Biodiversity Loss
What Does It Mean for Your Business?
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by Anuj Saush and Ioannis Siskos

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Executive Summary

Biodiversity is vital to most facets of our lives. We humans are part of, and fully dependent on, this web of life: it gives us the food we eat, filters the water we drink, and supplies the air we breathe. Biodiversity has cultural value to humans and is important for our mental and physical well-being. It also holds significance for potential benefits such as new medicines and is critical for our society’s ability to cope with global change and health threats as highlighted by the COVID-19 pandemic. The risks associated with biodiversity loss are significant for companies across sectors. For example, biodiversity loss can lead to resource scarcity, supply chain disruption, increased operational costs, liability risks, or permanent loss of a resource or service, all of which can threaten future business operations. However, few companies have policies aimed at protecting biodiversity or recognize the financial risk they face. As we look beyond the COVID-19 pandemic, we see a strong case for addressing biodiversity loss and building more resilient ecosystems.

The term “biodiversity” was coined in 1985 and is a contraction of “biological diversity.” It refers to the variety of life on Earth, in all its forms—diversity within species, between species, and of ecosystems—and all its interactions.
Insights for What’s Ahead

New global targets for protecting biodiversity are on the horizon. Under the leadership of the United Nations, a key accord for nature—like the Paris Agreement—is expected to be reached at the Conference of the Parties (COP 15) to the Convention on Biological Diversity in October 2021 in Kunming, China. Countries are expected to agree on targets to protect the natural world, including proposals to conserve 30 percent of the world’s oceans and land by 2030, introduce controls on invasive species, and reduce plastics pollution. Given the cascading effect that such international accords can have on actions by regulators and other stakeholders who can place pressure on business, companies will want to follow the developments closely to be on top of what it means for them.

Even apart from any international accord, investors will likely put greater pressure on companies to address biodiversity loss and ecosystem impacts across their value chain. Investors are becoming increasingly concerned about the significant financial risks stemming from biodiversity loss and the destruction of natural ecosystems. Climate change and biodiversity loss are inextricably linked and need to be addressed collectively and interconnectedly.

“The world will not reach the goals of the Paris Agreement, let alone the aspiration to reach net zero emissions by 2050, without curtailing deforestation and accelerating protection and restoration efforts.”

Sandy Boss, Global Head of Investment Stewardship, BlackRock

Further, with the introduction of biodiversity-related reporting requirements (e.g., EU Sustainable Finance Disclosure Regulation), companies will be progressively required to disclose their approach to managing material biodiversity and ecosystem business risks, and they can also expect shareholder proposals addressing this topic.
Addressing biodiversity risks can increase resilience and could bring new business opportunities. Business operations regardless of sector (e.g., food and beverage, construction, utilities, automotive, and travel and tourism) have a direct or indirect negative impact on biodiversity. Direct impact originates typically from land use, waste generation, air pollution, water pollution, and soil contamination, whereas indirect impact occurs upstream (third-party suppliers) and downstream (product use by consumers) in the supply chain. Firms that proactively identify risks and avoid or mitigate impact will be better prepared to navigate biodiversity-related physical and transition risks than those that do not. As a rule of thumb, companies should consider how and to what extent they can avoid biodiversity loss, reduce current impacts, seek to regenerate and restore ecosystems, and align their business model and biodiversity aims.

Businesses will chart their own journey to biodiversity protection depending on their sector, level of impact, and degree of dependency. Understanding how biodiversity relates to their business and where its impacts are largest can help executives shape their biodiversity and ecosystem services protection program. Some common elements define any biodiversity and ecosystem services program, and a good course of action is to: 1) assess the company’s impacts; 2) define the scope of the program; 3) integrate the approach into the company’s decision-making and implement the program; 4) measure and monitor the impacts; and 5) communicate the progress. While the importance of addressing biodiversity will vary by company, it is useful to assess management’s level of competence and expertise in this area, as well as to consider how to increase board familiarity with the subject.

