By Re_Generation

# Ecological Wellbeing

## 1.2 Biodiversity, Ecosystem Services, and Land Use

### Description

Around the world, ecosystems are in peril due to a combination of deforestation, habitat destruction, desertification and land degradation, pollution, ocean acidification, and many other threats. The current rate of species extinction is at least 1,000 times the normal background rate, leading some scientists to claim that we have entered the sixth mass extinction event in Earth's history. Natural ecosystems have declined by 47% on average, while the global biomass of wild mammals has fallen by 82% relative to prehistory. According to the Swiss Re Institute, over 50% of global GDP depends on high-functioning biodiversity and ecosystem services. Land degradation is particularly catastrophic; about 85% of global arable land is threatened by erosion, salinisation, soil compaction or pollution, resulting in costs that could rise to US$10.6 trillion per year. Despite these threats, one study found that in 2019 alone banks around the world lent $2.6 trillion that was directly linked to ecosystem and wildlife destruction. The world has failed to achieve a single one of the decade-old Aichi Biodiversity Targets, and new targets are currently being renegotiated under the Convention for Biological Diversity. To learn more about Global Goal for Nature, science-based biodiversity targets from the Global Commons Alliance, and how corporations can become better stewards of biodiversity and natural capital, continue reading this PDF guide.

# Acknowledgements

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## About Re_Generation

Re_Generation is a Canadian youth movement that seeks to build a regenerative, sustainable, and just economy. We aim to reimagine our schools, repurpose our careers, and remodel our companies to be aligned with regenerative principles. In particular, we provide resources for individuals to launch impact-driven careers and advocate for change within their companies and schools. We also aim to advance public policies that promote regenerative and sustainable business practices.

Our successful 'Our Future, Our Business' Manifesto campaign received the support of 65 youth organizations, 130 high-level executives, and 100 civil society organizations recognizing the need for reform in business education on sustainability. After three years of existence as the Canadian Business Youth Council for Sustainable Development, we have changed our name to Re_Generation to become more inclusive of all youth, not just business youth.

We believe that the ideal society is a regenerative one. Regeneration to us means putting human and ecological well-being at the centre of every decision. It means restoring relationships, both within nature and within society, while helping all communities to thrive. Read more about our history and vision at our About Us page.

# Issue Summary

The collapse of the world's biodiversity receives fewer headlines than climate change, but it is no less menacing. The current rate of species extinction is at least **1,000 times the normal background rate**, leading some scientists to claim that we have entered the **sixth mass extinction event** in Earth's history. Natural ecosystems have **declined by 47% on average**, while the global biomass of wild mammals has fallen by 82% relative to prehistory. While climate change and pollution are partly responsible for biodiversity loss, the main culprit is land-use change, including land degradation and other forms of habitat destruction caused by industrial agriculture, deforestation, and other impacts. These destructive patterns are being driven by an economic system that incentivizes ecological degradation; one study demonstrated that in 2019 alone banks around the world **lent $2.6 trillion that was directly linked to ecosystem and wildlife destruction**. Since the Paris Agreement, banks and asset managers from the EU, UK, US, and China have **made over $157 billion in deals** with firms directly responsible for destroying tropical forests in Brazil, Southeast Asia, and Africa. For a comprehensive list of threats to global biodiversity, see page 20 of **this report** by the World Economic Forum on the future of nature and business.

Global ecosystem collapse presents as great of a risk to human civilization as anthropogenic climate change. According to the Swiss Re Institute, **over 50% of global GDP depends on high-functioning biodiversity** and ecosystem services, and the total value of pollination and soil health is estimated at $41.7 trillion alone. It is estimated that nature provides services worth at least **$125 trillion per year**, and over 1.6 billion people in the Global South depend on forests for their livelihoods. Land degradation is **particularly catastrophic**; about 85% of global arable land is threatened by erosion, salinisation, soil compaction or pollution, resulting in costs that could rise to US$10.6 trillion per year. Pollination is another ecosystem service that appears to be in decline; at a global level, **71 out of the 100 most commonly used crops**, which deliver 90% of our nutrition, are pollinated naturally. To make matters worse, climate change and biodiversity loss are **interdependent problems**, as climate change is one of the five main drivers of biodiversity loss, while biodiversity loss has the potential to exacerbate climate change (i.e. through land degradation that disrupts water and carbon cycles). The combination of desertification, climate destabilization, and the loss of pollinators could bring the world's food systems to the brink of collapse.

