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What biodiversity loss and the COP15 agreement mean for investors

Nature-related risk moves to the forefront of sustainable finance

February 2023

Owners and managers of assets, banks, insurers and companies all can expect far more scrutiny of their nature-related risks and opportunities, thanks to a landmark agreement to protect biodiversity reached in December at the United Nations biodiversity conference, known as COP15.

Among its key provisions, the Kunming-Montreal Global Biodiversity Framework (GBF) aims to protect and restore 30% of the planet's land and water by 2030 and phase out subsidies that harm nature.[1] The agreement calls for the 190 governments that ratified it to map out national action plans that could, among other steps, produce regulations requiring companies and investors to publish their nature-related risks, dependencies and impacts.[2]

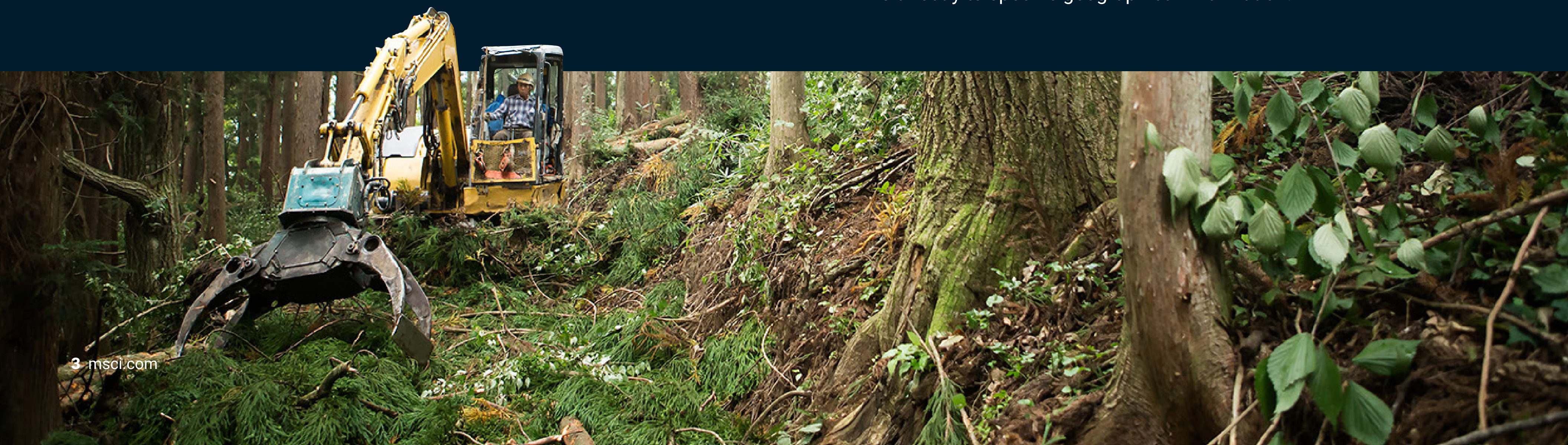
The agreement and its targets could serve as a road map for investors and other capital-markets participants to address biodiversity loss. Below is a look at issues shaping the analysis of nature-related risk, key takeaways from the GBF for investors, and an overview of related regulation and standard setting. We also summarize data and analytical tools from MSCI ESG Research designed to help investors and other capital-markets participants make biodiversity part of their investment and business strategies.

1 "Kunming-Montreal Global Biodiversity Framework." Convention on Biological Diversity," Dec. 18, 2022 available at https://www.cbd.int/article/cop15-final-text-kunming-montreal-gbf-221222

2 "Mechanism for planning, monitoring, reporting and review." Convention on Biological Diversity, Dec. 18, 2022.

Key Takeaways

1. Biodiversity loss endangers the global economy and society. More than half of the world's economic output depends on nature, which is threatened by human encroachment on habitats, overuse of natural resources, climate change, pollution and invasive species.
2. Investors face growing pressure to address nature-related financial risks. The GBF calls for companies and investors to "regularly monitor, assess and transparently disclose their risks, dependencies and impacts on biodiversity" throughout their operations, supply and value chains, and investment portfolios. Regulators may follow suit. The European Union, for example, has agreed to ban the sale of products derived from deforested land.
3. The GBF aims to boost private finance for nature-based solutions. It calls for mobilizing at least USD 200 billion per year by 2030 to restore and conserve biodiversity, including by using private finance, promoting blended finance, and encouraging the private sector to invest. It encourages use of green bonds, biodiversity offsets and credits, and taking advantage of "co-benefits and synergies" of finance that targets both the biodiversity and climate crises.
4. The GBF addresses the connection between climate change and biodiversity loss. It calls for minimizing the impact of climate change on biodiversity through nature-based solutions to reduce greenhouse gas emissions. It also calls for reducing pollution risks and the negative impact of pollution from all sources to levels that are not harmful to biodiversity, and ensuring that areas being farmed, fished or forested are managed sustainably.
5. The GBF adds impetus to the reporting of nature-related financial risk. That includes both voluntary frameworks, such as the one being developed by the Taskforce on Nature-related Financial Disclosures (TNFD), and mandatory ones, like the European Corporate Sustainability Reporting Directive.
6. Investment and business leaders will need to learn a whole new language. While biodiversity loss and climate change share common drivers, the crises need to be addressed in parallel, not in sequence. Measuring the impact of business and investment on biodiversity calls for companies and investors to consider how they interact with ecosystems that present biodiversity risks. It also demands data that links directly to specific geographical information.



What is biodiversity?