Biodiversity and ecosystems play an important role in company value creation. Companies that show leadership in biodiversity protection can not only become resilient but will also enjoy a competitive edge over their less adaptable peers.
Understanding Biodiversity and Ecosystem Services

While biodiversity refers to the variety of life on Earth, in all its forms, “ecosystem services” are the benefits—goods (e.g., wood from forests) and services (e.g., air purification from trees)—that biodiversity provides. Biodiversity underpins the systems and ecosystem services we rely upon. In the last 50 years, economies around the world have seen unprecedented growth, which has resulted in immense changes in land and water management practices. This economic boom has come at a large cost for biodiversity and ecosystem services: around 1 million animal and plant species are now threatened with extinction, many within decades. Biodiversity loss rarely manifests itself as a risk in the short term because of the lag period between the damage and the tangible results of the damage. As biodiversity is at risk, ecosystem services (Figure 1) are consequently also at risk.

Main Causes of Biodiversity Loss

- **Habitat loss and degradation** A natural habitat can become incapable of supporting its native species. Wetlands, for example, were once a thriving wildlife habitat. They now provide a home to at least one-third of all threatened and endangered species. They also provide flood protection, shoreline erosion control, and quality improvement of natural water. However, despite their valuable services, wetlands have been depleted by an estimated 64-71 percent since 1900—more than other ecosystems.

- **Climate change** Caused by the release of greenhouse gases like carbon dioxide and methane, climate change is one of the most pressing issues facing our society and the business community. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services estimates that as of 2017, human activity had caused an observed warming of 1°C (33.8°F) compared to preindustrial levels. Changes in temperatures and weather patterns have an impact on plant and animal life. For example, rising ocean temperatures have caused the Great Barrier Reef to lose 50 percent of its coral since 1995.

- **Excessive nutrient load and other forms of pollution** Intensive agriculture economics calls for “monoculture,” or growing only one crop at a time, and typically relies on pesticides and chemical fertilizers. Excessive use of concentrated fertilizers can cause “nutrient pollution,” which can create a cascade of unstable and damaging environmental conditions including excessive algae. Yet this agricultural practice is not always justified by increased production, as demonstrated by a case study featuring the Zhejiang province in China. Farmers in the region who moved from a fish and rice co-culture to a rice monoculture produced similar rice yields but required about three times more pesticides and 32 percent more chemical fertilizers.
- **Overexploitation and unsustainable use of resources** Overfishing in the Mediterranean Sea has resulted in the decline of the total fish population by more than a third over the past 50 years,\(^{12}\) threatening the viability of the area’s fishing industry.

- **Invasive alien species** When animals, plants, fungi, and microorganisms establish themselves in an environment outside their natural habitat, they reproduce rapidly, outcompeting native species for food, water, and space. Introduced pests in the US, UK, Australia, South Africa, India, and Brazil cause environmental losses estimated at over US$100 billion annually.\(^{13}\)

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**Figure 1**

**Types of ecosystem services**

Biodiversity plays a vital role in ecosystem functions and underpins the ability of ecosystems to provide multiple services in the long term. In other words, the potential of ecosystems to continue delivering these services depends on the quality and quantity of biodiversity.
Business and Ecosystem Services Are Interdependent

Businesses rely on ecosystem services, which depend on biodiversity, which in turn experiences a direct or indirect negative impact from business operations, regardless of sector. Direct impact originates typically from land use, waste generation, air pollution, water pollution, and soil contamination, whereas indirect impact occurs in the upstream (coming from third-party suppliers) and downstream (product use by consumers) parts of the supply chain.

