and assess associated business risks, ideally using economic valuation.
- Have a dedicated approach to commodity sourcing, including mapping tools to track how commodities move through the supply chain.
- Minimise harm to business from biodiversity loss – including supply chain vulnerabilities, alternative ingredients/sourcing and integrating biodiversity factors into business strategy and decision making.

**Monitoring,
targets &
disclosure**

- Use biodiversity information systems, set targets, measure, value and report performance.
- Have transparency and targets for supply chain certification. Disclose the share of each commodity in the supply chain.
- Monitor, disclose and set ambitious targets of key performance indicators.

**Collective
action**

- Participate in multi-stakeholder biodiversity impact and dependency measurement initiatives.
- Share best practices and work towards common practices and tools.
- Participate in industry initiatives on biodiversity in collaboration with broader stakeholders.

For many of the companies, this was the first investor engagement dedicated to biodiversity. AXA IM's research showed that food companies are developing biodiversity protection approaches, but that these tend to address single issues such as overfishing, pesticides or deforestation, or one specific commodity such as palm oil or soy, rather than addressing the breadth of biodiversity issues within the supply chain. They also lack an overarching approach with a dedicated strategy, policy and targets. As a result of engagement, several companies have indicated a willingness to commit more publicly to managing biodiversity.

PROXY VOTING

The use of proxy voting to encourage corporate sustainability actions is rapidly increasing⁴⁴ and although proxy voting on biodiversity issues is not common, related issues such as plastics and deforestation are featuring increasingly within shareholder resolutions. An analysis of the shareholder resolutions put forward by members of the Ceres Investor Network on Climate Risk between 2011 and 2017 found that 52% of shareholder proposals to address deforestation risks in supply chains led to some form of commitment from the targeted company.⁴⁵ Resolutions addressed palm oil, soya, pulp and paper, timber and cattle supply chains as the main drivers of deforestation.

POLICY

The following section explores biodiversity policies and frameworks, and how they are translated to legislation, including integration into sustainable finance policy.

The Convention on Biological Diversity will set a global framework for biodiversity in 2021. Its strategic plan for 2010–2020 included the [20 Aichi Targets](#), which have not been achieved, partly because they could not be measured. The [zero draft of the Post-2020 Global Biodiversity Framework and accompanying draft monitoring framework](#) have been released for discussion this year. The resulting framework is anticipated to be ambitious, with measurable targets which countries will adopt and report on.⁴⁶

The EU has developed its Biodiversity Strategy for 2030, which will be reflected in and underpin biodiversity and financial policy, to align with the post-2020 global biodiversity framework. These objectives will be translated into legislation, such as the [Habitats Directive](#), which protects threatened or endemic animal and plant species and certain habitat types. All member states will have to report on this. Intergovernmental agreements such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) are implemented in the EU through the [EU Wildlife Trade Regulations](#).

Although drivers for action on biodiversity are increasing, with at least 100 countries now having some form of policy commitment to compensate for biodiversity impacts⁴⁷, often such requirements are not translated into regulation. Where regulations do exist, they often lack enforcement or have weak penalties for non-compliance. The extent to which legislation will act as a driver for corporate action varies in different jurisdictions.

Government policy and regulation can create conditions to facilitate the harmonisation of biodiversity-related data⁴⁸ by providing clarity on corporate reporting requirements, creating incentives to disclose and manage biodiversity impacts, and improving access to data.⁴⁹ More detail on this can be found in the *Meaningful data section*.

⁴⁴ [Edelman \(2018\) The Edelman Trust Barometer Special Report: Institutional Investors](#)

⁴⁵ [Global Canopy Programme \(2017\) 'Deforestation risk' companies under increasing pressure from investors](#)

⁴⁶ [Nature 2020 The United Nations must get its new biodiversity targets right](#)

⁴⁷ [GIBOP \(2019\) Global Inventory of Biodiversity Offset Policies](#)

⁴⁸ [WWF and AXA \(2019\) Into the wild. Integrating Nature into Investment Strategies](#)

⁴⁹ [Natural Capital Coalition \(2019\) Data use in natural capital assessments](#)

Regulations pertaining to corporate disclosure and risk management which address biodiversity are much less frequent in contrast to the climate agenda, where there are some frameworks emerging which are beginning to hold investors to account. At the national level in France, there are strong government signals that companies will be required to disclose their biodiversity footprints⁵⁰ and an [amendment](#) to Article 173 of the law on Energy Transition for Green Growth (2015) – which will require investors to explain their contribution to biodiversity conservation and present their biodiversity-related risks – has been adopted.

At the regional level, the [EU Taxonomy](#), which was developed as part of the European Commission's [action plan for financing sustainable growth](#), is expected to drive further consideration of biodiversity impacts among investors. It includes thresholds for economic activities to demonstrate that they have made a substantial contribution to one of six environmental objectives and a “no significant harm” requirement for investments potentially impacting on the other five objectives. These include significant drivers for preventing biodiversity loss (climate mitigation and adaptation, sustainable management and protection of marine and water resources, transition to a circular economy, pollution prevention and control) and the protection and restoration of biodiversity and ecosystems themselves.

Similarly, [Regulation \(EU\) 2019/2088](#) of the European Parliament and Council on sustainability-related disclosures in financial services requires market participants to report on:

- the integration of sustainability risks;
- the consideration of adverse sustainability impacts in their processes; and
- the provision of related information on financial products (including funds and pension products).

