



# Investing in Biodiversity: An Introduction

## Key Takeaways

- ▶ Public companies require biodiversity — healthy ecosystems — to provide goods and services and create shareholder value; at the same time, companies' operations can affect biodiversity positively and negatively.
- ▶ We can expect new investment opportunities addressing nature-related risks like biodiversity, with new business models reducing demand for high-impact commodities, responsibly managing land and sea ecosystems, reducing pollution or enabling decarbonization.
- ▶ ClearBridge encourages assessment and disclosure of nature-related impacts and dependencies within the value chain, development of biodiversity and the addressing of such topics as deforestation policies and responsible waste and water management.

## What Is Biodiversity and Why Is It Important?

Biodiversity is the variability of life on Earth, including all plants, animals and microorganisms, as well as the ecosystems they form. Biodiversity is essential for human and animal well-being and for the functioning of the planet. Most basically, it allows for nature to provide a wide range of goods and services, such as food, water, medicine and recreation, that are essential for human societies.

Globally we are faced with the problem of a growing population within a planet with fixed resources. These resources are being strained and alterations to the planet's ecosystems are having systemic consequences for human lives and economies. These will continue if biodiversity is not addressed.

- Since 1970, 75% of the earth's land surface has been significantly altered, 66% of the ocean area has seen increasing cumulative impacts, and 85% of wetlands has been lost.<sup>1</sup>
- Species are disappearing at 10x to 1000x the normal background rate of extinction.<sup>2</sup>

<sup>1</sup> IPBES (2019): Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. S. Díaz, J. Settele, E. S. Brondízio E.S., H. T. Ngo, M. Guèze, J. Agard, A. Arneth, P. Balvanera, K. A. Brauman, S. H. M. Butchart, K. M. A. Chan, L. A. Garibaldi, K. Ichii, J. Liu, S. M. Subramanian, G. F. Midgley, P. Miloslavich, Z. Molnár, D. Obura, A. Pfaff, S. Polasky, A. Purvis, J. Razzaque, B. Reyers, R. Roy Chowdhury, Y. J. Shin, I. J. Visseren-Hamakers, K. J. Willis, and C. N. Zayas (eds.). IPBES secretariat, Bonn, Germany. 56 pages.

<sup>2</sup> "What Are the Extent and Causes of Biodiversity Loss?" Grantham Research Institute on Climate Change and the Environment, 2 Dec. 2022, <https://www.lse.ac.uk/granthaminstitute/explainers/what-are-the-extent-and-causes-of-biodiversity-loss/>.

- Three-quarters of global food crops depend on pollination, while populations of major pollinators like domestic honey bees have declined almost 60% in the last 60 years.<sup>3</sup>

From an investment perspective, public companies — and thus equity markets — require biodiversity to provide their goods and services and create shareholder value. Over half of the world’s GDP (\$44 trillion) is moderately or highly dependent on nature and is threatened by biodiversity and ecosystem declines.<sup>4</sup> While the three largest industries most dependent on nature are construction (\$4 trillion), agriculture (\$2.5 trillion) and food and beverage (\$1.4 trillion), half of all drugs are derived from natural sources (four billion people rely primarily on natural medicines), making biodiversity crucial to the health care sector as well.

Biodiversity is also highly linked with climate change, as natural systems like forests, wetlands and oceans are the only viable carbon sinks. At the same time, climate change has affected biodiversity, for example through changing migration patterns or warming oceans that alter marine ecosystems. This reinforcing loop means one cannot be solved without addressing the other.

Policymakers and other public and private entities around the world are coming together to coordinate action to preserve biodiversity and reverse its loss. Most recently, at the U.N. Biodiversity Conference (COP 15) in late 2022 in Montreal, Canada, roughly 190 countries agreed to the [Global Biodiversity Framework](#). The

framework seeks to guide global action to preserve and protect 30% of land and sea areas by 2030. This monumental framework can be thought of as the “Paris Agreement” for biodiversity. The world must now come together to accelerate policy and innovation to address the key drivers of biodiversity loss.

### Key Drivers of Biodiversity Loss

There are five main direct drivers of biodiversity loss. These offer ways for companies to map how they may be contributing, and for investors to identify investable themes (Exhibit 1).