Biodiversity, short for biological diversity, means "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."[3] In short, biodiversity means biological diversity within and among species and ecosystems.

Though people often use the term biodiversity synonymously with nature and natural capital, the terms themselves refer to different things. Nature encompasses biodiversity together with the geology, water, climate and other inanimate components that exist on Earth. Natural capital refers to stocks of natural assets, including land, soil, air, water and living things.[4]

3 "The Convention on Biological Diversity." United Nations, 1992, available at https://www.cbd.int/convention/text/

4 "Biodiversity and Nature, close but not quite the same," Convention on Biological Diversity, available at https://www.cbd.int/idb/activities/difference-biodiversity-nature.pdf

Why biodiversity matters for investors

Nature underpins the global economy. More than half the world's economic output depends either highly or moderately on intact ecosystems and their benefits such as food and raw material supply, climate control, soil formation, water and air purification, and pollination.[5] Earth's biological diversity ensures healthy ecosystems and the functioning of natural processes.

Yet both biodiversity and ecosystems are dwindling at an unprecedented rate. Human activities have imperiled three-quarters of terrestrial ecosystems and two-thirds of the oceans.[6] Global populations of mammals, birds, amphibians, reptiles and fish have declined by an average of 69% since 1970; 1 million known species could go extinct within decades.[7] The destruction of natural habitats, overharvesting of resources, pollution, a changing climate and the introduction of invasive alien species are contributing to ongoing biodiversity loss.

A snapshot of dependencies and impacts

75% of global food crop types rely on pollination

40% of invertebrate pollinator species are threatened with extinction

60% of irrigated wheat production occurs in areas of extremely high water stress

50% of crops are at risk from soil erosion

23% of land globally has diminished productivity because of degradation

2 billion tons of CO2 emission are absorbed by forests every year, making forest ecosystems the largest terrestrial carbon sink

420 million hectares worldwide were lost to deforestation in the 30 years that ended in 2020

70% of cancer drugs are natural or inspired by nature

Sources: Food crop types: "The Global Assessment Report on Biodiversity and Ecosystem Services," Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2019. Pollinator extinction: "The Assessment Report on Pollinators, Pollination and Food Production, IPBES, 2016. Wheat production: World Resources Institute Aqueduct Food tool, wri.org. Soil erosion: "Let's #StopSoilErosion to ensure a food secure future," Food and Agriculture Organization of the United Nations, May 14, 2019. Degradation: IPBES report, supra. CO2 emissions: "The Global Forest Goals Report 2021," U.N. Department of Economic and Social Affairs, 2021. Land lost: "Global Forest Resources Assessment 2020," Food and Agriculture Organization of the United Nations. Cancer drugs: IPBES report, 2019.

5 "Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy," World Economic Forum (WEF), Jan. 19, 2020, available at https://www.weforum.org/reports/nature-risk-rising-why-the-crisis-engulfing-nature-matters-for-business-and-the-economy

6 The Global Assessment Report on Biodiversity and Ecosystem Services," Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2019, available at https://ipbes.net/global-assessment

7 "Living Planet Report 2022," World Wildlife Fund, Oct. 13, 2022, available at https://www.worldwildlife.org/press-releases/69-average-decline-in-wildlife-populations-since-1970-says-new-wwf-report. See also, IPBES report, note 4.

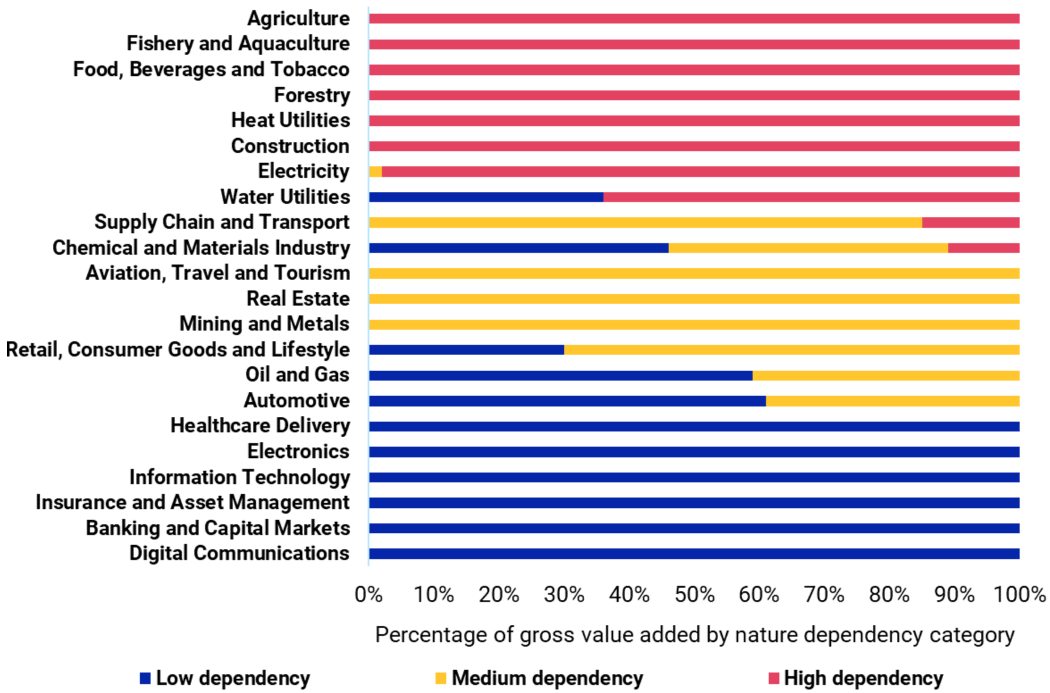
A continued loss could have worrying effects on both the planet and profits. For example:

- Fewer varieties and breeds of plants and animals mean that the ecosystems that support food production have less resilience to pests, pathogens and future warming.[8] More than one-third (35%) of global crop production and 75% of number of crops are partially dependent on pollinators.[9]
- The degradation of tropical forests could lead to the loss of undiscovered genetic material for the pharmaceutical industry.[10]
- Forests are a critical component of water security: More than 90% of cities and 75% of accessible freshwater sources depend on forested watersheds to filter sediment and nutrient pollution.[11]
- Production of rice, wheat and maize – staples for half the world's food– suffers annual losses of as much as 16% of total production due to invasive, nonnative species.[12]

Failure to account for, mitigate, and adapt to biodiversity makes nature increasingly unsuited for economic activity and jeopardizes financial stability.[13] At the same time, most lenders, companies and investors are accounting insufficiently for nature-related risks and opportunities.[14]

Roughly 150 financial institutions, representing more than USD 24 trillion in assets, called on delegates at COP15 to adopt a global framework for halting and reversing biodiversity loss.[15]

Dependencies of industries on natural capital



Sources: MSCI ESG Research, World Economic Forum and PwC. 2020. "Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy."

50% of global GDP is dependent on nature

75% of global food crops rely on animal pollination

50% of crops at risk due to soil erosion

8 See IBPES assessment, note 6

9 "How essential are pollinators for global food security? " Hannah Ritchie, Our World in Data, Aug. 2, 2021, available at https://ourworldindata.org/pollinator-dependence

10 See WEF report, note 5

11 "The Little Book of Investing in Nature," Global Canopy, Jan. 11, 2021, available at https://globalcanopy.org/insights/publication/the-little-book-of-investing-in-nature/

12 See WEF report, note 5

13 "NGFS acknowledges that nature-related risks could have significant macroeconomic and financial implications," Network for Greening the Financial System, March 24, 2022, available at https://www.ngfs.net/en/communique-de-presse/ngfs-acknowledges-nature-related-risks-could-have-significant-macroeconomic-and-financial

14 "Why nature-related risk and opportunity management matters," Taskforce on Nature-related Financial Disclosures, available at https://framework.tnfd.global/why-nature-related-risk-and-opportunity-management-matters/#_ftn1

15 "150 financial institutions, managing more than $24 trillion, call on world leaders to adopt ambitious Global Biodiversity Framework at COP15," UN Environment Programme, Dec. 13, 2022, available at https://www.unepfi.org/themes/ecosystems/cop15statement/

How biodiversity loss and climate change go together

Biodiversity loss and climate change go hand in hand. Forests, wetlands and oceans absorb an estimated 60% of annual global human-caused greenhouse gas emissions.[16] Intact ecosystems also protect against the consequences of climate change. Trees supply cooling during heat waves, for example, while flood plains and grasslands help to control flooding. Mangroves prevent coastal erosion, reduce the impacts of storms, and absorb carbon from the atmosphere.[17]

Climate change is a direct driver of biodiversity loss. Extreme drought destroys the habitats of species and disrupts growing seasons. Rising sea levels threaten coastal areas. Carbon dioxide in the atmosphere acidifies the ocean. Global warming reduces the habitats of certain species. Even with warming of between 1.5° and 2°C, the ranges for a majority of terrestrial species are projected to shrink dramatically.[18]

While food systems and the clearing of land for farmland and grazing are the biggest threat to nature, climate change is likely to become the dominant threat if we are unable to constrain global warming in line with science-based thresholds.[19] The loss of biodiversity worsens climate impacts, as natural carbon sinks disappear.

16 See IPBES assessment, note 6

17 “5 facts about mangroves and why we must protect them,” UN Environment Programme, July 2020, available at https://www.unep-wcmc.org/en/news/5-facts-about-mangroves-and-why-we-must-protect-them

18 See IBPES assessment, note 6

19 See WWF report, note 5. See also, “Global Land Outlook, Second Edition,” United Nations Convention to Combat Desertification, 2022, available at https://www.unccd.int/resources/global-land-outlook/glo2.

Main drivers for biodiversity loss

Changes in land and sea use	30%	Agricultural, urban and infrastructure expansion
Overexploitation of organisms	23%	(Over-) use of animals, plants, and other organisms
Climate change	14%	Extreme weather events, fires, floods droughts, sea level rise
Pollution	14%	Air, water and soil pollution
Invasive alien species	11%	Plant and animal invasions impacting native species and ecosystem functions

Sources: MSCI ESG Research and IPBES report

Key provisions of the GBF for investors

The GBF lays out four overarching goals for conserving and restoring biodiversity and natural ecosystems by 2050, and 23 specific targets for action this decade. The following summary covers provisions of significance for investors and other capital-markets participants.