Biodiversity disclosures are currently included within proposed requirements which will come into force in March 2021.

Although biodiversity is not an explicit concern in many financial regulations, it is a significant source of financial risk and sustainability impact, so should be considered as part of existing obligations, such as the UK Pensions Act clarification on fiduciary duty and ESG and the EU regulation on sustainability-related disclosures in the financial sector. Where biodiversity-focused legislation is lacking and government action is limited, investors should advocate more for strong public policies. More detail is provided in the section on *Recommendations for institutional investors*.

⁵⁰ [CDC Biodiversité \(2019\) Global Biodiversity Score: A tool to establish and measure corporate and financial commitments for biodiversity](#)

MEANINGFUL DATA

The three enabling factors for biodiversity analysis are appropriate targets and standards, metrics by which performance can be measured and data to populate those metrics. A summary of the challenges identified in this section relate to the technical barriers listed in the *Barriers to scaling up action* section.

TARGETS AND STANDARDS

Although governments agreed to the Aichi Biodiversity Targets through the Convention on Biological Diversity, they have not gained traction within the private sector, nor do they readily lend themselves to holding businesses to account on their performance in managing biodiversity outcomes.

The lack of broadly agreed biodiversity metrics for governments and businesses has hampered efforts to develop a globally agreed target on biodiversity, around which a broad range of stakeholders can coalesce. Discussions⁵¹ are underway regarding targets for zero net loss of nature from 2020, net positive by 2030, and full recovery by 2050, reflected in the CBD's [Zero Draft of the Post -2020 Global Biodiversity Framework](#).

Linked to the Science Based Targets Network, a framework has also been suggested by an informal network of business, scientists and conservationists to commit to zero loss of biodiversity in areas of key biodiversity value, reduce impacts at key locations and compensate for those impacts, among other things. Guidance will be developed by mid-2020. However, the process will take years to conclude.

There are many biodiversity-related conventions (*see also the Policy section*), which cannot all be listed in this report, which set the international norm for the management of specific biodiversity aspects, such as the Ramsar Convention on Wetlands of International Importance, the Conservation of Migratory Species of Wild Animals, and the International Plant Protection Convention.

In terms of biodiversity-related standards for finance, IFC Performance Standard Six requires financial institutions to take a series of impact assessment and mitigation actions related to biodiversity, but it is intended for project-based, or direct, investments.

The EU Taxonomy, the SDGs and bond standards also have a role to play in setting the ambition for managing biodiversity and reducing biodiversity loss.

Reporting and disclosure standards for companies on biodiversity are lacking, which makes the benchmarking of company performance difficult.⁵² Current disclosure guidance through the [Global Reporting Initiative](#), the [CDP](#) Forests questionnaire and sector or commodity-based initiatives such as the [RSPO](#), are limited in the biodiversity measures they consider, or the sectors addressed for investors.

⁵¹ [World Business Council For Sustainable Development \(2020\) Insider Perspective: Global Commons Alliance Nature Target Prototyping](#)

⁵² [UNEP-WCMC \(2017\) Biodiversity indicators for extractive companies](#)

The majority of interviewees were supportive of a [Task Force for Nature Disclosure](#), modelled on the [Task Force for Climate-related Financial Disclosures \(TCFD\)](#), to develop a clear nature-related financial risk framework that encourages enhanced corporate disclosure.

Box 6: Biodiversity and bond standards

Standards or frameworks have been developed for green bond issuance such as the Green Bond Principles, Climate Bonds Standard or local standards such as Japan's green bond guidelines and taxonomy.⁵³ There are also developments for a Green Bond Standard under the [EU Action Plan](#). Whilst the Green Bond Principles and Japan's guidelines explicitly include protection of coastal, marine and watershed environments^{54,55}, some standards make no mention of biodiversity or lack guidance on what constitutes a 'biodiversity' or 'nature' bond. One interviewee felt that specific guidance or standards for nature bonds would emerge over time to reflect the specific needs and activities required to protect or enhance biodiversity.

METRICS

As outlined above, the lack of consistent metrics to assess fund or company performance with regards to biodiversity was identified as a key barrier by the investors interviewed. That said, several investors are actively working to integrate biodiversity risk into their investment decisions. Proxies for measuring impact are available, such as the potential overlap of company operations with ecologically sensitive areas, and work is under development to establish metrics that give insight into performance on biodiversity and portfolio impact (see *box 7 and Annex 3*).

A challenge around how to incorporate company and asset-level data in the absence of robust data sets and consistent corporate reporting remains. To address this, four French investors have launched a call to action to develop better measures of biodiversity impact and performance.⁵⁶

At a global level, SDGs 6 (water), 14 (marine) and 15 (land) all have indicators that relate to biodiversity specifically. In addition, the Global Impact Investing Network's (GIIN) impact assessment system, [IRIS](#), has a set of biodiversity and ecosystem metrics.

Box 7: Emerging biodiversity measurement approaches

Several biodiversity measurement approaches are being developed⁵⁷, including some targeted specifically at the finance sector.