### Investment Implications of Biodiversity

There are several implications of biodiversity for investors. Most broadly, biodiversity may have a negative impact on long-term investment returns through GDP loss. Also, as biodiversity grows as a topic of public concern, the public policy response will begin to affect public equities via an increase in regulation and standards.

We can expect new investment opportunities addressing nature-related risks, with new business models addressing several of the key drivers:

- Companies that are either reducing demand for or responsibly sourcing high-impact commodities such as cattle, soy, palm oil and timber; these might include companies reducing food waste, as well as food and beverage companies, household and personal

**Exhibit 1: Key Drivers of Biodiversity Loss**

Driver	Definition	Example/Side-Effect
<b>Land and Sea Use Change</b>	Human influence on habitats, including conversion of land cover.	Deforestation, mining, landscape changes from new roads and dams.
<b>Natural Resource Exploitation</b>	Intensification of use and extraction of natural resources, including fish, trees and species used for medicinal purposes.	Common metrics indicate a 69% average loss in the abundance of mammal, bird, reptile, fish and amphibian species since 1970. <sup>5</sup>
<b>Climate Change</b>	The long-term shift in average climate and weather patterns caused by rising atmospheric CO2 levels.	Changing migration of species; hotter, more acidic oceans with profound effects upon marine ecosystems; increase in wildfires.
<b>Pollution</b>	Typically air, water and soil pollution caused by waste, chemical runoff and burning of fossil fuels.	<ul style="list-style-type: none"> <li>• Marine plastic pollution has increased 10x since 1980.</li> <li>• Nitrogen deposition from fossil fuels and fertilizers have created “dead zones” in the water, supporting no aquatic life.</li> </ul>
<b>Invasive Species</b>	A non-native species, such as a plant, animal or disease, that harms an ecosystem.	Decline in native species as they are forced to compete for food, water and space.

Source: ClearBridge Investments, The IPBES Global Assessment Report on Biodiversity and Ecosystem Services; World Wildlife Fund (WWF).

<sup>3</sup> Grozinger, Christina, et al. “Pollinator Declines.” Psu.edu, <https://extension.psu.edu/pollinator-declines>. Accessed Sept. 20, 2023.

<sup>4</sup> “Half of World’s GDP Moderately or Highly Dependent on Nature, Says New Report.” World Economic Forum, <https://www.weforum.org/press/2020/01/half-of-world-s-gdp-moderately-or-highly-dependent-on-nature-says-new-report/>. Accessed Sept. 20, 2023.

<sup>5</sup> “69% Average Decline in Wildlife Populations since 1970, Says New WWF Report.” World Wildlife Fund, <https://www.worldwildlife.org/press-releases/69-average-decline-in-wildlife-populations-since-1970-says-new-wwf-report>. Accessed Sept. 20, 2023.

products makers, construction as well as pulp and paper companies.

- Companies whose industries have a high direct impact on ecosystems or that are responsibly managing those ecosystems, for example in forestry, agriculture, aquaculture and extractive industries such as oil and gas, as well as mining.
- Companies that reduce pollution, either through providing products and services that reduce chemical pollution, offering pollution prevention or treatment services or reducing plastic waste, either by providing plastic alternatives or increasing plastic recycling.
- Companies addressing climate change by enabling decarbonization, given that climate change is a key cause of biodiversity loss; these might include renewable energy companies and suppliers as well as companies whose products and services improve efficiency and reduce energy demand.

Based on this list, it is not surprising to find biodiversity enablers concentrated in the industrials, materials and consumer staples sectors: the capital goods that industrial companies make are resource intensive; many materials companies operate in extractive industries; and consumer staples companies selling food and beverages are reliant upon agriculture. At the same time, given that there is a considerable portfolio of actions available to reduce loss and restore biodiversity (Exhibit 2), a wide range of companies across sectors can have a positive impact.