- Preserving 30% of Earth's land and water. That includes effectively restoring 30% of degraded ecosystems and effectively conserving and managing 30% of both land and oceans, all by 2030. (Targets 2 and 3)
- Boosting investment in nature-based solutions. The GBF aims to close "the biodiversity finance gap of 700 billion dollars per year" and align financial flows with the GBF and the 2050 vision for biodiversity, which calls for urgent action to halt and reserve biodiversity loss to put nature on a path to recovery for the benefit of people and the planet. (Goal D). The mechanism envisions countries receiving compensation for designating biodiversity-rich areas for protection.
- Mobilizing USD 200 billion a year for biodiversity finance. The GBF calls for producing this investment by 2030 from both public and private sources, including by:
  - "Leveraging private finance, promoting blended finance, implementing strategies for raising new and additional resources, and encouraging the private sector to invest in biodiversity, including through impact funds and other instruments," and by
  - "Stimulating innovative schemes such as payment for ecosystem services, green bonds, biodiversity offsets and credits, benefit-sharing mechanisms, with environmental and social safeguards." (Target 19)
  - The agreement could lead to more development aid as well as blended capital earmarked for conservation.
- Reducing pollution risks from all sources by 2030 to levels that are not harmful to biodiversity, as well as cutting the overall risk from pesticides and highly hazardous chemicals by at least half. (Target 7) The provisions could increase pressure on the agriculture, chemicals, mining, or oil and gas industries, for example, to develop more overarching programs for toxic-waste management and disposal.
- Ensuring that areas under agriculture, aquaculture, fisheries and forestry are managed sustainability, including through the use of biodiversity-friendly practices that contribute to long-term resilience and food security. (Target 10)
- Ensuring the full integration of biodiversity into regulation and financial flows, including aligning all public and private activities, fiscal and financial flows with the goals and targets of the GBF. (Target 14)
- Encouraging businesses and investors to measure and report their effects on biodiversity. The GBF calls for multinational companies and financial institutions to:
  - Regularly measure and report their biodiversity-related risks, dependencies and impacts, including throughout their operations, supply and value chains, and portfolios;
  - Supply information needed to consumers to promote sustainable consumption patterns; and

- Report on compliance, in order to reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks, and promote actions to ensure sustainable patterns of production. (Target 15)
- While the GBF leaves to national regulators the specifics of such disclosures, emerging frameworks in Europe and the U.S. echo this directive

» Phasing out harmful subsidies. The GBF calls for identifying by 2025 subsidies that are harmful for biodiversity, while substantially and progressively reducing them by at least USD 500 billion per year by 2030, starting with the most harmful incentives while scaling positive incentives for conservation and sustainable use. (Target 18)

» Mobilizing USD 200 billion a year for biodiversity finance from all sources. The GBF calls for producing this investment by 2030 from both public and private sources, including by:

- "Leveraging private finance, promoting blended finance, implementing strategies for raising new and additional resources, and encouraging the private sector to invest in biodiversity, including through impact funds and other instruments," and by
- "Stimulating innovative schemes such as payment for ecosystem services, green bonds, biodiversity offsets and credits, benefit-sharing mechanisms, with environmental and social safeguards." (Target 19)

Select GBF provisions of significance for companies and investors

Target	Summary	GBF targets
Protecting land and seas for nature	Restore and effectively conserve at least 30% of degraded land, freshwater and marine ocean ecosystems by 2030	2 and 3
Protecting wildlife	Halt human-caused extinction of threatened species; reduce rates of known or potential invasive species by at least 50% by 2030; ensure sustainable management and use of wild species	4, 5, 6 and 9
Reporting on biodiversity effects	Multinational companies and financial institutions to measure and report their biodiversity-related risks, dependencies and impacts; supply information to consumer to promote sustainable consumption; halve global food waste	15 and 16
Integrate biodiversity into financial flows	Align all public and private activities and financial flows with the goals and targets of the GBF	14
Mobilize USD 200 billion a year for biodiversity finance by 2030	Including by leveraging private finance, promoting blended finance, and encouraging the private sector to invest in biodiversity through impact funds and other instruments, ensure that the best available biodiversity data is available to practitioners and the public	19, 21
Sustainable farming	Areas under agriculture, aquaculture, fisheries and forestry should be managed sustainably; identify by 2025 subsidies that are harmful for biodiversity and reduce them by at least USD 500 billion per year by 2030	10, 18
Reduce pollution risks from all sources by 2030	Reduce the overall risk from pesticides and highly hazardous chemicals by at least half	7

Source: Kunming-Montreal Global Biodiversity Framework

The GBF could energize reporting of nature-related financial risk

The TNFD is developing a voluntary framework for reporting of nature-related financial risks by companies and investors.[20] The draft framework, which the TNFD anticipates completing by September, recognizes that nature is an asset, and that the interactions of businesses with nature presents both risks and opportunities.

- The framework, which is modeled on the framework developed by the TCFD, would standardize reporting by businesses and investors with respect to nature-related governance, strategy, risk and impact management, as well as metrics and targets used to assess nature-related dependences, impacts, risks and opportunities.
- The framework emphasizes the critical importance of location. It includes a disclosure that requires companies and investor to consider how they interact with ecosystems that present high risks.
- The framework is designed for compatibility with global disclosure standards being developed by the International Sustainability Standards Board (ISSB) and approaches in varied countries. The ISSB stated it would incorporate the TNFD framework into global climate- and sustainability-related disclosure standards that it plans to issue this year.[21]
- The German government announced during COP15 it would contribute EUR 29 million to support the TNFD's efforts to build market awareness and organizational capabilities.[22]

20 "Developing and delivering a risk management and disclosure framework for organizations to report and act on evolving nature-related risks," TNFD, available at https://tnfd.global/

21 "ISSB describes the concept of sustainability and its articulation with financial value creation, and announces plans to advance work on natural ecosystems and just transition," ISSB, Dec. 14, 2022, available at https://www.ifrs.org/news-and-events/news/2022/12/issb-describes-the-concept-of-sustainability/

22 "Strategic support and market engagement," TNFD. Dec. 15, 2022, available at https://tnfd.global/news/strategic-support-and-market-engagement/

The TNFD is among a series of initiatives designed to help investors measure and report on nature-related risks.