Figure 2

Biodiversity and the interplay with business

Source: The Conference Board

All businesses depend on biodiversity to some extent, either directly or indirectly.
Economic Growth Is Dependent on the Natural Environment

More than half of the global GDP is dependent on biodiversity; 15 percent of global GDP, (i.e., US$13 trillion of gross value added [GVA]) is highly dependent, while 37 percent of global GDP (i.e., US$31 trillion of GVA) is moderately dependent on biodiversity.\(^{14}\)

US$44 trillion of economic value generation—more than half of the world’s total GDP—is moderately or highly dependent on nature and its services, and therefore exposed to risks from nature loss.\(^{15}\)

Figure 3

Global wealth per capita, cumulative % change, 1992 to 2014

GVA per capita estimates of the three classes of capital goods over the period 1992 to 2014 show that the value of produced capital per capita doubled and human capital per capita increased by around 13 percent, but the value of the stock of natural capital per capita declined by nearly 40 percent.

Figure 4

Gross value added and nature dependency
% of direct and supply chain GVA with high, medium, and low nature dependency, by industry

**Biodiversity-Related Risks and Opportunities**

Dependency and impact on biodiversity translate into several forms of risks and opportunities for businesses. Biodiversity risks are constantly evolving, and biodiversity loss and ecosystem collapse are mid- to high-level risks in terms of impact and likelihood. It is important for executives to improve their understanding of biodiversity and ecosystem impacts and dependencies and to develop strategies to mitigate risks and capitalize on opportunities. Biodiversity-related risks can be understood by extending the principles used with climate-related risk categories.

**Figure 5**

**Biodiversity-related risks**

<table>
<thead>
<tr>
<th>Physical risks</th>
<th>Transition risks</th>
<th>Liability risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associated with resource dependency, scarcity, or quality</td>
<td>Associated with the transition to “nature positive” (i.e., global movement to</td>
<td>Associated with legislation and fines for biodiversity loss and ecosystem damage</td>
</tr>
<tr>
<td>Biodiversity loss can reduce access to resources (e.g., limited natural resources such as timber, fish stocks, materials from protected areas)</td>
<td>protect, manage, and enhance biodiversity and ecosystems)</td>
<td>Businesses also face liability risks linked to biodiversity after high-impact incidents (e.g., BP’s 2010 Deepwater oil spill case, Exxon Valdez case)</td>
</tr>
<tr>
<td><strong>Regulatory</strong></td>
<td><strong>Financial</strong></td>
<td></td>
</tr>
<tr>
<td>Advances in national and international legislation on biodiversity conservation, as regulatory changes can significantly increase operating costs or disrupt operations</td>
<td>Lenders are averse to potential reputational damage coming from borrowers’ involvement in bad environmental practices, including biodiversity</td>
<td>Increasing pressure from stakeholders—investors, consumers, employees, policymakers, and civil society—to assess, report, and manage ESG risks, including biodiversity risks</td>
</tr>
<tr>
<td><strong>Market</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changing consumer preferences will create new demand for greener products and services</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reputational</strong></td>
<td></td>
<td></td>
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</table>

Source: The Conference Board
While companies may not yet consider biodiversity loss a material risk, managing it proactively can help build resilience. For example, understanding the extent of biodiversity impacts across operations and taking mitigating action can reduce the cost and increase the security of supplies. Further, reporting on biodiversity-related risks and having an action plan can unlock access to more favorable financing terms or improved access to capital. Dow, for example, plans to generate US$1 billion in value for the company either through cost savings or new cash flow by simply considering natural capital as part of its major capital expenditures or investment decisions. Table 1 outlines some biodiversity-related opportunities.

Table 1

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Physical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Understanding the extent of biodiversity impacts across operations and taking mitigating action can help businesses make more sustainable use of natural resources and address business dependencies on biodiversity. This can result in cost savings and make their operations more resilient.</td>
</tr>
<tr>
<td>Policy and legal</td>
<td>Proactively addressing and managing biodiversity impacts across their value chain can help businesses better prepare for any forthcoming regulations or international accords requiring action on biodiversity and ecosystem impacts.</td>
</tr>
<tr>
<td>Financial</td>
<td>Access to more favorable financing terms or improved access to capital can ensue for companies that report biodiversity-related information or supply products and services that either have no negative impacts on or improve/restore degraded ecosystems.</td>
</tr>
<tr>
<td>Reputational</td>
<td>Benefits can accrue from implementing and communicating sustainable purchasing, operating, or investment practices to secure supplies, achieve product differentiation, and improve corporate image as consumers become more aware of sustainability issues.</td>
</tr>
<tr>
<td>Market related</td>
<td>Developing new products and services that are demonstrably beneficial to biodiversity or reduce impacts on ecosystems, including selling certified sustainable products, can unlock growth opportunities. Companies may also be rewarded by their customers through increased brand equity.</td>
</tr>
</tbody>
</table>