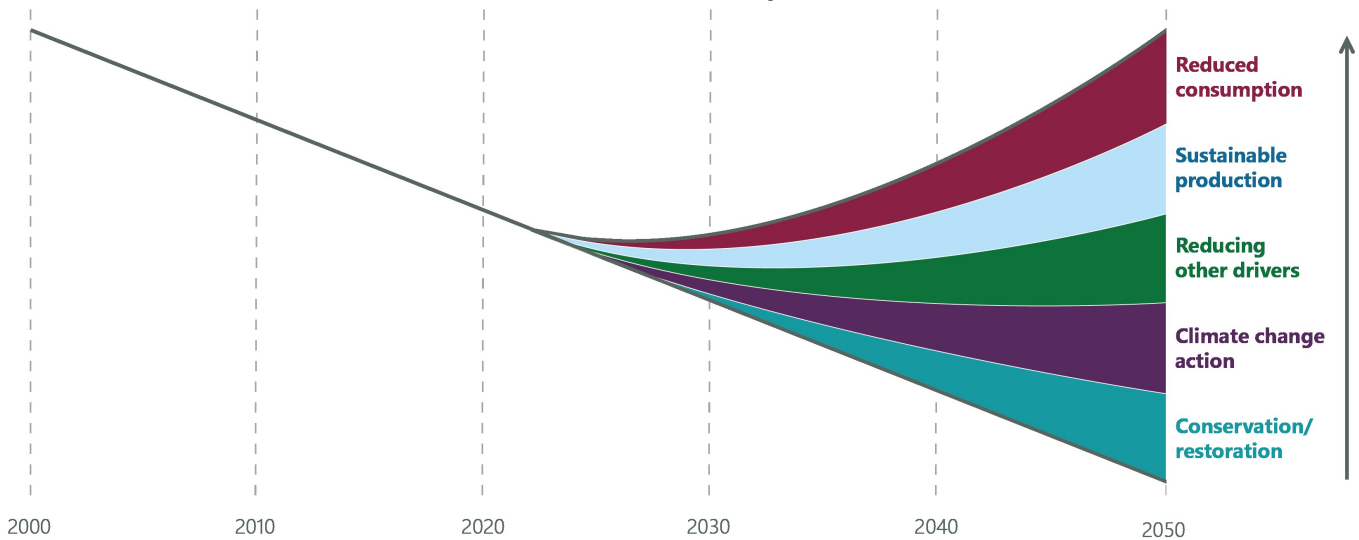
We can link the key drivers of biodiversity loss to broad investment themes (Exhibit 3, next page) that portfolio companies can actively address, either through their products and services (as solution providers) or through their operations, about which ClearBridge engages them on best practices.

### Challenges in Measuring Biodiversity

Biodiversity's global scope and the systemic risks posed by its loss, along with its ties to climate change, suggest that, like climate change, it will remain a key environmental concern for investors and policymakers. Yet there are some challenges that set biodiversity apart from climate change. For one, it is difficult to measure. There is no key single metric, like carbon emissions in the case of climate change. There are also important geospatial nuances. Whereas emissions are global and therefore reduction of emissions anywhere helps fight climate change, biodiversity is not spread evenly across the globe, as ecosystems are heterogenous and localized.

While portfolio-level data is still in earlier stages relying heavily on estimates, ClearBridge takes a bottom-up approach to our engagements affecting biodiversity, while the investment industry continues to develop and refine frameworks and portfolio-level data. Using sector-specific tools and company-level disclosures, we work to identify drivers of biodiversity within high-impact sectors.

**Exhibit 2: A Portfolio of Actions Can Reduce and Restore Biodiversity**



For illustrative purposes only. Source: Secretariat of the Convention on Biological Diversity (2020) Global Biodiversity Outlook 5 – Summary for Policy Makers. Montréal. "Trends in biodiversity (various metrics, left axis) have been declining and are projected to continue to do so under business as usual scenarios (trend line). Various areas of action could reduce the rate of biodiversity decline, and the full portfolio of actions, in combination, could halt and reverse the decline (bend the curve), potentially leading to net biodiversity gains after 2030. These are, from bottom to top: (1) Enhanced conservation and restoration of ecosystems; (2) climate change mitigation; (3) action on pollution, invasive alien species and overexploitation; (4) more sustainable production of goods and services, especially food; and (5) reduced consumption and waste." Page 13.