- One-hundred- twenty-six financial institutions that manage EUR 18.8 trillion in assets have signed the Finance for Biodiversity Pledge, which commits them to protect and restore biodiversity through their activities and investments by engaging with companies, setting targets and assessing impact.[23]
- At least 10 leading asset owners and managers have teamed to form Nature Action 100.[24] The initiative, which is co-led by Ceres and the Institutional Investors Group on Climate Change, will make nature-related risk and dependencies part of its engagement with portfolio companies.
- The Science Based Targets Network, an international partnership of nongovernmental organizations, is planning to publish methodologies for biodiversity targets that build on the climate-related momentum of the Science Based Targets initiative.[25]
- The Partnership for Biodiversity Accounting Financials (PBAF), a sister initiative of the Partnership for Carbon Accounting Financials (PCAF), has developed a standard designed to help financial institutions assess biodiversity impact.[26]
- ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure), a tool developed by the Natural Capital Financial Alliance and the U.N. Environment Programme World Conservation Monitoring Centre, is developing models to help financial institutions align their portfolios with global biodiversity goals.[27]

23 "Finance for Biodiversity Pledge," available at https://www.financeforbiodiversity.org/

24 "At COP15, investors announce Nature Action 100 to tackle nature loss and biodiversity decline," Nature Action 100, Dec. 11, 2022, available at https://www.natureaction100.org/at-cop15-investors-announce-nature-action-100-to-tackle-nature-loss-and-biodiversity-decline/

25 "A message from COP15: Don't wait for better data to act," ESG Clarity, Dec. 16, 2022, available at https://esgclarity.com/a-message-from-cop15-dont-wait-for-better-data-to-act/

26 "The PBAF Standard enables financial institutions to assess and disclose impact and dependencies on biodiversity loans and investments," Partnership for Biodiversity Accounting Financials, available at https://pbafglobal.com/

27 "Exploring Natural Capital Opportunities, Risks and Exposure," ENCORE, available at https://encore.naturalcapital.finance/en

Nature-related risks are a growing focus for regulators

Financial regulators and standards setters are sharpening their focus on biodiversity and nature-related risks. While the European Union leads in terms of granularity, the U.S., the U.K. and other countries are beginning to bring nature-related risk within their regulatory frameworks as well.

European Union

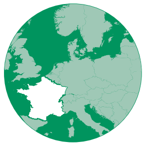
- **Biodiversity strategy for 2030.** The EU has mapped out a comprehensive long-term plan to protect nature and revise the degradation of ecosystems. It includes, among other provisions:
  - Establishing a common classification of economic activities that substantially contribute to protecting and restoring biodiversity and ecosystems;
  - Ensuring that the financial system contributes to mitigating risks to biodiversity and better reflects how biodiversity loss affects companies' profitability and long-term prospects; and
  - Promoting tax systems and pricing that reflect environmental costs, including biodiversity loss.[28]
- **Deforestation-free products.** Companies must ensure that goods sold in the EU have not been produced on land anywhere in the world that has been deforested or degraded after 2020.[29]
  - The requirement extends to financial institutions, with the goal of ensuring their activities do not contribute to deforestation.
- **Reporting requirements.** Both the Sustainable Finance Disclosure Regulation (SFDR) and EU Taxonomy include biodiversity reporting requirements.[30]
- **Sustainability Reporting Standards** being developed by the European Financial Reporting Advisory Group include specific biodiversity and ecosystem-related disclosures.[31]

28 "EU Biodiversity Strategy for 2030," European Commission, May 20, 2020, available at https://commission.europa.eu/document/020f7141-d73d-4191-853e-c5918a52f9f3_en

29 "Deal on new law to ensure products causing deforestation are not sold in the EU." European Parliament, Dec. 6, 2022, available at https://www.europarl.europa.eu/news/en/press-room/20221205IPR60607/deal-on-new-law-to-ensure-products-causing-deforestation-are-not-sold-in-the-eu

30 "Sustainable Finance FAQs," MSCI ESG Research, December 2021, available at https://www.msci.com/documents/1296102/21626434/Sustainable-Finance-FAQ.pdf

31 "Draft European Sustainability Reporting Standard E4 Biodiversity and Ecosystems," European Financial Reporting Advisory Group, available at https://www.efrag.org/Assets/Download?assetUrl=%2Fsites%2Fwebpublishing%2FSiteAssets%2FESRS%2520E4%2520on%2520biodiversity%2520and%2520ecosystems.pdf



France

» **Biodiversity targets and disclosure.** Article 29 of the Energy-Climate Law directs financial firms to publish biodiversity-related risks, including:

- » The main biodiversity-related risks arising from their investments;
- » Whether the risk is specifically related to a particular geographical area;
- » The process for finding and managing nature-related risks, including how such risks are integrated into entities' risk-management frameworks; and
- » Information about how their strategy aligns with long-term biodiversity goals, including how they measure compliance with global biodiversity targets.[32]

The U.K.

» **Prohibition of illegal deforestation in supply chains.** The Environment Act bars covered businesses from using commodities produced on land used or occupied illegally.[33]

- » A consultation on implementing regulations concluded in March 2022. The rules make up part of a wider package of measures to improve the sustainability of supply chains.