Access to capital based on biodiversity impact

**ASN Bank** (ASN), based in the Netherlands, has set a goal to reach a net gain for biodiversity on a portfolio level by 2030 and funds only companies and sectors that fit in a sustainable future. In 2016, ASN participated in the development of the Biodiversity Footprint Financial Institutions (BFFI) method to assess its biodiversity impact. ASN uses mitigation hierarchy principles to categorize investments into three groups based on their impact on biodiversity:

1. Investments with high unavoidable impact on biodiversity (e.g., mining, fossil fuels, agriculture)—the bank excludes these from its portfolio;

2. Investments with biodiversity impact minimization potential (e.g., forestry)—the bank requires impact minimization (e.g., FSC certification in the case of forestry);

3. Investments with positive impact on biodiversity (e.g., green energy, nature restorations).
Global Momentum for Action on Protecting Biodiversity

The COVID-19 pandemic has highlighted the interconnection between environmental health and public health and has brought greater urgency to efforts aimed at protecting biodiversity. Most recently, the UK government report “The Economics of Biodiversity: The Dasgupta Review” presents a new economic framework to understand our engagement with nature and presents options to enhance biodiversity and prosperity by accounting for nature in economics and decision-making.

“Truly sustainable economic growth and development means recognizing that our long-term prosperity relies on rebalancing our demand of nature’s goods and services with its capacity to supply them. It also means accounting fully for the impact of our interactions with nature across all levels of society.”

Professor Sir Partha Dasgupta, Frank Ramsey Professor Emeritus of Economics, University of Cambridge18
Global Biodiversity Framework

The UK report comes ahead of the Conference of the Parties (COP 15) to the Convention on Biological Diversity, where new long-term international targets for addressing biodiversity loss are expected to be agreed upon. An initial zero draft of the global biodiversity framework outlines a vision for 2050, with detailed information on goals and intermediary milestones.

“By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people.”

Convention on Biological Diversity, Vision for 2050

While it remains to be seen whether an international agreement on these ambitions will be reached, the EU has outlined its intent to support the proposed global biodiversity framework.
EU Biodiversity Strategy

The EU’s biodiversity strategy for 2030 sets out a comprehensive, ambitious, and long-term plan to: 1) protect nature; 2) restore nature; 3) enable transformative change; and 4) support an ambitious global agenda.20

Market Initiatives

Over the last few years, several industry-led initiatives have emerged with the aim of encouraging business action on biodiversity. One of the most prominent initiatives, One Planet Business for Biodiversity, launched in 2019 as a business coalition to protect and restore biodiversity within the value chains. Another notable development is the recent release of the recommendations from the Task Force on Nature-related Financial Disclosures (TNFD), a market-led initiative to standardize companies’ nature-related financial disclosures. This framework will be based on the principles of the Task Force on Climate-related Financial Disclosures and operate alongside it. In collaboration with the corporate sector, TNFD plans to develop reporting frameworks in 2021 and test them in early 2022 before making them available worldwide.