The Global Biodiversity Score (GBS)

A subsidiary of Caisse de Depots, CDC Biodiversité has developed a method for calculating the biodiversity footprint of its economic activities. The Global Biodiversity Score calculates impacts on biodiversity using a lifecycle assessment approach. This looks at the pressures a company or sector exerts on the environment and calculates the potential impact of those on biodiversity. Five terrestrial pressures (land use, nitrogen deposition, climate change, fragmentation,

⁵³ [Green bonds: The state of the market 2018](#)

⁵⁴ [Green Bond Principles \(2018\) Voluntary Process Guidelines for Issuing Green Bonds](#)

⁵⁵ [Ministry of Environment, Government of Japan \(2017\) Green Bond Guidelines](#)

⁵⁶ See [IPE \(2020\) Asset manager quartet seeks to drive biodiversity up investors' agenda](#)

⁵⁷ [Lammerant, J., Grigg, A., Leach, K., Burns, A., Dimirijevic, J., Brooks, S., Berger, J., Houdet, J., Goedkoop, M., Oorschot, M.V., Kisielewicz, Müller, L \(2019\) Assessment of biodiversity measurement approaches for business and financial institutions](#)

infrastructure/encroachment) and four aquatic pressures (direct land-use change – wetlands, land use change in catchment, nutrient emissions, hydrological disturbance) are assessed. Based on this, the potential company impact is calculated using the mean species abundance metric (the ratio between observed biodiversity and biodiversity in its pristine state).

Three financial institutions have piloted the tool. For example, BNP Paribas AM piloted this approach to assess the biodiversity impact of a portfolio of 10 listed companies in the agri-food industry. Using data on turnover per region and industry of operation from Bloomberg and company annual reports, the value of BNP Paribas AM's investments and the share of each company owned, it was possible to calculate the footprint of the portfolio and the five highest-impact companies.⁵⁸

CDC Biodiversité has also worked with non-financial rating agencies (including Carbon4Finance) to combine issuer data with the GBS. The aim is to provide biodiversity footprint assessments of listed equity and fixed income assets. The GBS 1.0 was launched in May 2020 and consultancies and rating agencies are being trained to use it to assess corporate issuers and financial assets.

Biodiversity Footprint for Financials (BFFI)

BFFI was developed by consultants CREM and PRé on behalf of ASN Bank, which aims to achieve a long-term goal of having a 'net positive effect on biodiversity'. The footprint of investments is calculated to identify where the biggest risk of biodiversity loss is in a portfolio and areas for further research. Using a similar approach to the GBS, company pressures are used to calculate a potential impact on biodiversity.

Species threat abatement and recovery metric (STAR)

Developed by IUCN and originally developed for impact investors, the STAR metric uses IUCN Red list data to calculate the contribution an investment can make to reducing extinction risk. It considers the abatement of threats to prevent further deterioration of species' survival probability and the restoration of habitats to improve that probability.

Net Environmental Contribution (NEC)

Sycomore AM developed the NEC, with the support of I Care & Consult, Quantis and BNP Paribas Securities Services, to create a transparent, science-based and accessible methodology for measuring portfolio impact. It measures the environmental impact of an economic activity, company or sector to deliver a net contribution value on a scale of -100% to +100%. It uses data from across the value chain to give a snapshot of an activity's environmental contribution and can be applied at company, portfolio, index or product level. NEC assesses corporate biodiversity impact alongside other issues, such as climate, air quality, water, waste and resources. As it uses the best available data for each sector, the approach varies. For some – such as infrastructure – biodiversity is known to be an issue but data is lacking, so qualitative rather than quantitative measures are used. For the textile & apparel industry, for example, the assessment is based on the [Higg Materials Sustainability Index](#) (MSI) impact score from the Sustainable Apparel Coalition. NEC was initially developed for the Sycomore Eco Solutions fund's strategy, to measure its impact.

⁵⁸ [CDC Biodiversité \(2019\) Global Biodiversity Score: a tool to establish and measure corporate and financial commitments for biodiversity](#)

The fund, which includes criteria on ecosystem stewardship, excludes all or part of companies that destroy natural capital and that exhibit weak ratings against this score. NEC has now been extended to all investments.

Measuring fund performance against the planetary boundary framework

[Pictet Asset Management](#) has created an investment screening approach based on the Planetary Boundaries concept⁵⁹ and lifecycle assessment. The results form the basis of the investment universe used for constructing its Environmental Opportunities Portfolio and for impact reporting on all thematic equity portfolios. Biodiversity impacts are not modelled directly. A lifecycle assessment approach is used to calculate a score for biodiversity loss, based on where other planetary boundaries are the driver. The inclusion of key drivers of biodiversity loss (land system change, novel entities, biochemical flows, ocean acidification, aerosol loading and climate change) into Pictet AM's screening process ensures that biodiversity-relevant considerations are incorporated in its investment decisions. It follows a two-stage process: screening to identify companies compatible with the safe operating space and then proactively searching for companies offering environmental solutions (i.e. contributing to alleviating the pressure on at least one of the boundaries).

Creating alignment between different measurement approaches

Attempts are being made to bring together the lessons learned from these initiatives.

- GBS and BFFI have been working together with ACTIAM and Finance in Motion to identify and agree common ground between footprinting methodologies.⁶⁰
- Robeco and ACTIAM are among a group of Dutch Financial institutions, led by ASN Bank, working to develop a common accounting measure for the positive biodiversity impacts of their investments.⁶¹
- AXA IM, BNP Paribas Asset Management, Mirova and Sycomore Asset Management launched a call for expressions of interest for a partner to develop and implement a tool to measure the impact of investments on biodiversity.⁶² This is complemented by an [investor statement](#) with support from investors representing US\$6 trillion in assets under management.