32 "Publication of the implementing decree of Article 29 of the Energy-Climate Law on non-financial reporting by market players," Ministry of Economics, Finance and Industrial and Digital Sovereignty, Republic of France. June 18, 2021, available at https://www.tresor.economie.gouv.fr/Articles/2021/06/08/publication-of-the-implementing-decree-of-article-29-of-the-energy-climate-law-on-non-financial-reporting-by-market-players

33 "Implementing due diligence on forest risk commodities," Department for Environment Food & Rural Affairs, UK Government, Sept. 6, 2022, available at https://consult.defra.gov.uk/international-biodiversity-and-climate/implementing-due-diligence-forest-risk-commodities/

Overview of key regulations on deforestation-free products

Regulation	EU Regulation on deforestation-free products	UK Environment Act	U.S. Forest Act
Status	December 2022: EU Commission and parliament reached agreement; formal adoption pending	Passed November 2021	Proposed, November 2021
Deforestation covered	Illegal and legal (after Dec. 31, 2020)	Illegal	Illegal
Commodities covered	Palm oil, cattle, soy, coffee, cocoa, timber, rubber, as well as derived products such as beef, furniture or chocolate	Palm oil, beef, leather, cocoa, coffee, maize (tentative), rubber, soy	Palm oil, rubber, cattle, leather, cocoa, wood, pulp, soy
Applies	Import, sale, export of foreign and domestic commodities and products based on those prohibited commodities	Import, sale, processing or distribution of foreign or domestic commodities	Import of foreign commodities
Due diligence/risk assessment	Focus on due diligence for high-risk countries	Due diligence	Due diligence for high-risk countries

Source: MSCI ESG Research

The U.S.

- The Biden administration is creating a national strategy and system to account for water, soil and other natural assets.[34]
    - The administration expects that the private sector will speed transformation of its own balance sheets to create similar accounting, and that stewardship of natural capital could enhance the creditworthiness of landowners.
    - The initiative will draw on data from ESG disclosures of listed companies, among other sources.
- **Climate disclosure rules proposed by the Securities and Exchange Commission (SEC)** direct U.S.-listed companies that have set targets related to conservation or the restoration of ecosystems to publish such targets and how they intend to meet them.[35]
- **Legislation pending in Congress** would make it unlawful to import goods derived from illegally deforested land.[36]

34 “Fact Sheet: Biden-Harris Administration Releases National Strategy to Put Nature on the Nation’s Balance Sheet,” U.S. Department of Commerce, Jan. 19, 2023, available at https://www.commerce.gov/news/press-releases/2023/01/fact-sheet-biden-harris-administration-releases-national-strategy-put

35 “The Enhancement and Standardization of Climate-Related Disclosures for Investors,” Securities and Exchange Commission, March 21, 2022, available at https://www.sec.gov/rules/proposed/2022/33-11042.pdf

36 “S. 2950 – FOREST Act of 2021, “ 117th Congress (2021-2022), available at https://www.congress.gov/bill/117th-congress/senate-bill/2950

How MSCI can help

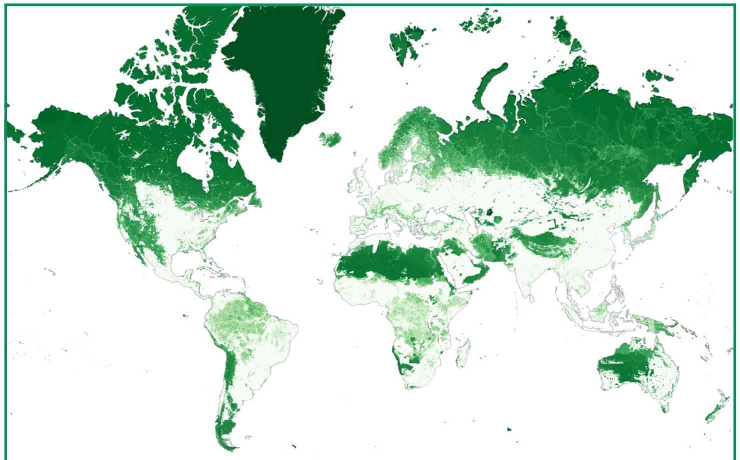
Data and analytical tools from MSCI ESG Research help investors see biodiversity- and nature-related risks more clearly. Pension funds, asset managers, companies, banks and insurers can use our solutions to measure and report on biodiversity- and nature-related risk, set targets and track progress.

Flag companies with nature-related exposures

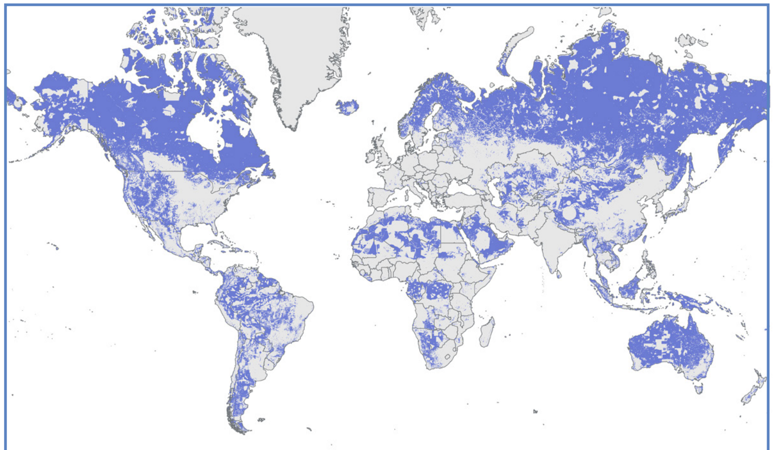
MSCI's Biodiversity-Sensitive Areas Screening

Metrics flag companies with physical assets in healthy forests, deforestation fronts or species-rich areas. The metrics, which merge ESG and geospatial data, aim to equip investors to minimize nature-related risks in their portfolios.