Similar to the UN Framework Convention on Climate Change, global biodiversity is regulated at the global level through a series of five treaties covering wetlands, desertification, migratory species, genetic resources, and the illegal trade of endangered animals that are collectively referred to as the **Convention on Biological Diversity** (CBD). The CBD convenes its 196 signatories at an annual 'Conference of the Parties', of which the 15th took place in October 2021. The strategic plan of the CBD is currently being renegotiated after the **failure of the international community to achieve the Aichi Biodiversity Targets** that were negotiated in 2010. Specific **policies under consideration** include increasing terrestrial, freshwater, and marine protected areas to 30% by 2030 (thus exceeding the existing 17% commitment), cutting nutrient runoff by 50%, limiting the introduction of invasive species by 50%, and investing in natural climate solutions, alongside an ambitious financing goal of $200 billion annually to support biodiversity protection and restoration.

In addition to the CBD negotiations, a group of Earth system scientists have collectively developed a new '**Global Goal for Nature**' that identifies three overarching objectives on a clear timeline: Zero Net Loss of Nature from 2020, Net Positive by 2030, and Full Recovery by 2050. The concept of being '**nature-positive**' refers to a situation in which organizations actively restore more natural environments than they harm, with the goal of fully replenishing the health of natural systems by the year 2050. Important milestones in this goal include achieving 20% native vegetation recovery in heavily transformed areas, and

restoring 350 million hectares of degraded land by 2030 as outlined in the global **Bonn Challenge**.

Although the concept of net zero nature loss borrows from techniques developed in the fight against climate change, we must be aware that the threat of biodiversity loss is inherently more complex and thus more difficult to quantify than global GHG emissions. While climate scientists have developed significant ecological thresholds relating to global temperature rise (such as the 1.5 degree limit reflected in the Paris Agreement), many biodiversity-related thresholds remain opaque. A constellation of organizations is currently working to address this problem under the auspices of the **Global Commons Alliance**, particularly through the work of **Earth Commission** (which aims to quantify thresholds) as well as the **Science-Based Targets Network** (which aims to engage cities and companies in target-setting efforts).

# Key Considerations

In order to better understand the issue of biodiversity loss, there are some essential concepts which are worth reviewing. Most important is the notion of '**natural capital**', which refers to the total stock of renewable and non-renewable natural resources on the Earth that provide benefits to human beings. These benefits, also referred to as 'ecosystem services', can be further classified into four key categories as defined by the **Natural Capital Protocol**:

1. Provisioning services: material outputs from nature (e.g. water, food, timber, genetic resources).
2. Regulating services: indirect benefits generated through regulation of ecosystem processes (e.g. water filtration, pollination, erosion control, carbon sequestration, etc);
3. Supporting services: fundamental ecological processes that support the delivery of other ecosystem services (e.g. nutrient cycling, soil formation, etc).
4. Cultural services: non-material benefits from nature (e.g. aesthetic, recreational, etc).

All businesses depend to some extent on natural capital and ecosystem services, whether explicitly or implicitly. To better understand the relationship between business and nature, firms must develop a map of both their **'impacts' and 'dependencies'** on ecosystem services. Impacts include all a firm's positive or negative contributions to the state of nature, while dependencies refer to all of the contributions that ecosystem services provide to businesses and human systems. For example, many businesses depend not just on natural inputs for supply chains (such as arable land, water, or raw materials), but also on key regulating services such as water filtration, waste management, and flood protection.

Developing a robust understanding of both impacts and dependencies is necessary for firms to better ascertain their 'nature-related risks', a concept that has been developed by the Network for Greening the Financial System. Similar to the concept of climate-related risks, nature-related risks can be disaggregated into both physical risks resulting from the collapse of ecosystem function (inclusive of both abrupt, acute shocks as well as longer-term chronic changes), and also transition risks related to increased liability, compliance costs, and reputational damage associated with the transition towards a nature-positive economy. NGFS has also developed the concept of 'systemic risks', which include all nature-related risks that extend beyond the boundaries of individual organizations to affect the economy as a whole and thus represent a risk to system-wide financial stability.