⁵⁹ Planetary boundaries are processes that regulate the stability and resilience of the earth's ecosystems, outlining a series of boundaries which, when exceeded, will lead to irreversible and detrimental environmental changes. For more detail, see Rockström, J, Steffen, W, Noone, K, Persson, Å et al (2009) Planetary boundaries: Exploring the safe operating space for humanity. *Ecology and Society* 14(2): 32.

⁶⁰ [Berger, J; Goedkoop, MJ; Broer, W; Nozeman, R; Grosscurt, CD; Bertram, M; Cachia, F \(2018\) Common ground in biodiversity footprint methodologies for the financial sector](#)

⁶¹ See [Dutch financials join in biodiversity impact measurement push](#)

⁶² [AXA IM \(2020\) AXA IM, Bnp Paribas AM, Sycomore AM And Mirova Launch Joint Initiative To Develop Pioneering Tool For Measuring Investment Impact On Biodiversity](#)

ASSET AND COMPANY-LEVEL DATA

“Most biodiversity data is location specific and varies according to the actual asset at that location. Such data is difficult to aggregate at enterprise level.”

All investors interviewed identified a lack of access to appropriate asset and company-level data as an issue for assessing company performance and evaluating fund or investment impact. This indicates that even if metrics were established through the processes outlined above, that data gaps would need to be filled in parallel.

Data is often not fit for purpose. Biodiversity is location specific and varies according to the actual asset at that location. Therefore, it can be challenging to aggregate biodiversity data at an enterprise level. This is a major challenge for sectors which have extended, complex, natural resource-based supply chains. Biodiversity risk and impact is also measured differently within companies and sectors. Tools that give insight into actual impact and performance at the corporate or portfolio level are limited.⁶³ Some investors have developed bespoke scoring methods such as Sycomore AM's NEC (see *Box 7 and Annex 3*), whilst others obtain biodiversity information from third parties such as research and data providers.⁶⁴

An understanding of geographic risk is important for all asset classes if a true representation of biodiversity impact risk and opportunity is to be identified.⁶⁵ The extent of a company's impacts and dependencies on nature will vary according to where it is located or the location of its key supply chains and raw materials.⁶⁶ Tools to enable this assessment are not yet in place. [Ninety One \(formerly Investec\) and WWF](#) highlight the potential for spatial finance (the combination of geospatial data, earth observation data – such as satellite data – and financial analysis) to address these data gaps. Such approaches could be used to analyse systemic biodiversity risk.

Some interviewees have experimented with emerging biodiversity measurement approaches such as the GBS or BFFI (see *Box 7 and Annex 3*). The lack of measured data at the company or asset level (rather than modelled data) means that methodologies contain inaccuracies that impact decision making. Nonetheless, such approaches are considered a valuable starting point for understanding sectoral impacts on biodiversity. Approaches to measure industry dependence on biodiversity are less well developed.

ESG data providers currently focus on management measures which are proxies for performance but give limited insight into the impact of companies on the ground and how well these are managed over time.⁶⁷ There is also significant variation in how data providers address biodiversity within their

⁶³ OECD (2019) [Biodiversity: Finance and the Economic and Business Case for Action](#)

⁶⁴ PRI (undated) [An introduction to responsible investment: listed equity](#)

⁶⁵ [Ninety One \(formerly Investec\) and WWF \(2020\) Satellites and sustainability: New frontiers in sovereign debt investing](#)

⁶⁶ [WWF and AXA \(2019\) Into the wild. Integrating Nature into Investment Strategies](#)