**Exhibit 3: Linking Investable Themes with Biodiversity**

Top Four Drivers of Biodiversity Loss	Land and Sea Use Change	Natural Resource Exploitation	Climate Change	Pollution
Decarbonization and Clean Energy			✓	
Sustainable Food Systems	✓	✓		✓
Resource Efficiency and Responsible Consumption	✓	✓		✓

Sources: Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES); Convention on Biological Diversity; The Royal Society.

Recently, the Taskforce on Nature-Related Financial Disclosures (TNFD), released its finalized framework, providing guidance for companies on the disclosure of their material nature-related risks. Similar to its climate counterpart, the Taskforce on Climate-Related Financial Disclosures, the TNFD framework aims to generate more consistent, investment-useful data from companies.

In an effort to encourage sustainable business practices to manage and monitor biodiversity loss, ClearBridge engages with our portfolio companies where these issues are most material to their business. We encourage assessment and disclosure of nature-related impacts and dependencies within the value chain, development of biodiversity and deforestation policies, responsible waste and water management, transparency into lending practices, and consideration of local affected communities.

**Case Study: Responsible Water Management**

Falling under the rubric of resource efficiency and responsible consumption as an investment theme, responsible water management is important for biodiversity in several ways: water is a natural resource with social value for communities around the globe, its consumption for industry affects land use, and its use carries with it risks of pollution. It can also be material for company value creation.

*Constellation Brands Ups Water Stewardship Efforts in Mexico*

**Company:** Constellation Brands, a brewer and distiller of beer, wine and spirits under brands such as Modelo, Corona, Pacifico, Woodbridge, Ruffino and Svedka.

**Risk:** A planned \$1.4 billion brewery in the Mexican city of Mexicali was voted down at a referendum in 2020 due to concerns around water usage in the arid

region, revoking water permits for the company, forcing Constellation to cancel construction midway through the project, and causing over \$650 million in write-downs. Although only 3.5% of the people of Mexicali voted, the result underscored the need for more responsible water management and engagement with affected local communities.

**Opportunity:** While in 2020 ClearBridge considered Constellation as lagging peers on water intensity reduction, the company undertook several new water stewardship efforts in Mexico in response to the public backlash in Mexicali. As it reported in its 2022 ESG Impact Report:

- The company set a target to restore 1.1 billion gallons of water withdrawals from local watersheds between 2023 and 2025, while improving accessibility and quality of water in the communities where it operates.
- At its Nava Brewery in Mexico, it began to engage the local community on ecosystem stewardship, with a focus on water. With Pronatura Noreste, a third-party organization focused on environmental protection, Constellation began restoring water to the Serranía del Burro, a mountain range near the brewery, from which the brewery’s aquifer is naturally replenished, following a fire in 2019. The efforts include reforestation more than 2,000 hectares, which will help restore water to local ecosystems and retain more water in the underground reserve.
- Near its Obregon Brewery it worked with the Yaqui River Irrigation District to build three dams that saved ~15 million cubic meters of water in the last three years.
- At the beginning of 2022 Constellation announced a new facility in the Veracruz area. Veracruz is a generally less arid state than Mexicali, and the facility

will use a water source independent of the city's water source, which eased tensions with the local communities.

As of June 2023 the company had recently surpassed its target of restoring 1.1 billion gallons of withdrawals from local watersheds. It plans to announce a new target within the next year. It also plans to seek a zero waste to landfill certification for Mexican breweries. From a packaging perspective (plastic packaging is another potential biodiversity hazard), the company will replace the plastic rings on beer and other canned beverages with recyclable paper board for four-packs and six-packs.

### Coordinating Global Action on Biodiversity

The U.N.'s Global Biodiversity Framework is likely to spur actions at the domestic and international levels and lead to enhanced and new voluntary (and eventually mandatory) rules on nature-related issues, both for public equities broadly and for financial services companies.

In addition, the financial services industry is accelerating its efforts to address this issue via such initiatives as the TNFD, the Finance for Biodiversity Pledge and Nature Action 100. Data providers are also working to measure biodiversity loss in a more granular, investment-useful way. These add up to a plentiful list of resources ClearBridge is evaluating as we incorporate the latest biodiversity research and tools into our fundamental investment process.

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