When developing strategies to reduce nature-related risk and restore biodiversity, some groups have developed the concept of a 'mitigation hierarchy' that outlines a list of mitigation actions in order of priority. The mitigation hierarchy begins with first avoiding negative biodiversity impacts in general, followed by restoring biodiversity wherever possible, and only using compensatory measures such as bio-

diversity offsets as a last resort. The Science-Based Targets Network has developed their AR$^3$T model, which includes actions to avoid and reduce impacts, restore and regenerate ecosystems, and transform organizations from within. Avoidance actions may include redesigning or canceling potentially damaging projects, introducing processes to avoid polluting substances, adopting zero tolerance supply chain policies related to deforestation and land degradation, avoiding resource extraction through circular procurement policies, and many other types of approaches. Reduction actions include sustainable production and sourcing policies, GHG reductions, while restoration and regeneration actions include a direct focus on reforestation, landscape revitalization, habitat protection, regenerative agriculture, regenerative product design, and other actions that aim to rehabilitate ecosystem function.

# Tools and Frameworks

## 1. Disclosure and Reporting

As a first step in the journey towards becoming nature-positive, firms must commit to regular biodiversity reporting. There are a wide variety of tools and frameworks available for corporate biodiversity reporting, many of which build on the **original guidelines** and **biodiversity indicators** developed by the International Union for Conservation of Nature.

The Science-Based Targets Network (SBTN) has developed a **comprehensive set of guidelines** for businesses looking to report on their biodiversity impacts and dependencies and develop a plan for mitigation actions. The first step in this process is to assess impacts and dependencies through a three-level process:

1. Develop a sector-level materiality assessment by employing their materiality map available on page 21, a tool designed to help identify the biodiversity-related issues that are most salient for each economic sector;
2. Create a 'spatially explicit' value chain hotspot assessment by examining which specific locations throughout the value chain are most likely to experience negative biodiversity impacts, and which particular impacts the firm has direct or indirect control over;
3. Develop a company-level refinement of the sector-level and value chain assessments in order to produce a comprehensive list of issue areas using company-specific information.

There are a variety of materiality assessment tools that businesses can use to estimate impacts and dependencies. One commonly used tool is the **ENCORE** database, developed by the Natural Capital Finance Alliance, which links 21 specific ecosystem services, derived from eight kinds of natural capital, to 86 different economic production processes, with a unique scoring methodology to identify relevant dependencies. In this definition, dependency is defined as the degree of disruption to economic processes that would occur if an ecosystem service collapsed, and the associated financial losses. The Climate Disclosure Standards Board has also developed its own materiality assessment process, with steps available on page 28 of **this report**, as well as comprehensive criteria for disclosure available on page 29. The materiality assessment includes 10 steps:

1. Identify and assess biodiversity dependencies and impacts across business activities, the value chain, and their respective locations;
2. Assess links with overall business, including management, strategy and processes (e.g. risks assessment, value creation opportunities, monitoring systems);
3. Assess biodiversity-related current and future risks and opportunities and their business implications over time;
4. Consider different categories of risks and opportunities, including risks from operations, value chain

and geographical context;
5. Prioritize areas of strategic relevance, including identifying priority species, ecosystems, geographic areas and products/services;
6. Assess company's biodiversity-related capacity (expertise, stakeholder engagement capacity, monitoring systems);
7. Detail resource needs and allocation (financial and personnel);
8. Define biodiversity policies, goals, contextual targets and metrics that address the main risks and opportunities and contribute to business goals;
9. Determine management responses using the mitigation hierarchy;
10. Monitor performance over time and consider likely future effects of biodiversity risks and opportunities.

In conducting a materiality assessment, it is necessary that businesses adopt a '**double materiality**' approach as advanced by the newly created Taskforce on Nature-Related Financial Disclosures. This will ensure that organizations disclose not just how nature may impact their financial performance ('outside in'), but also how organizations impact nature in general ('inside out'). Businesses should be careful to report on all impacts that are ecologically significant, even if they are not found to materially alter the firm's financial position.

There is a profuse number of metrics that have developed to understand a firm's biodiversity impacts, a degree of specificity that can be overwhelming for practitioners. Specific nature-related data is available from a variety of regularly updated databases, including the **IUCN Red List Index**, the **Living Planet Index**, and the **Biodiversity Intactness Index**. The EU Business @ Biodiversity initiative has developed a **comprehensive review of available metrics** specifically for businesses, which include indicators such as the Global Biodiversity Score, Corporate Biodiversity Footprint, Biodiversity Impact Metric, Species Threat Abatement and Restoration metric, and others. In particular, biodiversity footprints are often determined through calculations of 'mean species abundance', which identifies the average abundance of native species in a given area relative to their natural abundance in an undisturbed state.