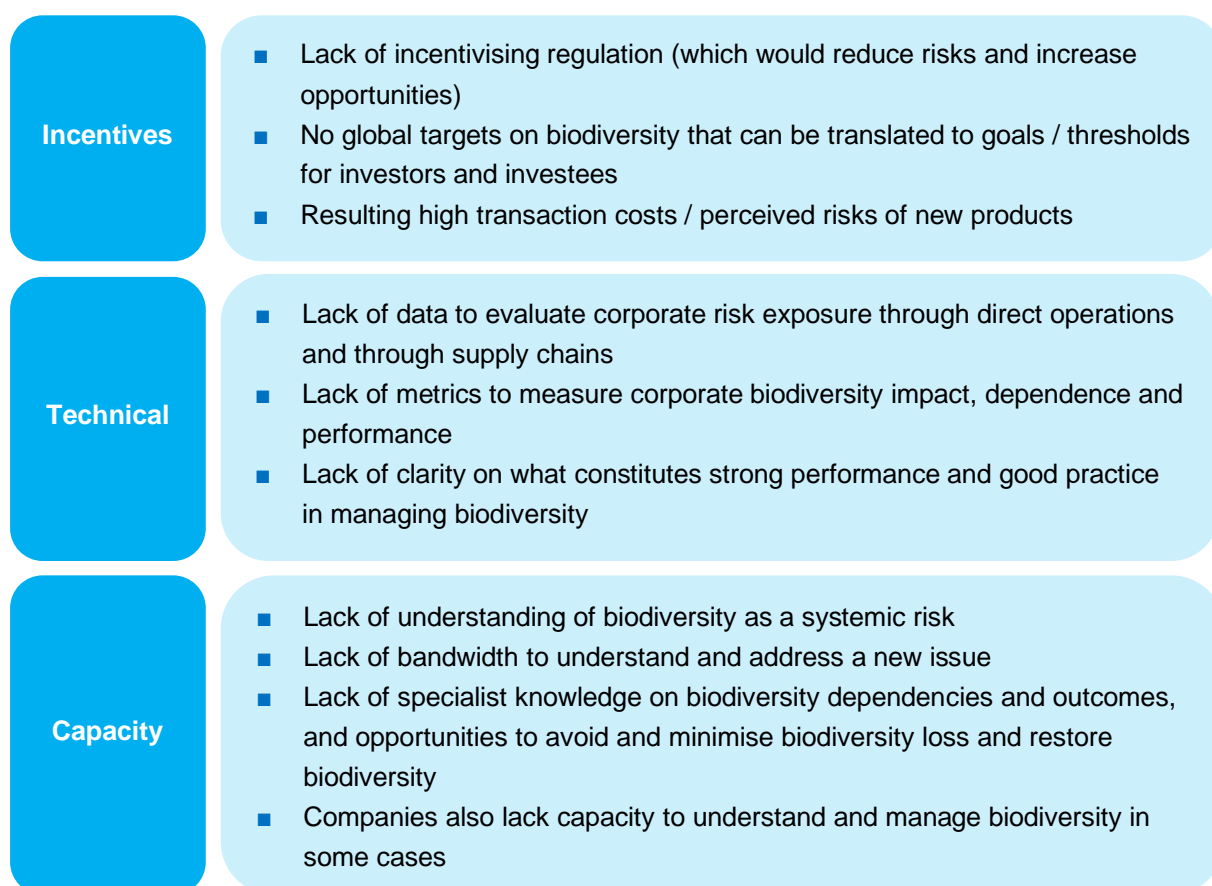
⁶⁷ UNEP-WCMC (Publication pending) Biodiversity measures for business: Business biodiversity measurement and disclosure within the current and future global policy context (A discussion paper)

research, such as the level of information and wide-ranging nature of questions asked of companies. Addressing this barrier will therefore require action by data providers to ensure the inclusion of biodiversity considerations within their ESG criteria and rating methodologies, as well as improved regulatory drivers for companies in the real economy to disclose biodiversity performance in a standardised way.

BARRIERS TO SCALING UP ACTION ON BIODIVERSITY

There are several barriers to increasing investor action. These are outlined in Figure 9.

Figure 9: Barriers to scaling up institutional investor action on biodiversity



RECOMMENDATIONS FOR INSTITUTIONAL INVESTORS

Investors need to address biodiversity loss at a sector, economic and global level. This entails working towards the post-2020 global biodiversity framework and having a focus on real-world outcomes. Universal investors and asset owners working to deliver absolute returns should tailor their investment activities to manage biodiversity loss as a systemic risk, rather than just through individual holdings.

Proactive institutional investors have already started to take action on biodiversity across their investment activities, despite the barriers that exist. Their actions highlight how biodiversity-focused ESG incorporation and assessments of sustainability performance could be scaled up.

Several reports have made recommendations for regulators, governments, ESG rating agencies/data providers, NGOs and academics⁶⁸ that can help scale up investor action on biodiversity, acknowledging that changes are required throughout the investment value chain to do so. These actions are not reiterated here. PRI has several recommendations for *institutional investors* to scale up action.

ALLOCATE CAPITAL

Investors should allocate capital to sectors or business models which are avoiding and reducing biodiversity loss and increasing opportunities for positive outcomes on the ground, including restoration. Investors need to assess and understand their existing and potential risk exposure to biodiversity loss, and their role in shaping biodiversity outcomes in portfolio construction, fund design and company selection.⁶⁹ This includes mapping sector risks and impacts associated with loss of, and dependence on, biodiversity, setting targets for managing biodiversity⁷⁰ as well as having an understanding of how the accumulation of legal activities contributes to the decline in biodiversity.

ENGAGE INVESTEEES

Investors should engage companies on reducing negative biodiversity outcomes and design stewardship approaches to deliver positive outcomes. Engagement should prioritise high-risk sectors – those that have a high dependency and / or high impact on biodiversity. In addition, investors can also explore the potential to engage with sovereign issuers to understand how they measure and manage natural capital. To facilitate this engagement, investors need to develop expectations on what constitutes good practice. They should develop sophisticated approaches to stewardship at the

⁶⁸ See for example the 2019 WWF/AXA IM report [Into the wild](#), the 2020 PWC and WWF report [Nature is too big to fail](#) and Cooper, G. and Tremolet S. (2019). [Investing in Nature: Private Finance for Nature-based Resilience. The Nature Conservancy and Environmental Finance. London, United Kingdom](#)

⁶⁹ Cooper, G. and Tremolet S. (2019). [Investing in Nature: Private Finance for Nature-based Resilience. The Nature Conservancy and Environmental Finance. London, United Kingdom](#)

⁷⁰ [UN Environment Programme, UNEP FI and Global Canopy \(2020\) Beyond 'Business as Usual': Biodiversity targets and finance](#)

sectoral and economic level to manage biodiversity as a systemic and portfolio-level risk, rather than just through individual holdings.

ENGAGE POLICY MAKERS

Investors should engage policy makers on reforming incentives, including subsidies and the integration of biodiversity into sustainable finance policy, to minimise and avoid negative biodiversity outcomes. Investors can help shape markets and the rules that guide and govern company behaviour and reporting requirements regarding biodiversity. Mapping the various biodiversity policies and how they are translated into legislation would help investors identify and leverage the rules to drive change.