Disclosure Regulation

There is also an uptick in disclosure-related regulatory activity on biodiversity, which many regulators see as an extension of climate action. As with many ESG initiatives, several new developments in biodiversity have come out of Europe. For example, the Sustainable Finance Disclosure Regulation (SFDR) requires European financial firms to disclose how sustainability risks are incorporated into their investment decision-making processes, and the extent to which their financial sector remuneration practices are consistent with sustainability concerns.21 While the SFDR applies to financial firms themselves, these firms are likely to demand more data from their investees as a first step. Beyond the SFDR, the new decree under Article 29 of the French law on Energy and Climate now requires all French financial institutions—including banks, investors, and insurers—to disclose biodiversity-related risks as well as climate-related risks.22
EU SFDR: Biodiversity Impact Reporting

The SFDR requires asset managers to disclose the following biodiversity-related metrics:

- **Biodiversity and ecosystem preservation practices**
  1. Share of all investment in investee companies that do not assess, monitor, or control the pressures corresponding to the indirect and direct drivers of biodiversity and ecosystem change
  2. Share of all investee companies that do not assess, monitor, or control the pressures corresponding to the indirect and direct drivers of biodiversity and ecosystem change

- **Natural species and protected areas**
  1. Share of investments in companies whose operations affect IUCN Red List species and/or national conservation list species
  2. Share of investments in companies with operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas

- **Deforestation**
  1. Share of investments in entities without a deforestation policy
  2. Share of investee companies without a deforestation policy


Biodiversity is moving up the investor agenda. There is already evidence investors are paying more attention to biodiversity issues: in 2020, the topic hit headlines in the US when nearly 70 percent of Procter & Gamble’s shareholders voted “yes” on a resolution aimed at addressing deforestation in the supply chain.23 This issue is likely to feature again as investors seek to understand how companies are managing their biodiversity impacts.
Addressing Biodiversity Loss

Businesses have a critical role to play in addressing biodiversity loss, but only 13 percent of companies worldwide are currently disclosing their approach to managing biodiversity in their corporate reporting, according to The Conference Board Sustainability Practices 2020 report.

Prompted by pressure either from international regulatory forces or from stakeholders, many companies have started setting their own goals and already include biodiversity policies in their corporate policy framework and nonfinancial reporting. The share of companies that disclose biodiversity policies varies greatly among countries. France is a world leader, with 40 percent of its companies disclosing biodiversity policies, followed by Japan (33 percent), the UK (27 percent), and China (27 percent).

Figure 6

Biodiversity policy disclosure, by economy, 2020

Top 10

France 40%
Japan 33%
United Kingdom 27%
China 27%
Canada 24%
United States 23%
India 22%
Mexico 21%
Australia 20%
Netherlands 20%

Source: The Conference Board/Bloomberg 2020
Corporate action is more common when it comes to deforestation. According to CDP, an international nonprofit organization that helps companies and cities disclose their environmental impact, taking steps to eliminate deforestation is becoming the market norm. In 2020, 93 percent (515) of all companies who report through CDP disclosed taking at least one industry-accepted action to address deforestation.24

• **Alnatura**, a German organic food producer, runs more than 130 supermarkets in Germany and Switzerland. Its standards exceed those required by EU regulations on organic production. Alnatura runs several donations—with purchase initiatives to support projects that promote biodiversity conservation in different countries. These initiatives support the protection of existing or reforestation of former mangrove forests in Costa Rica and India, research and development of organic seed in Germany, and farmers in Germany who want to convert to organic agriculture.

• **Banyan Tree**, an international operator and developer of premium resorts, hotels, residences, and spas, runs 21 properties near areas of high biodiversity. The company’s business model is based on restoring biodiversity and preserving local culture. Banyan Tree opened its first marine biodiversity conservation lab in Maldives in 2001 and its second in Indonesia in 2007. These labs focus on research, education, and outreach with the objective of restoring biodiversity. Visitors can join guided snorkels, marine classes, coral planting, and citizen science data collection activities. The labs also run several coral reef monitoring and regeneration projects, as well as sea turtle and shark protection projects.