The Global Reporting Initiative has identified the **primary indicators that companies should disclose** to keep track of their biodiversity impacts, which include:
1. The size, location, and activity of operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value;
2. Significant impacts of activities, products, and services on biodiversity;
3. Significant direct and indirect positive and negative impacts with respect to species affected, extent of areas impacted, duration of impacts, and reversibility or irreversibility of the impacts;
4. Habitats protected or restored, including size, location, and third-party relationships.

Businesses looking to begin disclosure initiatives should start with the **Integrated Biodiversity Assessment Tool** (IBAT), a multi-stakeholder collaboration that aims to offer a 'one-stop shop' data search service for those seeking authoritative global biodiversity information. Firms can also make use of the **Global Biodiversity Information Facility**, which is a free and open-access alternative to the IBAT (which requires a subscription fee).

There are a variety of issue-specific tools that have been developed for particular ecozones. For land issues, **Global Forest Watch** offers granular data about the world's forest biomes, with a particular focus on tropical deforestation, while **trends.earth** tracks land-use change across the world. For data specific to ocean environments, **Oceans+** and **Global Fishing Watch** provide decision-relevant data related to marine conservation and global fisheries. Other initiatives, such as **InVEST**, the **UN Biodiversity Lab**,

and Resource Watch, make innovative use of spatial imaging technology to provide robust and reliable biodiversity data at a global level. For supply chain modeling, organizations can employ environmentally-extended input-output models, such as EXIOBASE, as well as trase.earth.

Because biodiversity reporting is a developing field, there is a considerable amount of fragmentation in accounting methodologies, which presents a challenge to data comparability and authenticity. There are a number of approaches aiming to consolidate existing initiatives, including the Align Project of the European Commission, which hopes to standardize approaches to global biodiversity accounting and measurement. The UN Statistical Commission has also recently adopted an Ecosystem Accounting methodology which aims to create an integrated and comprehensive statistical framework for measuring the ecosystem services.

When gathering data for biodiversity reporting purposes, firms can make use of a wide variety of techniques. Firms should collect primary data, which includes information gathered from site-assessments or remote sensing and spatial imaging technology, as well as secondary data gathered from academic studies or existing models developed by third-parties. According to the United Nations Environment Program, reporting metrics must adhere to eight dimensions of data quality:

- Relevance;
- Resolution (spatial and non-spatial);
- Temporality (i.e. time series data);
- Frequency of update;
- Geographic coverage;
- Accessibility;
- Comparability;
- Thematic coverage;
- Authoritativeness (including traceability).

For reporting purposes, the SBTN urges businesses to set a relevant baseline year (which should be as recent as possible), as well as a 'reference state' that communicates the ideal ecological conditions of an affected environment. The SBTN has also developed a set of principles for adopting measurement indicators, which includes that they must be location-specific, practical, controllable, predictable, transparent, science-based, incentivizing, and comprehensive.

Firms should also aim to conduct an 'ecosystem valuation', which is an approach that estimates the relative importance, worth, or usefulness of natural capital on a qualitative or quantitative basis. The Capitals Coalition has developed its own Natural Capital Protocol to aid businesses in ecosystem valuation, and the World Resources Institute has also created a guide for corporate ecosystem services review. The Natural Capital Protocol asks businesses to identify and measure changes in natural capital associated with business operation, and determine appropriate valuation techniques to assess specific costs and benefits.

Firms should be sure to review the guidelines and frameworks from the Taskforce on Nature-Related Financial Disclosures (TNFD). These will include tools for scenario analysis, to help businesses conduct forward-looking analyses of their exposure to nature-related risks, in alignment with the goals of the CBD Global Biodiversity Framework. The TNFD is similar in structure to the TCFD in that it focuses on four key elements: metrics and targets, governance, strategy, and risk management.

## 2. Target-Setting

All firms should aim to adopt targets that are in line with the Global Goal for Nature, as well as the announced goals of the renegotiated CBD framework. Similar to net zero goals on climate change, these targets should include a commitment to a nature-positive value chain by 2030, and full ecosystem recovery by 2050.