Investors should also address some of the underlying issues that prevent action on biodiversity.

DRIVE MEANINGFUL DATA

Investors should engage with companies and data service providers to encourage the provision of more meaningful and consistent biodiversity data. Access to better biodiversity data, relevant data sets and the harmonisation of indicators will help investors identify and assess their portfolios' biodiversity exposure. Many interviewees called for an initiative styled on the TCFD, as is now developing under the Task Force on Nature-related Financial Disclosures (TNFD). This would encourage action and consistency of approach relating to risks and opportunities associated with biodiversity loss.

Investors should engage with green fund labels, green bond standard setters, commodity and certification schemes to fully integrate biodiversity into existing rigorous standards. This will ensure that biodiversity is adequately addressed across value chains.

Investors should build the capacity of investment and ESG teams to increase awareness of the importance of incorporating biodiversity. This also includes exploring partnerships with technical partners and third-party data providers, to assist in developing and delivering products and services and accessing data and metrics that factor in biodiversity risks and opportunities.

Investors should experiment with new tools and approaches to understand how investments at portfolio, company and asset levels shape biodiversity outcomes. Biodiversity measurement approaches and tools such as [ENCORE](#) (see *Annex 1*) require more widespread adoption to enable further refinement to provide the right level of analysis to meet investors' practical needs.

When we enter a phase of recovery and reform from the Covid-19 pandemic, and with attention on the contribution of biodiversity loss in triggering a global systemic shock to society and the economy, it is essential that investors play a role in meeting global biodiversity targets to prevent further degradation and contribute to positive biodiversity outcomes. A failure to meet the goals of the post-2020 global biodiversity framework would create an array of mounting risks – not only to investors but to the real economy, fundamentally impacting on our ability to remain within our planet's boundaries.

ANNEX 1: SELECTION OF TOOLS FOR UNDERSTANDING BIODIVERSITY RISK

TOOL	DESCRIPTION	USAGE	POTENTIAL
Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE)	A web-based tool designed to help financial institutions such as global banks, investors and insurance firms assess the risks that environmental degradation, such as the pollution of oceans or destruction of forests, cause. It is being further developed to enable the tracking of investor biodiversity commitments.	Engagement by investors. Impact and dependence on natural capital, including species and habitats.	The tool is valuable to assess overall risk exposure to natural capital externalities. It does not yet have tailored risk reports or asset-level data, making it a starting point for understanding risk exposure.
The Integrated Biodiversity Assessment Tool (IBAT)	Brings together three authoritative global data sets – the World Database on Protected Areas, World Database on Key Biodiversity Areas and the IUCN Red List.	Insurance industry. Project finance and private equity.	Does not contain industry/ asset-level data yet, making corporate-level risk exposure assessment difficult.
Satelligence	Tracks progress towards deforestation commitments using satellite data and artificial intelligence.	Used by investors (Actiam, Robeco) and the food industry (Cargill, Wilmar).	Limitations not yet clear. Approach being developed.
Global Forest Watch (GFW)	An open-source web application to monitor global forests in near real-time. The forest change data has been used to measure global deforestation rates and to detect and monitor illegal clearing activity, primarily in Indonesia. Provides data points from 100 global and local sources. Allows financial institutions to	Geospatial. Multiple commodity producers/processors. Used by investors in dialogue.	It requires a financial institution to know the exact location of client operations – making it more suited to project finance transactions. For other types of lending/investment, a financial institution is more concerned with aggregating risk types to develop a

TOOL	DESCRIPTION	USAGE	POTENTIAL
	determine if clients are operating in a concession with deforestation.		client risk profile – this tool will not allow for this. The uses are therefore limited to project finance and corporate engagement.
Natural Capital Protocol Finance Sector supplement	<p>Developed by the Natural Capital Coalition, Natural Capital Finance Alliance and the Dutch Social Investment Forum, VBDO, it guides financial institutions through the process of identifying, measuring and valuing material risks and opportunities as a means of informing financial decision making. Provides a framework for financial institutions to assess the natural capital impacts and dependencies of the entities and portfolios that they support.</p>	<p>Natural capital materiality analysis.</p> <p>Banking, investment and insurance.</p>	<p>The supplement is a starting point for internal engagement on natural capital and general awareness raising but does not provide specific processes to mitigate natural capital risk.</p>
Transparent supply chains for sustainable economies (TRAISE FINANCE)	<p>Links the trade of commodities that drive deforestation to financial markets. Provides a comprehensive picture of the ownership structures of global and local commodity traders and the financial flows to these companies. This information, in combination with deforestation risk data, identifies direct and indirect linkages between specific financial institutions and</p>	<p>Producer and consumer country governments.</p> <p>Commodity traders.</p> <p>Other stakeholders.</p> <p>Most relevant to trade finance.</p>	<p>Cannot assess which companies are directly responsible for deforestation.⁷¹</p>

⁷¹ See [Trase FAQs](#)