Biodiversity-sensitive area layers: Biodiversity intactness, prime areas for conservation



Biodiversity intactness
Mean species abundance: above average (>=0.56)



Prime areas for conservation
(Global safety net layers by Global Safety Net - One Earth)

Note: MSCI Biodiversity-Sensitive Areas Screening Metrics uses Global Safety Net (GSN) data to identify prime areas for conservation. A select set of the GSN layers is used to represent Distinct Species Assemblages, Rare Phenomena, and Biodiversity Intactness. Global Safety Net (GSN) is developed by the non-profit organization One Earth to support the goal to protect 30 percent of the Earth's lands and waters by 2030 and 50 percent by 2050. The six layers making up the GSN cover approximately 50 percent of the Earth's land and can act as a blueprint to address the twin crises of biodiversity loss and climate change. Source: Schipper, Aafke M., "Projecting terrestrial biodiversity intactness with GLOBIO 4", Nov. 3, 2019, Dinerstein, E. et al., "A "Global Safety Net" to reverse biodiversity loss and stabilize Earth's climate", Sep. 4, 2020.

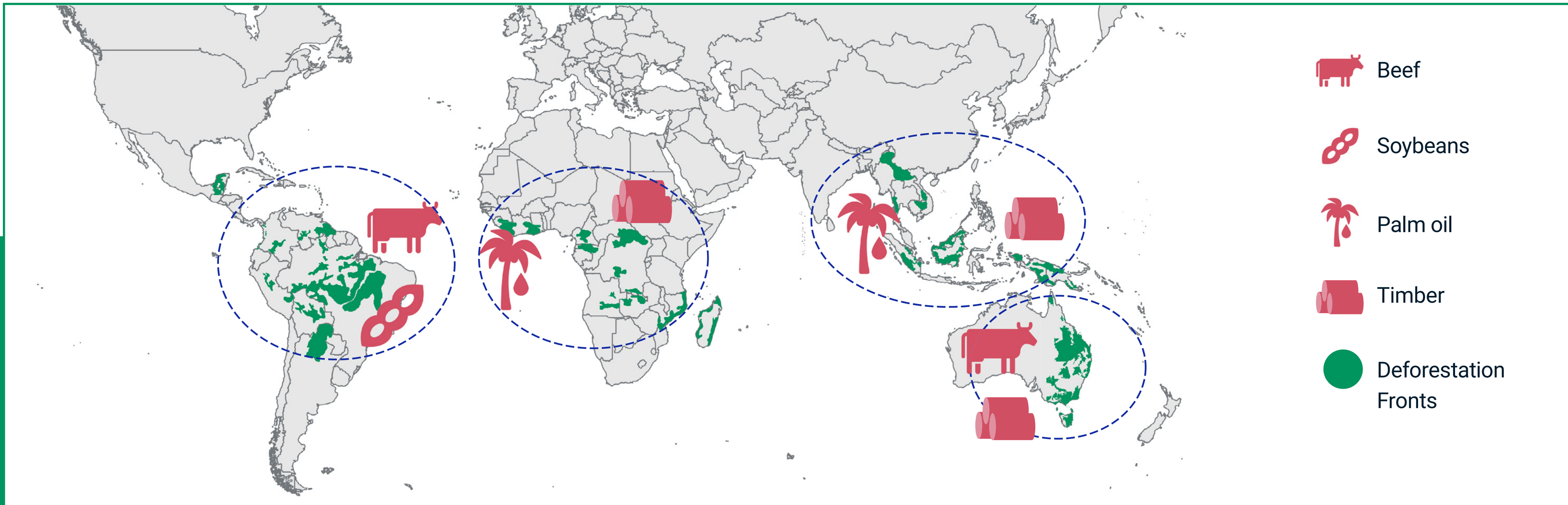
Address deforestation risk

Addressing deforestation risk is a critical first step for investors in halting biodiversity decline.

MSCI's Deforestation Screening Metrics show companies that are contributing directly or indirectly to forest loss.

Both our Biodiversity-Sensitive Areas and Deforestation Screening Metrics combine thousands of asset data points, overlaid with our proprietary location-specific biodiversity metrics to add greater clarity and focus for investors.

Main production locations for deforestation-prone commodities and deforestation fronts



Sources: "Deforestation fronts: Drivers and responses in a changing world report". World Wide Fund For Nature (WWF). 2021. "Global assessment report on biodiversity and ecosystem services." IPBES. 2019.

Measure your portfolio's nature-related impact

MSCI clients have access to biodiversity impact metrics from NatureAlpha, which has teamed with MSCI ESG Research to supply data and analytics for understanding nature impacts and risks. Nature Alpha's Biodiversity Impact Score and factors measure a company's short-, medium- and long-term impacts on biodiversity and supply a rules-based methodology that can help investors rank industry leaders and laggards according to their exposures.