The Science-Based Targets Network is currently developing a list of nature-related targets that firms should employ when developing their nature-positive transition plans, many of which have not been quantified yet. Pages 38-39 of their **initial guidelines for businesses** include a tentative list of targets for land use change, resource exploitation, ecosystem health, species diversity, and a variety of other issue areas. Specific to land use change, SBTN recommends that firms adopt the goal of zero deforestation and zero conversion of natural habitats in the value chain by the year 2030, in line with recommendations by the **Accountability Framework Initiative**. SBTN also advocates that firms aim to regenerate ecological activity within their value chains by adopting targets for regenerative agriculture and soil health, ecosystem connectivity and integrity, species threat abatement and recovery and a variety of other indicators. Future guidance on these targets is expected to be released shortly, with a consideration for evolving research around planetary boundaries and Earth system governance.

In adopting nature-positive targets, firms should follow the mitigation hierarchy by staying away from reliance on biodiversity offsets. The concept of **net-zero biodiversity loss** should not mean that firms hope to 'offset' their negative impacts by simply recreating threatened ecosystems in other locations, an approach which neglects to understand the complex nature of ecosystem interactions and creates a false impression that individual ecosystems can be interchangeable or fungible with one another. Firms must limit their use of **biodiversity offsetting** by committing first and foremost to reducing biodiversity loss altogether, rather than attempting to recreate endangered habitats through artificial means. If biodiversity offsets are to be used, they must abide by these **principles** developed by the IUCN.

## 3. Developing Action Plans

Following the AR3T framework, businesses should begin by avoiding harmful actions altogether. The SBTN has developed a list of criteria for particular actions that should be avoided, which include activities that:

- Cause species extinction or ecosystem collapse, for example by disrupting migratory routes or polluting nesting grounds;
- Cause adverse effects on internationally recognized sensitive areas;
- Cause negative impacts on a Key Biodiversity Area (KBA) to the extent that it would no longer meet the criteria for a global KBA;
- Render land degradation neutrality goals (e.g. those under the UN Convention to Combat Desertification) infeasible;
- Cause surface or groundwater stress that exceed environmental flow limits;
- Cause species or ecosystems to be listed as threatened or to move into a higher category of threat, according to the criteria of the IUCN Red List of Threatened Species and the IUCN Red List of Ecosystems;
- Entail an insurmountably negative effect on ecosystems' abilities to generate nature's contributions to people (NCP) including cultural or spiritual contributions;
- Sever crucial ecological connectivity functions in a land/seascape, for example by converting the only remaining ecological corridor between two areas of natural habitat.

The SBTN has outlined three kinds of avoidance actions. These include spatial actions (i.e. avoiding impacts in sensitive areas by rerouting projects or forgoing development altogether), technological actions (i.e. using less impactful technologies or techniques that protect ecosystem integrity, such as wildlife corridors), and temporal actions (i.e. avoiding damaging activities during ecologically sensitive times, such as mating season or periods of water stress).

If damaging behaviours cannot be avoided, there are changes which can be adopted that work to reduce negative impacts, or to restore or regenerate damaged ecosystems. Common reduction actions intersect with circular economy models in that they aim to enhance process changes, product design changes, product stewardship or supplier engagement programs, and business model alterations that help limit negative biodiversity impacts. Companies should also seek to actively participate in the restoration and regeneration of ecosystems by:

- Supporting individual species recovery;
- Adopting regenerative agriculture, aquaculture and agroecological techniques;
- Rehabilitating degraded lands;
- Replenishing freshwater systems;
- Allowing for ecological permeability;
- Engaging in target-based ecological compensation (as a last resort).

Restorative and regenerative actions are particularly important when developing nature-positive strategies that contribute to the Global Goal on Nature. The United Nations has declared a global **Decade on Restoration** beginning in 2021, and the Food and Agriculture Organization has developed a list of **principles for ecosystem restoration** that complements these goals. Sample restoration case studies are available from the **Global Partnership on Forest and Landscape Restoration**, **Commonland**, as well as **Initiative 20x20**, which has developed its own **Sustainability Index for Landscape Restoration**. The organization Get Nature Positive has a specific **call to action** related to ecosystem regeneration, and a **bank of specific actions** that firms can adopt in their transition plans.

Businesses should also seek to transform their internal operations and governance processes to ensure alignment with nature-positive goals. Within their direct operations, firms must make sure to allocate sufficient resources to achieve goals, evaluate their business model's alignment with nature-related goals, and develop relevant training programs for employees. Within their value chains, firms can adopt supply chain policies that require partners to collect standardized data on environmental impacts, and introduce incentive systems to reward positive behaviours. At a system-level, firms should join industry-wide groups such as One Planet Business for Biodiversity (OP2B) in order to collaborate with like-minded companies and create positive pressures for suppliers.