TOOL	DESCRIPTION	USAGE	POTENTIAL
	<p>instruments to deforestation risk companies.</p> <p>Trase Finance provides company and financier deforestation risk rankings, profiles and customisable portfolio screening to support new client and investment due diligence as well as enabling systematic portfolio screening and ongoing risk monitoring.</p>		
<p>Sustainability policy transparency toolkit (SPOTT)</p>	<p>Supports the finance sector and supply chain stakeholders to manage ESG risks by publishing transparency assessments of soft commodity producers and traders. By tracking transparency, SPOTT incentivises the implementation of corporate best practice. Focused on palm oil and timber but has plans to expand to other commodities.</p>	<p>Geo-spatial.</p> <p>Palm oil producers /processors.</p> <p>Finance sector (investors) interested in a dialogue with investee companies.</p>	<p>As a result of its collaboration with GFW (its data partner), SPOTT has the same uses (project finance) and limitations as the GFW tool.</p>

ANNEX 2: EXAMPLES OF INDIVIDUAL ENGAGEMENT ACTIVITIES ON BIODIVERSITY-RELATED ISSUES

ISSUE	DESCRIPTION	SECTORS	EXAMPLE ENGAGEMENT REQUESTS
Plastics	Significant consumer pressure and reputational risk associated with single-use plastics, which cause significant pollution and wildlife damage.	Food & beverage Retail staples	BMO 's engagement requests included: <ul style="list-style-type: none"> ■ Reduction of single-serve plastic packaging and increased recycled content; ■ Strategic approach to implementation and transparent disclosure of accurate plastics footprint and progress made.
Sustainable seafood	Declining fish stocks could significantly impact on security of supply.	Food Consumer goods	BNP Paribas Asset Management assessed its sustainability criteria relating to seafood, including biodiversity protection. Requirements included: <ul style="list-style-type: none"> ■ Phase-out of all fishing of CITES and IUCN-listed species; ■ Ban of destructive fishing methods; ■ Diversified seafood offering; ■ Other (e.g. no sales during breeding season, phase out deep sea species, fish escape management/engagement). ■ KPIs on volume of certified seafood and no. or percentage of sales of certified seafood were used to adjust ESG scores.
Pollination	Pollination directly affects the yield and/or quality of 75% of globally important	Food and agriculture	Aviva asks the following questions of companies: <ul style="list-style-type: none"> ■ Governance: How do you work with your suppliers on this topic? What is management's role in assessment and managing risks

ISSUE	DESCRIPTION	SECTORS	EXAMPLE ENGAGEMENT REQUESTS
	crops. ⁷² The decline of pollinators globally translates to market, operational and regulatory risk for companies. ⁷³		<p>and opportunities associated with pollinator decline? How do you keep abreast of the latest science?</p> <ul style="list-style-type: none"> ■ Strategy: What contingency measures and scenarios have been discussed? What initiatives and incentives have been put in place to mitigate the impact? ■ Risk management: How will your supply chain be affected by a loss of pollinators? Has this impact been quantified? ■ Metrics and targets: Describe targets used and performance against them. <p>Schroders produced a report – the Bee and the stock market – that highlighted the risks associated with pollinator decline.</p>
Neonicotinoids	Linked to the issue above, neonicotinoids (neonics) have been banned by the EU for their potential impact on bees. Their use creates regulatory and reputational risk.	Agrochemicals	<p>BMO requested a dialogue with ten companies involved in the production of neonics, asking that they:</p> <ul style="list-style-type: none"> ■ recognise biodiversity as a material and evolving governance issue, informing business strategies, lobbying practices and product innovations; ■ take the most stringent regulations globally as their benchmark; ■ assess and encourage corporate transparency on product biodiversity impacts; ■ scale research and development on crop protection products with lower biodiversity impacts; and

⁷² [IPBES \(2016\) Assessment Report on Pollinators, Pollination and Food Production](#)

⁷³ [Cambridge Institute for Sustainability Leadership, Fauna & Flora International, University of East Anglia, & UNEP-WCMC \(2017\) The pollination deficit: Towards supply chain resilience in the face of pollinator decline](#)

ISSUE	DESCRIPTION	SECTORS	EXAMPLE ENGAGEMENT REQUESTS
			<ul style="list-style-type: none"> develop meaningful farmer engagement and education on product biodiversity impacts and alternative farming methods.
Deforestation	Loss of forests can disrupt carbon cycles, impact water quantity and quality and soil erosion. Forest conservation is of increasing importance in climate strategies and regulation.	All companies with deforestation in their supply chains	Actiam has set a commitment to zero net biodiversity loss and zero net deforestation in its portfolios by 2030. It collaborates with geodata analytics firm Satelligence, gathering up-to-date information on worldwide deforestation, causes and trends. This informs Actiam's engagements with companies along the soft commodities supply chain. Most of its engagements are conducted collaboratively.
Palm oil	Concerns regarding carbon footprint, habitat and species loss have led to several high-profile NGO campaigns.	Agriculture Palm oil value chain	BlackRock 's palm oil policy focuses on engagement and requires commitments to certification and transparency. Robeco has developed an engagement programme in which target companies must meet minimum standards for land to meet Roundtable on Sustainable Palm Oil requirements by 2021 or be excluded.
Natural Capital	Trend towards assessing natural capital assets and stocks is leading to greater scrutiny of corporate practice.	Chemicals Retail Mining Financials Materials	BNP Paribas Asset Management encourages companies to disclose impact and dependence on natural capital. It is engaging with chemical company BASF on its approach to biodiversity as part of a broader engagement to stress test its approach to natural capital.