• **Olam International**, a major food and agribusiness company, undertakes agronomic, environmental, and social due diligence to assess potential biodiversity impacts and ecosystem sensitivities when proceeding with land selection and management for new plantations. This care ensures that it does not have any unintended ecosystem impact in areas where it operates, enables it to plan mitigatory actions to preserve and maintain the biodiversity and ecosystem balance, and future-proofs it from potential litigation risks related to biodiversity or ecosystem damage. The additional insight on ecosystem sensitivities allows its stakeholders—in many instances national governments—to exclude areas from development.

• **Rio Tinto** operates in 36 countries on six continents mining a wide range of metals. Rio Tinto has committed to having a net positive impact on biodiversity in its mining operations. Rio Tinto first assessed the biodiversity richness across regions and sites, allowing it to categorize sites based on their biodiversity value and follow different approaches. In biodiversity-rich environments, Rio Tinto uses avoidance and minimization techniques such as forming conservation zones during the lifetime of the mine. Rio Tinto plans to achieve net positive impact by rehabilitating mining sites after their end of life and by using offset sites—land devoted to creating or restoring biodiversity habitats—to compensate for biodiversity loss at its mining sites.
While some companies are leading the way by tackling biodiversity, in general, most have not engaged with the topic yet. What stands in the way, in part, is making sense of biodiversity from a business perspective. Many companies are far removed from the actual biodiversity impacts along their supply chains. Companies that start managing biodiversity risks will gain competitive advantage over those who do not.
Pathways to Managing Biodiversity

Going by recent regulatory and disclosure trends in biodiversity, it is safe to assume that companies will increasingly be expected to mitigate their biodiversity impacts. Businesses will chart their own journey to biodiversity depending on their sector, level of impact, and degree of dependency. Some common elements define any biodiversity and ecosystem services program, and a good course of action is to:

- Assess your impacts;
- Define the scope of your program;
- Integrate the approach into your company’s decision-making and implement the program;
- Measure and monitor your impacts; and
- Communicate your progress.

Companies that have not yet investigated biodiversity impact can start by increasing their understanding of biodiversity and ecosystem services. A Framework for Corporate Action on Biodiversity and Ecosystem Services sets out how companies can formulate and structure biodiversity and ecosystem services policies and practices as part of corporate sustainability strategies; Science Based Targets for Nature: Initial Guidance for Business identifies steps companies can take based on the best available science.

Without biodiversity, it will be difficult for many sectors to secure long-term business growth.
Five-step process for meeting science-based targets for managing biodiversity

Assess

- Assess materiality
- Map the value chain

Assess and identify your company's most material impacts and dependencies on nature and where they occur in your value chain

Outputs:
- initial estimate of a company's environmental footprint and a long list of potential areas and location for target setting

Interpret & prioritize

- Identify spheres of influence
- Prioritize places

Interpret the assessment results, prioritize different places across your spheres of influence where you can start acting today

Outputs:
- shortlist of locations for target setting, plus an initial indication of how much effort might be needed for each

Measure, set & disclose

- Measure baseline
- Develop monitoring plan
- Set targets
- Disclose baseline and targets

Use draft measurement framework and available guidance to determine how much action is needed in different places

Outputs:
- baseline and target description, a timeline for achieving targets, and a time-bound program for action

Act

- Avoid
- Reduce
- Restore & regenerate
- Transform

Use mitigation hierarchy to develop plans to deliver your targets

Outputs:
- grounded action plans in priority places

Track

- Monitor
- Report
- Verify

Monitor your progress, adapt your strategy if necessary, and report your progress publicly

Outputs:
- initial knowledge and public reporting on actions taken, which actions have achieved their outcomes, and success factors

Source: Science Based Targets Network
Endnotes

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About The Conference Board Europe Governance & Sustainability Center

The health, economic, and social crises that unfolded in 2020 have presented businesses with challenges that are more important, urgent, and complex than ever before. At the Governance & Sustainability Center, we focus on helping our members address these unprecedented issues and navigate their own evolving role in society. We do so by providing trusted, timely, and actionable insights in the areas of corporate governance, sustainability, and citizenship.

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