Specific governance-related action items from the CDSB include:

- Biodiversity-related policies, strategy and management responses that are delegated to management;
- Specific roles or mechanisms in place in priority geographical areas and for priority products/services to tackle compliance with the biodiversity-related regulatory landscape, implementation of biodiversity management responses and engagement with stakeholders;
- Clear systems for accountability and incentivisation of biodiversity management throughout the business and supply chain.

## 5. Sector-Specific Guidance

Land-use change, primarily driven by unsustainable agricultural practices, is the largest driver of global biodiversity loss. There is an overwhelming need for firms to commit to responsible sourcing throughout their supply chains in a way that limits deforestation and habitat loss. Specific to the agriculture and forestry industries, the **Accountability Framework Initiative** has created a suite of tools and guidelines for firms to use in building ethical supply chains. The Initiative has compiled a list of **all adjacent initiatives** at a global level, including certifications and roundtables, monitoring and reporting tools, international norms and policies, and land use planning and management tools that might be relevant for agribusiness and forestry firms. The IUCN has also developed **guidelines for net positive impacts** on nature in the agriculture and forestry sectors.

Specifically to address deforestation, the **Deforestation Risk Toolset** has been created as a partnership between AFI, Trase, and Global Forest Watch to help firms ascertain their exposure to deforestation throughout their supply chains. In partnership with the Carbon Disclosure Project, AFI has also developed a **disclosure framework** for deforestation-free supply chains. Specific to the financial sector, the organization Deforestation Free Finance has developed a comprehensive, three-phase **financial sector roadmap**. The World Business Council on Sustainable Development has a **sector guide** for the forest products industry, and has developed a **roadmap for SDG implementation** in the forestry sector. The **Forest Stewardship Council** provides one of the most prominent certifications for responsible forestry management. Specific to the palm oil industry, Conservation International has a special **project on sustainable palm oil**, with specific sourcing guides for industry. For organizations specifically focused on reducing impacts from global deforestation, check out **Global Canopy**, **Forests and Finance**, the **Rainforest Action Network**, and **Global Forest Watch**.

Firms should also commit to responsible sourcing practices throughout their agricultural supply chains. The Food and Agriculture Organization (FAO) has developed a list of **cross-sectoral frameworks** for sustainable agriculture, with specific guidelines for land and forest management. The **Sustainable Agriculture Initiative Platform** has also created a **list of principles and best practices** for sustainable agriculture. The OECD has developed a set of **responsible supply chain guidelines** in collaboration with the FAO. For sustainable sourcing of agricultural raw materials, Business Social Responsibility has developed this comprehensive **practitioner's guide**. In particular, firms should aim to source from producers that employ **regenerative agricultural practices**, or **agroecological** techniques that aim to produce food by **restoring biodiversity**, **sequestering soil carbon**, improving soil health, and **treating farms as living systems**. The **Regen10 network**, launched at COP26, aims to rapidly accelerate investment in regenerative agriculture and transform global food systems over the next decade. For regenerative sourcing practices, the Rodale Institute has developed this **regenerative buyer's guide**, in addition to labeling and sourcing programs such as the **Soil Carbon Initiative**, **Land-to-Market** certification, the **Regenerative Organic** label, and other projects. For investors, the Conservation Finance Network has a list of **criteria for investors** looking to direct capital towards regenerative food systems.

The extraction of resources, namely through mining or oil and gas production, is another key contributor to biodiversity loss. The IUCN **engages directly** with the extractives sector, and has begun a **partnership with the International Council on Mining and Metals** to accelerate responsible mineral sourcing. UNEP has developed a **list of biodiversity indicators** specific to the extractives sector, while the EU Commission has developed this set of **industry best practices**. For the global fashion industry, the Cambridge Institute for Sustainability Leadership has developed this **framework** for developing a corporate biodiversity strategy.

## 5. Tools for Investors

The financial sector is increasingly aware about biodiversity-related risks, and a groundswell of new commitments are being made by banks and investors to deforestation, habitat loss, and other harmful activities. The United Nations Environment Program has compiled this **assessment report** about the state of finance for nature-based solutions, with an explicit call for investors to commit more capital in order to close an estimated $4.1 trillion funding gap.