How investors can use MSCI's biodiversity solutions

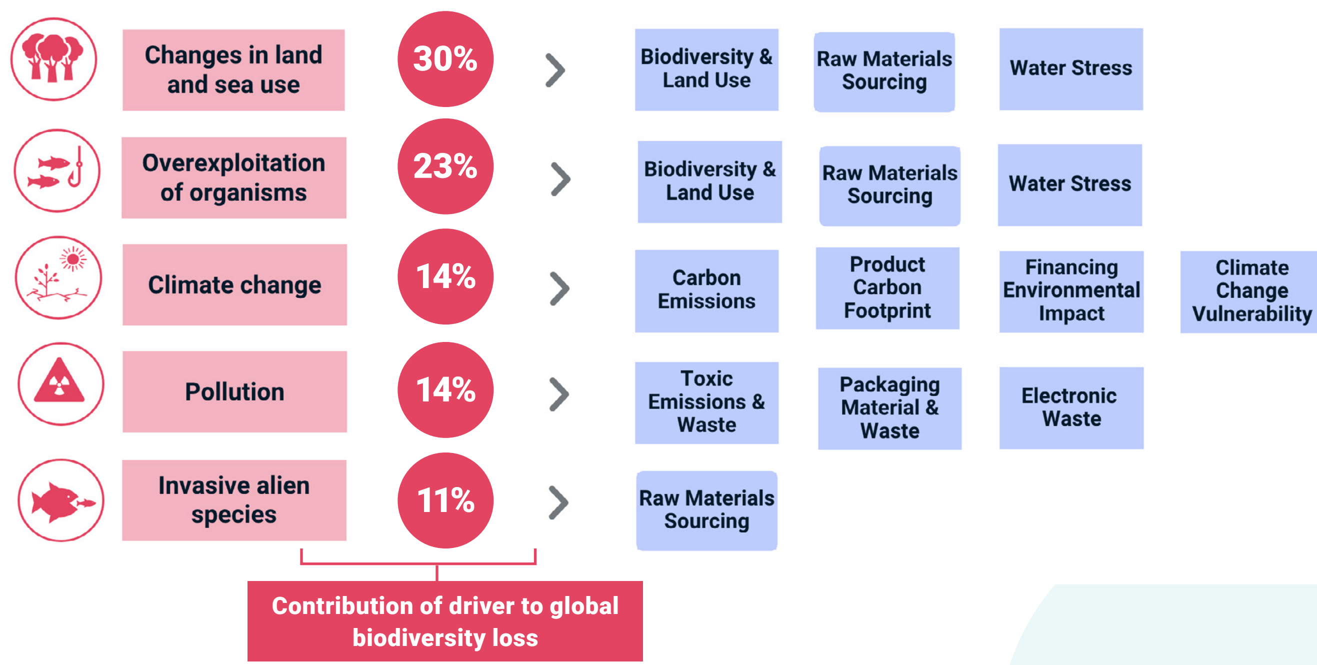
Asset owners	Asset managers	Banks	Insurers
» Identify holdings at risk » Measure nature-related impacts » Regulatory reporting » Risk management » Engagement	» Identify companies at risk of contributing toward deforestation » Risk management » Engagement » Exclusion-based investing » Regulatory reporting	» Gain insight into risk profile of loans and investments to better identify and manage risk of contributing toward deforestation » Regulatory reporting	» Assess the impact of biodiversity risk in the general account » Better understand potential liabilities » Risk management

Deepen insight into drivers of biodiversity loss

MSCI ESG Ratings factor companies' exposure and management of biodiversity-linked key issues such as biodiversity and land use, raw material sourcing, and toxic emissions and waste. Clients could use Key Issues and underlying metrics to gauge companies' exposure to biodiversity impacts and their related risk-management ability.

Main drivers for biodiversity loss

MSCI ESG Key Issues



Identify nature-related controversies and sensitive activities

MSCI ESG Controversies data helps investors flag companies involved in illegal logging, pollution, supply-chain management or financing of projects of environmental concern, based on prompt and consistent assessments of ESG controversies involving listed companies and corporate bond issuers.

Business Involvement Screening from MSCI ESG Research supplies information on global equity and fixed income issuers involved in business activities that could be linked to biodiversity loss such as the production of biocides, palm oil or fossil fuels.

Company Flag	Flag Description
	Red Flag: indicates that a company is directly involved in one or more very severe controversies that has not yet been remediated
	Orange flag: indicates that a company has either settled most of the stakeholders' concerns related to its involvement to a very severe controversy or continues to be involved in a very severe controversy related to its business partners or directly involved in one or more severe cases
	Yellow flag: indicates that a company has either settled most or all of stakeholders' concerns related to its involvement in severe or very severe controversy cases, or is directly implicated in one or more cases that are considered to be of moderate severity
	Green flag: indicates that a company is not directly involved in any major controversies, but may be implicated in some minor incidents or practices with potential adverse impact

See companies that are acting to protect biodiversity

MSCI ESG Sustainable Impact Metrics and MSCI SDG Alignment help investors find companies with the potential to counter biodiversity loss through products focused on areas such as sustainable agriculture or pollution prevention. The tools assess companies' alignment with the U.N. Sustainable Development Goals, including those linked to protection of biodiversity.

Overall	Basic needs				Empowerment		
Social Impact	Nutrition	Major Diseases Treatment	Sanitation	Affordable Real Estate	SME Finance	Education	Connectivity

Overall	Climate change			Natural Capital		
Environmental Impact	Alternative Energy	Carbon & Energy Efficiency	Green Building	Sustainable Water	Pollution Prevention	Sustainable Agriculture

Navigate EU biodiversity reporting requirements

Our MSCI EU Sustainable Finance Module includes SFDR Adverse Impact Metrics and EU Taxonomy data and metrics for more than 10,000 corporate equity and fixed income issuers that are designed to support and simplify reporting requirements. The data may help clients navigate such regulatory frameworks as the SFDR and Article 29 of the French Law on Energy and Climate, which requires financial institutions to publish biodiversity-related risks.

Explore our biodiversity solutions

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