ANNEX 3: BIODIVERSITY MEASUREMENT APPROACHES

MEASUREMENT APPROACH	OVERVIEW	EXAMPLE USE
<u>Biodiversity Footprint for Financial Institutions (BFFI)</u> , developed by ASN Bank, CREM, PRé	Designed to provide an overall biodiversity footprint of the economic activities a financial institution invests in. It calculates a ‘potentially disappeared fraction’ of biodiversity based on the calculation of company impact. Is being expanded to capture positive contributions to biodiversity.	ASN Bank uses BFFI to determine how to have a net positive effect on biodiversity.
<u>Global Biodiversity Score (GBS)</u> , developed by CDC Biodiversité	Calculates a company’s biodiversity footprint measured by mean species abundance – the ratio between observed biodiversity and biodiversity in its pristine state. It is calculated based on terrestrial pressures (land use, nitrogen deposition, climate change, fragmentation, infrastructure/ encroachment) and five aquatic pressures based on the GLOBIO model developed by the Netherlands Environmental Assessment Agency (PBL).	Tested by BNP Paribas Asset Management ⁷⁴ , Mirova and the AFD ⁷⁵ , and six corporate issuers.
<u>Net Environmental Contribution (NEC)</u> , developed by Sycomore, Quantis, iCare & Consult, Lita Co and Swen Capital Partners.	Measures the environmental impact of an economic activity, company or sector to deliver a net contribution value on a -100% to +100% scale, using physical data from across the value chain. Can be applied at a company, portfolio, index or product/source level. Includes qualitative/ quantitative criteria on biodiversity.	Used to evaluate corporate performance on biodiversity within portfolio analysis.
<u>Pictet Asset Management</u> – bespoke approach	Framework developed in collaboration with the Stockholm Resilience Centre. Implements the scientific concept of planetary boundaries by combining it with a life cycle assessment methodology to estimate biodiversity impacts of portfolio holdings. Considers biodiversity as one of nine planetary boundaries, measured by extinctions per million species per year. Other planetary boundaries – Pollution, land use	Used by Pictet - Global Environmental Opportunities fund for portfolio construction and all thematic equity strategies for impact reporting.

⁷⁴ [CDC Biodiversité \(2019\) Global Biodiversity Score: A tool to establish and measure corporate and financial commitments for biodiversity](#)

⁷⁵ [CDC Biodiversité \(2020\) Measuring the contributions of business and finance towards the post-2020 global biodiversity framework](#)

MEASUREMENT APPROACH	OVERVIEW	EXAMPLE USE
	change, climate change and eutrophication, atmospheric aerosol loadings and ocean acidification – have direct impacts on biodiversity.	
<u>Species Threat Abatement and Recovery (STAR)</u> , developed by IUCN.	Measures contribution that investments can make to reducing the risk of species extinction. Uses IUCN Red List data to measure two site-based actions for species conservation: (i) the abatement of threats to prevent further deterioration in species' survival probability, and (ii) the restoration of habitat to contribute to improving species' survival probability. Tested on country and sector case studies.	Designed to assist the finance industry to target investments to achieve conservation outcomes and to measure contributions to global targets such as the SDGs.
<u>Agrobiodiversity Index (ABD)</u> , developed by Biodiversity International, CGIAR and Clarmondial	Assesses risks in food and agriculture related to low agrobiodiversity. ⁷⁶ Allows biodiversity trends in food systems to be understood and monitored. Based on the index results, companies in the food supply chains can understand the extent that resilience can be built for six risk areas by leveraging agrobiodiversity: malnutrition, poverty trap, climate change and variability, land degradation, pests and diseases, and biodiversity loss. Tested at a country level, currently being tested by companies.	Rate the policies and performance of food and agriculture companies ⁷⁷ , assess country risk in sovereign bonds and support investment pipeline development.

⁷⁶ Agrobiodiversity is the subset of biodiversity, domesticated and wild, which contributes to agriculture and food production.

⁷⁷ [Biodiversity International \(2017\) Reducing risks and seizing opportunities: integrating biodiversity into food and agriculture investments](#)

GLOSSARY

TERM	DEFINITION
Biodiversity	The variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes they are part of. This includes variation in genetic, phenotypic, phylogenetic, and functional attributes, as well as changes in abundance and distribution over time and space within and among species, biological communities and ecosystems.
Ecosystems	Defined by the Convention On Biological Diversity as a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.
Ecosystem services	The benefits people obtain from ecosystems. According to the original formulation of the Millennium Ecosystem Assessment, ecosystem services were divided into supporting, regulating, provisioning and cultural. This classification, however, is superseded in IPBES' assessment of nature's contributions to human systems, which considers the following services: basic life support for humanity (regulating), material goods (material) and spiritual inspiration (non-material).
Natural capital	According to the Natural Capital Coalition , these are the assets that underpin ecosystem services - the stock of renewable and non-renewable resources that combine to give a flow of benefits to people.
Nature-based solutions	According to the Commission on Ecosystem Management, these are actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.
Natural resources	The OECD defines natural resources as assets (raw materials) occurring in nature that can be used for economic production or consumption.
Planetary boundaries	The Stockholm Resilience Centre outlines nine processes that regulate the stability and resilience of the Earth. Planetary boundaries are thresholds within which humanity can continue to develop and thrive for generations to come. Crossing these boundaries increases the risk of generating large-scale abrupt or irreversible environmental changes.

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