The Convention for Biological Diversity has developed a **quick reference guide** for the finance sector, with a list of finance-specific initiatives that are being developed around the world. UNPRI has developed a **guide for investors** to help with investment allocation, stewardship, policy, data requirements, and a variety of other considerations. The **Dasgupta Review**, the landmark 2021 report on the economics of biodiversity, has also released a set of **pathways for the financial sector** specifically related to mobilizing capital, risk management, upskilling, and co-funding or blended finance opportunities. To aid firms in assessing the value of natural capital, the Natural Capital Finance Alliance has developed **this guide on natural capital risks and opportunities**. For sector-specific information on priority investment areas, check out this **report by UNEP** and the Natural Capital Finance Alliance on moving beyond 'business as usual'.

Financial institutions should aspire to join the **Finance for Biodiversity pledge** launched in 2020, a consortium of 84 financial firms committing to collaborate on biodiversity goals, share knowledge, assess impacts, set targets, and report data publicly. Together with the EU's **Finance@Biodiversity Community**, the pledge has developed a **guide on biodiversity measurement** that is specific to the financial sector. Preventable Surprises, a UK-based think tank, has also compiled this **investor agenda on biodiversity action**, as well as a series of **recommendations for developing financial market strategies**.

UNEP has recognized a clear need for financial institutions to **improve the depth and scope of their biodiversity rating criteria**, as there is a significant gap in quality data. The three most common metrics that firms employ to rate companies include the volume of sustainably certified produce, water volumes and usage, and involvement of companies in severe biodiversity controversies. To arrive at a more accurate picture of corporate performance on biodiversity, more granular and specific metrics will be necessary to compel greater action.

# Case Studies

For case studies of successful corporate reporting on biodiversity issues, see this **list of cases** from the EU Commission, such as **this biodiversity assessment** of a LafargeHolcim mine in Spain. To see a searchable list of over 1,240 businesses taking actions to improve nature, see this **list of case studies** from the SHIFT community.

One interesting example of ambition comes from Unilever, which has announced the creation of a €1 billion **climate and nature fund** that will be used to finance restoration, reforestation, carbon sequestration, and water conservation efforts. Particularly noteworthy is Unilever's articulation of **regenerative agriculture principles**, its sustainable agriculture code, and its **program with the Knorr food brand** to accelerate investment in over 50 regenerative agriculture projects focusing on pollinator protection, soil health, and other issues. Similarly, Maple Leaf Foods has announced ambitious commitments to become the '**most sustainable protein company on Earth**' by investing heavily in alternative, plant-based proteins.

Some investors have also created conservation finance funds that are specifically geared towards the funding of positive biodiversity conservation outcomes. Some examples include Mirova's **Land Degradation Neutrality Fund**, and the **natural capital investment joint venture between HSBC and the Pollination Group**.

Smaller scale examples of regenerative agriculture practices are also extremely inspiring. For the past 45 years, the **Hawthorne Valley Association** has been operating a network of 'biodynamic' farms that make a conscious effort to treat farms as ecological systems, while also regenerating community structures and funding local initiatives. **Axten Farms** is a family-owned business that operates without the use of synthetic fertilizers and practices no-till agriculture, while **Y U Ranch** is a sustainable farm practice from Ontario that prides itself on producing only grass-fed, ethically raised cattle.

# Organizations/Initiatives

For more information about international conservation efforts, biodiversity presentation, and global goals for nature, see the following organizations:

- **Conservation International**
- **International Union for Conservation of Nature**
- **United Nations Environment Programme**
- **UN Convention on Biological Diversity**
- **The Nature Conservancy**
- **World Wildlife Fund**
- **Wildlife Conservation Society**
- **Global Commons Alliance**, which oversees the **Earth Commission** and **Science Based Targets Network**
- **Center for Biological Diversity**
- **Biodiversity International**
- **Union of Concerned Scientists**
- **Rainforest Action Network**
- **Amazon Watch**
- **Rainforest Alliance**
- **Mongabay**

For organizations focusing on the intersection of business and biodiversity, see the following:

- **World Business Council for Sustainable Development**
- **Business for Nature**
- **Finance for Biodiversity**
- **Capitals Coalition**
- **Taskforce on Nature-related Financial Disclosures**
- **The ALIGN Project**
- **Partnership for Biodiversity Accounting Financials**